SCOTTISH HOSPITALS INQUIRY

Closing Submission Bundle
Edinburgh 3 – February 2024 Hearing

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Scottish Hospitals Inquiry

Royal Hospital for Children and Young People/ Department of Clinical Neurosciences

Closing Statement by Counsel to the Inquiry

Hearing commencing on 26 February 2024 covering the period from financial close to the Opening of the Hospital

Introduction

1. These closing submissions cover the period from financial close until the opening of the Hospital. They seek to address the issues highlighted by the Chair in Direction 6. They do not repeat the points covered in our submission of 2 June 2023.

2. The closing submissions shall address:

    1. The task of the Chair and the approach to the evidence

    2. An overview of the themes which emerge from the evidence

    3. The list of topics

    4. The questions posed in Terms of Reference 1-12 ("the TOR")

    5. Potential recommendations

3. The Chair is invited to make findings in fact based on the analysis in sections 3 and 4. We have not included a separate section on findings in fact to avoid duplication.

4. In addition to the witness evidence and associated documentation considered at the hearing diet, a further five provisional position papers (PPPs) have been produced by

the Inquiry Team. A lot of detailed background information is set out in these documents. The PPPs, and the responses from Core Participants, should be considered by the Chair in addition to these closing submissions.

5. The submissions focus on the issue of ventilation (air changes and pressure parameters), which was covered at the hearings diet. Other ventilation issues that had the potential to impact on patient safety and care are set out in the Note to PPP 7. Other non-ventilation issues, concerning the built environment, that had the potential to impact on patient safety and care, are set out in PPP 7. The Chair is invited to find that the issues covered in PPP 7 and the accompanying Note had the potential to impact adversely on patient safety and care but were not the cause of the delay in the Hospital opening and that these issues have been rectified.

6. We wish to highlight at the outset that it is not the function of the Inquiry to make any determination about parties' rights and obligations, or to resolve disputes between them as to the meaning of documents, particularly the correct interpretation of contractual provisions.

Executive Summary

7. The genesis of the problems that ultimately resulted in the RHCYP/DCN not opening as planned was an error in a technical spreadsheet called an environmental matrix. The status of that document in the final contract is controversial. Ambiguity in the terms of the final contract contributed to a situation where there was a disconnect between what NHSL wanted the ventilation system to achieve and what the successful tenderer believed the ventilation system required to achieve. A misunderstanding as to whether the environmental matrix was a fixed brief (intended to form the basis for the design of the ventilation system) or a document upon which no reliance could be placed by IHSL, Multiplex and Wallace Whittle is at the heart of the matter. That issue continued to cause significant problems in the period after financial close.

8. The Project Agreement reflected the unresolved status of the environmental matrix. The matrix was included in it as a schedule, and the Board's Construction Requirements

prima facie required compliance with it. An express derogation in the contract excused that compliance because the matrix was known to feature anomalies. As reviewable design data, the matrix was, after financial close, to be submitted by Project Co (IHSL) to NHSL for approval. The schedule which gave the matrix status as reviewable design data suggested the matrix was part of Project Co's Proposals. By treating the matrix in part as if it were one of NHSL's requirements, and in part as if it were one of the contractor's proposals, the Project Agreement reflected the confusing presentation of the matrix in the tender documents.

9. This was an unsatisfactory basis for finalising the ventilation design. There was a lack of clarity in terms of whether the document was the brief or the design solution to the brief. The lack of a finalised document clearly setting out the technical requirements for the ventilation, at financial close, was at the root of the problems with the project. The project exemplifies the difficulties associated with making significant changes to technical specifications after financial close in revenue funded projects.

10. In the period after financial close, a dispute arose between NHSL and IHSL in relation to the pressure regime in certain rooms. The dispute was resolved and the resolution recorded in Settlement Agreement 1 ("SA1"). This clarified the pressure and air change rates to be achieved in the disputed rooms. NHSL were assisted by Mott MacDonald Limited ("MML") in drafting the technical schedule. However, MML informed NHSL that it could not take design responsibility for the revised solution set out in the agreement. Once again, there was a lack of clarity in terms of whether the parties were setting out NHSL's brief (for which it would be reasonable for NHSL to expect assistance from the technical advisors that had been engaged since the reference design stage of the project) or agreeing a design solution to that brief (which the technical advisors could not assist with without a change to their remit and a fundamental departure from the standard risk profile of the revenue funded model which places design risk with the project company).

11. It would be understandable for MML to refrain from taking design responsibility for the contractor's solution. It is less clear why MML would not take responsibility for a brief it was assisting a client to draft. That is particularly so given that MML had, at an earlier stage in the project, assembled the reference design documents and confirmed

(based on confirmation from Hulley & Kirkwood) that the environmental matrix complied with all relevant guidance, including SHTM 03-01. A situation appears to have arisen whereby NHSL considered it was getting technical advice and assurance from MML (albeit MML were not shadow designers and were not therefore taking full design responsibility) while MML considered it was not providing any such assurance as doing so would be contrary to the principles of the NPD model and would involve MML going beyond their remit.

12. This links in to a wider theme on the project. It was not always clear exactly what precise role MML were playing. In particular, it was not clear whether MML were providing NHSL with formal advice at various key stages of the project, including on the technical requirements set out in SA1.

13. NHSL's infection prevention and control team ("IPC") were heavily involved at the early stages of the project. The extent of their involvement post-financial close, the advice they gave on aspects of the project (if any), and the information basis on which they did so is, however, unclear and not formally recorded. IPC do not appear to have been consulted on the final technical solution agreed for the multi-bed rooms, or on the other ventilation technical solutions recorded in SA1. There was a failure to fully implement the "*partnership*" model of working, set out in SHFN 30, under which all relevant disciplines should be involved in key decisions on a project.

14. SA1 was signed on 22 February 2019. However, agreement in relation to the works to be carried out to the ventilation system was reached in 2018. The works on the ventilation system were completed by IHSL in 2018. On 31 January 2019, IHSL issued a letter stating that there was compliance with SHTM 03-01. The letter reflected NHSL's understanding of the position, subject to derogations of which they had been made aware for ventilation in the neutropenic ward and for the mixed mode strategy under which the recommended 6 air changes were reduced to 4. In those circumstances, and given the terms of the letter, it is not surprising that NHSL did not seek further assurance. The Chair may wish to consider whether some independent advice should have been sought on the technical resolutions in SA1 before it was signed or whether that would have been unnecessary and disproportionate.

15. SA1 was signed against a backdrop of financial pressure on IHSL. The company had significant debt obligations it required to service but, due to project delays, no regular income to service the payments. There was a risk of the company entering insolvency, which could ultimately have resulted in NHSL or the Scottish Government having to pay £150m for the hospital.

16. NHSL failed to follow the HAI-SCRIBE procedures. SA1 was concluded, and the hospital was handed over to NHSL, without the Stage 4 HAI-SCRIBE procedure being completed. The Stage 4 HAI-SCRIBE procedure should have been completed before handover. Further, the fact that SA1 involved technical resolutions to briefing and design issues, NHSL should arguably have gone back and completed the Stage 2 HAI-SCRIBE procedure.

17. The hospital was due to open on 9 July 2019. NHSL's IPC team insisted on seeing a report that confirmed compliance with SHTM 03-01 before they could complete the stage 4 HAI-SCRIBE. Testing was carried out by IOM Limited which identified that certain rooms in critical care did not have positive pressure and 10 air changes per hour. As a result of this testing, the stage 4 HAI-SCRIBE report could not be signed off at that time.

18. When steps were taken to complete the Stage 4 HAI-SCRIBE in June 2019, the issues with the hospital ventilation system were detected. Had the HAI-SCRIBE procedure been completed before SA1 was signed, there is the possibility that the issues with the ventilation system would have been detected sooner than they were (in February 2019 instead of June 2019). Therefore, the failure to follow the standard procedure can be viewed as a missed opportunity. However, by that point in time, the system had already been built. Earlier detection might have mitigated the disruption to some extent, but it would still have been necessary to carry out remedial works.

19. The Cabinet Secretary made the decision not to open the hospital on 4 June 2019. This was on the basis that non-compliance with SHTM 03-01 was equated with a risk to patient safety.

20. In the period that followed, a further settlement agreement was concluded. The final requirements for the ventilation system are set out in High Value Change Notice 107 ("HVC 107") and Settlement Agreement 2. HVC 107 and Settlement Agreement 2 required the ventilation system in the critical care and haematology/oncology bedrooms to achieve 10 air changes per hour with positive pressure. The final system was tested by IOM Limited and was found to be achieving these parameters. This is confirmed by Mr Maddocks in his expert report. The ventilation system fully complies with SHTM 03-01. The hospital provides a suitable environment for the provision of safe and effective patient centred care.

21. The Inquiry has seen no evidence indicating any deliberate concealment or failure to disclose wrongdoing. There were changes that were made to Guidance Note 15 of the environmental matrix. These changes were not expressly drawn to the attention of NHSL. However, the Chair is not invited to find that this amounts to deliberate concealment or a failure to disclose wrongdoing.

22. The issues on the project arose from a lack of clarity in the brief. The problems with the specification were not detected through the process of developing the ventilation solution, or when SA1 was signed. The issue was detected at a late stage, after handover, as the standard HAI-SCRIBE procedures were not followed before handover. However, the problems were identified, before patients were admitted to the hospital, as a result of NHSL's belated implementation of the HAI-SCRIBE procedure. The non-compliance with published guidance has been rectified and the hospital is safe for patients.

1. The task of the Chair and the approach to the evidence

23. We addressed the task of the Chair at paragraphs 24 to 32 of the closing submissions dated 2 June 2023. Those comments apply equally to this submission.

24. Many witnesses gave evidence by written statement and oral evidence. It is submitted that all witnesses were endeavouring to assist the Inquiry.

25. Mr Brian Currie, NHSL's project director, provided a written statement but was unable to give oral evidence. This was through no fault of Mr Currie, the NHS's Central Legal Office or the Inquiry Team. Mr Currie would likely have provided a counterpoint to the evidence of several other witnesses (particularly witnesses that worked for IHSL and Multiplex). As a matter of fairness, the Chair should bear this in mind when assessing the evidence.

26. A number of witnesses gave evidence in relation to the meaning of the Project Agreement and the two settlement agreements. Witnesses did this to seek to be helpful to the Inquiry and to provide context to the wider views expressed. However, while the views of witnesses on the intention behind certain provisions may be relevant to the issues the Chair requires to determine, we would respectfully submit that the Chair should disregard the subjective views of witnesses in relation to the meaning of various documents. These should be assessed objectively.

27. The Chair will require to consider contractual documents, including the Project Agreement and the two settlement agreements, to address the TOR. The Chair should avoid making any determination on any liability arising under any contract or otherwise (Inquiries Act 2005 (the "2005 Act"), section 2(1)). However, the Chair should not be inhibited in the discharge of his functions by any likelihood of liability being inferred from facts he determines or recommendations he wishes to make (2005 Act, section 2(2)).

2. Key Themes

28. The following Key Themes/ Issues emerged at the hearing:

    1. The lack of a clear brief set by NHSL

    2. The status of published guidance

    3. The interpretation of published guidance

    4. Compliance with published guidance

    5. The role of advisors

    6. The role of infection prevention and control

    7. Adequacy of Governance – NHSL

    8. Adequacy of Governance – Scottish Government

    9. The suitability of the NPD model

1. The lack of a clear brief set by NHSL

29. Many of the problems that arose after financial close resulted from events prior to financial close. The Project Agreement contained contradictory provisions in relation to NHSL's requirements. These issues became acute post-financial close. There was a lack of clarity in the relationship between the Board's Construction Requirements and the Environmental Matrix. This problem began at the procurement stage and continued after financial close through the reviewable design data procedure.

30. When the parties agreed a compromise to the dispute over pressure, there was confusion as to whether it was a change to the brief itself or a change to the solution to meet the

brief. Had the brief been clearly stated before financial close, such issues would not have arisen.

2. The status of published guidance

31. SHTM 03-01 is published guidance. It sets out a range of parameters for hospital ventilation, including pressure cascades and air changes per hour. There is no absolute legal obligation to comply with it. This was a matter of the parties' contract which contained ambiguous and contradictory provisions.

3. The interpretation of the published guidance

32. A common theme that emerged at the hearings was the difficulty of taking published guidance and requiring compliance with it in a contract. That is due to the fact that guidance can be open to interpretation and require difficult judgments to be made on what the guidance requires. Stating that there must be "*compliance*" with a document that is open to interpretation will not always provide sufficient certainty about the necessary requirements.

33. The Chair may wish to address whether the requirements of SHTM 03-01 for critical care and isolation rooms were ambiguous, and open to differing interpretation, such that this was at the root of the problems with the project.

34. Mr McKechnie had a particular interpretation of SHTM 03-01. Mr McLaughlin of HFS disagreed with the interpretation. Mr Maddocks also disagreed and accepted the description of Mr McKechnie's views as an outlier.

35. In our submission, Mr McKechnie's interpretation is difficult to reconcile with the natural meaning of the words used in the guidance. In our submission, the problems with the project did not arise due to a lack of clarity in the published guidance for critical care areas.

36. If, however, the Chair rejects this position and were to consider the guidance was reasonably open to different interpretations, he may consider that this issue was at the very heart of the problems with the project.

4. Compliance with published guidance

37. The version of SHTM 03-01 in force during the project was unclear about when a health board could depart from its recommendations. It was unclear about how any derogation should be assessed and documented, and by whom.

38. SHFN 30 Part B: HAI-SCRIBE sets out a 4 stage "HAI-SCRIBE" procedure. HAI-SCRIBE stands for "Healthcare Associated Infection System (for) Controlling Risk In the Built Environment". The procedure has been developed as a framework to identify, manage and mitigate issues in the built environment impacting on infection prevention and control risks. The stage 4 check requires to be completed before a hospital is handed over to a health board.

39. The Stage 4 HAI-SCRIBE was not completed by NHSL prior to the hospital being handed over. This resulted in NHSL accepting, and paying for, a hospital that it could not use.

40. NHSL still intended to complete the check prior to the admission of patients, albeit after handover. NHSL's justification for non-compliance with HAI-SCRIBE was that the hospital was already late, it was not sufficiently complete to allow the required checks to be carried out, and IHSL was in financial distress. By accepting practical completion, and handover of the hospital in its incomplete state, NHSL triggered its obligation to pay IHSL, alleviating the risk of the latter's insolvency.

41. This decision resulted in NHSL accepting a hospital that it did not know was safe for patients to occupy. When NHSL progressed with the Stage 4 HAI-SCRIBE assessment, after the hospital was handed over to NHSL, the issues with the ventilation system were identified.

42. The decision to accept the hospital without the Stage 4 HAI-SCRIBE being completed was made by NHSL without input from IPC personnel. The guidance in SHFN 30 outlines the need for a "*partnership*" approach (between clinicians, IPC, estates, and engineers, etc) on projects. This partnership approach was not achieved on all aspects of the project.

43. A general theme that emerges from the evidence is the need to follow set procedures – at the correct time – and to fully implement the partnership model. Otherwise, there is a risk that a hospital will be accepted by a health board that does not provide a safe environment.

5. The role of advisers

44. The lack of clarity on the role of advisors, and the lack of any clear procedure for instructing and recording advice from technical advisors, is a theme that emerges from the evidence. It is an issue that was highlighted by Grant Thornton in their report on the project.

45. NHSL appointed MML as technical advisers. NHSL considered that MML was providing a range of advice on technical issues after financial close. It is often difficult to identify precisely what MML was requested to do by NHSL, what MML were required to do, and what MML were actually doing, on the project during this period. In particular, it is difficult to discern whether MML were giving advice on key technical issues. NHSL's project team may not always have fully understood that MML considered it was providing a more limited level of advice and assistance on technical matters.

46. The agreement reached on the terms of SA1 is a good example of the confused position.

47. NHSL's position is that it was receiving advice and assistance on the requirements of SA1 from MML. Members of NHSL's project team thought that MML had confirmed that the technical solution set out in SA1 was adequate and appropriate.

48. MML do not accept that they were giving any technical advice on the adequacy of the solution recorded in SA1. MML accept that they were providing advice on compliance with SHTM 03-01 during the project. MML accept that they were assisting NHSL with *ad hoc* advice on technical issues after financial close. MML also accept that they assisted NHSL in drafting the technical schedule to SA1. However, MML maintain that they were not a shadow design team and could not provide NHSL with any assurance on the adequacy of the proposed design solution.

49. On MML's analysis, there was no technical advice or assistance provided to NHSL on the solution set out in SA1 as MML could not agree to take on design responsibility.

50. There are no clear, contemporaneous, documents that record what MML was instructed to do by NHSL in relation to SA1. NHSL considered that MML were providing technical advice and assistance. However, there is no clear instruction recording what advice was sought. Moreover, there is no clear record of any advice that was tendered.

51. The evidence indicates that there was a lack of clarity in relation to the role of technical advisors and of appropriate procedures for recording the instruction of technical advice and the advice received.

6. The role of infection prevention and control

52. IPC personnel were involved in the project. IPC were consulted in the context of the risk assessment process underlying SA1. However, they were not consulted on the technical solution documented in it or the way it was drafted. That is because SA1 was regarded as a commercial matter. As the issues were viewed as commercial rather than clinical or technical, IPC were not asked for advice on whether it would be appropriate to accept the hospital without the Stage 4 HAI-SCRIBE procedure being completed.

53. The guidance in SHFN 30 stresses that collaboration is key (Bundle 13, Volume 3, p464; 468; 470). A collaborative partnership needs to be at the heart of a multi-disciplinary team (p472). The lack of consultation with, and participation of, IPC in the documentation of SA1 and the decision not to complete the Stage 4 HAI-SCRIBE procedure before the agreement was signed are missed opportunities. Had the guidance

in SHFN 30 been followed, and had IPC been engaged in the decision-making process around SA1, the problems with the ventilation system could potentially have been spotted at an earlier stage.

54. A wider theme that emerged in the evidence was an acute shortage of IPC personnel. IPC are increasingly being asked to take a more active role in aspects of the built environment. However, there is a shortage of staff to undertake these roles.

55. There is no role specification as to what is required from IPC on projects. IPC staff often feel they are being asked to undertake inappropriate tasks for which they have no specific knowledge or training.

7. Adequacy of Governance – NHSL

56. NHSL had a governance structure in place that complied with the set requirements for a project of this nature. This was not a situation where there was no oversight or governance. The Chair will wish to consider whether there was sufficiently robust challenge to key decisions.

57. The approval of SA1 is a good example. The settlement was approved by the Finance and Resources Committee and the Board of NHSL. Both took comfort from assurances purportedly provided by technical advisors. However, MML's position is that it was not acting as a shadow design team and was not able to take design responsibility for the design solutions in SA1. Statements that advisors were happy with the technical solution were effectively taken on trust with no paperwork or reports provided to the governance bodies vouching statements concerning the technical advice purportedly being provided. This could, on one view, be viewed as a weakness in the governance and oversight procedures.

58. However, the only way that the problems would have been detected is if a full technical audit had been insisted upon by the governance bodies. The Chair will require to reflect on whether such a step would have been proportionate.

8. Adequacy of Governance – Scottish Government.

59. Scottish Government provided the finance for the project. It provided significant public funds for SA1. Significant further funding required to be provided to complete the HVC 107 and Settlement Agreement 2 works.

60. Scottish Government provided no challenge in relation to technical matters at the stage of SA1. This resulted in a situation where public funds were utilised to install a ventilation system for balanced/ negative pressure at 4 ac/hr with the system subsequently being replaced with a system that had positive pressure at 10 ac/hr.

61. The Chair will require to consider whether more should have been done by the Scottish Government. On one view, they could have asked Health Facilities Scotland ("HFS") to conduct a review in advance of providing funding. That could have potentially detected the issue. However, similar issues arise in relation to the governance by NHSL. The only way that the problems would have been detected is if a full technical audit had been insisted upon by the governance bodies. The Chair will require to reflect on whether such a step would have been proportionate given the respective split in roles between NHSL (which had overall responsibility for the project and technical compliance) and the Scottish Government (which had overall responsibility for the NHS but its key role on the project was financial rather than technical).

9. The suitability of the NPD Model

62. A key theme is whether the NPD model, and revenue funding in general, are appropriate for healthcare projects. The substantial risk transfer to the private sector under a revenue funding model includes a large element of design risk, but this transfer may transpire to be more theoretical than real. Further, it is difficult to make changes to specifications after the contract is concluded, as this project demonstrates. That is due, in part, to the complex structure involving the project company, sub-contractors and lenders. Such difficulties may arise for reasons unassociated with an incomplete brief at financial close – such as developments in healthcare science. Several witnesses gave evidence indicating that, in their view, the NPD model is unsuitable for healthcare projects. The Chair will require to consider whether the funding structure contributed to the issues that arose on the project.

3. List of Topics

63. We address in this section the findings that the Chair is invited to make in relation to each topic.

1. The development of the design of the ventilation system for critical care rooms and isolation rooms in the period after financial close (February 2015)

64. Much of the detailed background to this topic is set out in PPP 8 and the Core Participants' responses to it. This section of our submission may be more readily understood with the benefit of having read those first. Our submission takes account of those sources, together with the witness statements supplied for the 2024 hearings and the oral evidence heard at them.

1.1 The input (if any), provided by Clinicians, Infection Prevention and Control (IPC), Estates, and Technical Advisors, in relation to the design of the ventilation system for critical care and isolation rooms, in the period after financial close.

65. As discussed in sections 1.2 to 1.4 below, NHSL clinicians, members of the NHSL IPC and Estates Teams, and NHSL's technical advisers (MML), were involved in the development of the ventilation design in the period after financial close.

66. As discussed in section 1.3 below, they were involved in the development of the technical solution for multi-bed rooms.

67. *Clinicians:* when NHSL risk assessed the pressure regime in multi-bed rooms, it consulted its clinicians. They expressed a preference for balanced or negative pressure. There is no indication that they expressly considered or were asked to advise upon the air change parameter.

68. *The IPC team:* NHSL appear to have consulted an IPC team member when considering the appropriate pressure regime for multi-bed rooms. There is no formal or clear record of what she was asked to advise upon or what advice she gave, except to address the question of whether multi-bed rooms were, for the purposes of applying SHTM 03-01

guidance, akin to single rooms or general wards. There is no indication that she was aware the rooms in question included rooms in the critical care department or that she was asked to advise upon the air change parameter. She could not, by July 2019, remember having been asked to advise on ventilation in the critical care department (Bundle 7, volume 1, page 123). There is therefore no indication that IPC were asked to consider the core question, of the air change rate needed for clinical purposes in the critical care multi-bed rooms.

69. Neither the clinicians nor the IPC team appear to have participated in correspondence or meetings with IHSL, Multiplex or Wallace Whittle about the development of the technical solution for pressure in the multi-bed room. NHSL were represented in that correspondence and those meetings by members of their project team[1], their estates team, and by their technical advisors, MML.

70. NHSL's IPC team was not consulted about SA1 or the way in which the technical ventilation solutions were expressed in it (Goldsmith, Transcript, 49; Inverarity, Guthrie).

71. *The Estates team*: were involved throughout the process. This included Mr Henderson being sent a copy of the 2017 risk assessment when he was informed by email that one of the rooms was in critical care (Bundle 13, vol 8, page 449). Estates were involved in the development of the ventilation system throughout the project but did not spot the non-compliance with SHTM 03-01.

72. *Technical advisors*: provided input primarily by way of a sample review of the reviewable design data. Engineers (including Colin MacRae) and project managers (including Mr Greer) attended meetings and were copied in to key correspondence regarding the development of the design. While MML were involved in the process, it is not clear precisely what advice (if any) they were providing. Moreover, there is a lack of contemporaneous documentation as to what they were instructed to do, and what advice (if any) they provided.

[1] NHSL's representatives at these meetings included the project clinical director, Ms MacKenzie, but not the clinicians she had consulted in relation to the risk assessments.

1.2 The development of the environmental matrix in relation to critical care and isolation rooms, including changes made to guidance note 15.

Development of the environmental matrix generally

73. At financial close, both the ventilation design and the environmental matrix were unfinalised and subject to the contractual process for reviewable design data ("RDD") (2023 Bundle 5, pages 860, 869).

74. The contractors and designers (Multiplex and Wallace Whittle) expected review of the environmental matrix to be limited to the points recorded against it in the Project Agreement. They were surprised by the range and number of comments made about it by, and on behalf of, NHSL. That surprise reflected their understanding that the environmental matrix constituted NHSL's brief on the matters it contained. They understood NHSL in substance to be changing their brief.

75. Under the terms of the Project Agreement's reviewable design data procedure, the only contractual effect of NHSL's approval was to confirm that the approved item satisfied NHSL's requirements for Operational Functionality. Operational Functionality is a concept defined by the Project Agreement and is limited in scope (Bundle 5 for the 2023 hearing, page 167). Put short, it is concerned with the layout of the hospital insofar as it bears upon its use for the health board's services. The limited effect of NHSL's approval reflects the fact that under an NPD contract, design risk (including responsibility for ensuring compliance with applicable guidance) rests with the project company.

76. Mr McKechnie, the lead for Wallace Whittle's design team, was unfamiliar with the concept of Operational Functionality – as defined in the Project Agreement - until asked about it by the Inquiry. He did not realise that NHSL's approval under the RDD process was limited to it. Rather, he treated NHSL's approval as confirming, in a much broader sense, that they were happy with the proposals: as "*an acknowledgement by the client that what we were putting forward met with their expectations*" (Transcript, page 6). Mr Hall of Multiplex had a similar understanding (Transcript, page 130 to 132). Mr Pike of Multiplex was familiar with the concept of Operational Functionality but still

saw the RDD process as in part confirming NHSL's agreement to parameters such as air changes (Transcript page 10 to 26). Mr McKechnie saw himself as engaged in a process of attempting to clarify what NHSL wanted and was frustrated by the number of comments made on the matrix and the number of revisions it went through without reaching a finalised form.

77. NHSL, and their technical advisers MML, approached the RDD process with an attitude which more closely reflected the design risk allocation of the Project Agreement. In particular, they noted that NHSL's approval was limited in its effect to matters of Operational Functionality. Notwithstanding the origins of the environmental matrix in NHSL's reference design, they did not regard it as NHSL's brief, but as part of IHSL's design response to that brief. They considered themselves free to comment on the matrix, including to highlight what they considered to be non-compliances with SHTM guidance, but did not consider themselves obliged to do so or as being in any way responsible the compliance of its contents with guidance. In the words of Mr Greer of MML, they intended these comments to be "*helpful pointers*".

Development of the environmental matrix: Guidance Note 15

78. In the particular case of rooms in the critical care department, the environmental matrix at financial close contained an inherent ambiguity. The room-specific entries for multi-bed and single rooms in the critical care department specified an air change parameter of 4 per hour (2023 Bundle 5, page 1454 onwards). The matrix also, however, included a guidance note (number 15) which read, inter alia:

> "*Critical care areas – Design Criteria – SHTM 03-01 – Appendix 1 for air change rates – 10ac/hr Supply …*".

79. In the course of the RDD procedure, in a revised version of the environmental matrix dated 26 November 2015, Wallace Whittle amended that guidance note by adding the words "*for isolation cubicles*" (Bundle 13, volume 2, page 101).

80. The effect of this was to limit the requirement for 10 ac/hr from critical care areas generally to isolation cubicles only. Unlike other changes to the matrix made by

Wallace Whittle at the same time, this change was not highlighted in red text. According to Mr McKechnie, the change reflected his understanding of the guidance (that is, that the recommended parameters for critical areas in Appendix 1 of SHTM 03-01, including the recommended 10 ac/hr, applied only to isolation rooms) (Mr McKechnie, Transcript, from page 28). Therefore, as far as he was concerned, Mr McKechnie was tidying up the guidance notes to ensure that the wording matched the proper construction of the guidance set out in SHTM 03-01.

81. In our submission, this is not a satisfactory explanation for proceeding in this way. Even if Mr McKechnie's interpretation of the guidance was a reasonable one (and we submit that it is difficult to reconcile with the natural meaning of the words used), there is no good reason for Wallace Whittle to have treated this change differently from others.

82. By highlighting other changes but not this one, Wallace Whittle created the impression there had been no change to the guidance note and thereby prevented NHSL and MML from being aware of it. The change was on any view significant, since it removed an important contradiction from the matrix. By proceeding as they did, Wallace Whittle denied NHSL the opportunity to consider at that relatively early stage whether they wanted 10 air changes for the critical care rooms (as per the guidance note) or 4 (as per the room specific data).

83. Even if one accepts Mr McKechnie's interpretation of the guidance to be correct, the guidance was plainly open to the opposite interpretation (that the recommendation for critical care areas was not confined to isolation rooms) and by proceeding as they did Wallace Whittle closed down an opportunity for NHSL to consider which interpretation of the guidance they preferred. Mr McKechnie (and Mr Hall) relied upon correspondence about isolation rooms as supporting Wallace Whittle's amendment of the guidance note, but there is nothing in that correspondence to justify a conclusion that NHSL (if asked) would have resolved the contradiction in the matrix by selecting 4 air changes in critical care rooms (Mr McKechnie, Transcript, pages 40 to 45); Mr Hall, Transcript, page 123).

84. Wallace Whittle's decision to make this change unilaterally is difficult to reconcile with their position that the environmental matrix was a fixed client brief. Mr Maddocks gave

evidence indicating that a client brief should not be changed without the approval of the client.

85. Wallace Whittle do, however, appear to have made the change in good faith, based on their understanding of NHSL's wishes and the guidance (McKechnie, Transcript, page 36).

86. Development of the environmental matrix thereafter proceeded in a generally unsatisfactory way. Wallace Whittle were frustrated by what they perceived as the difficulty in getting NHSL to confirm their agreement to its parameters. NHSL and MML were frustrated by what they perceived as a failure by Wallace Whittle to bring the parameters into line with those recommended by guidance. The most serious disagreement in this regard concerned the pressure arrangements for multi-bed rooms, which is discussed more fully in section 1.3 below.

Air change parameter for rooms in critical care left unchanged

87. Importantly, throughout the development of the environmental matrix after financial close, there was no active disagreement over the air change parameter for rooms in the critical care department. For single and multi-bed rooms in that department, the room-specific sections of the environmental matrix throughout specified 4 air changes per hour. Given Mr McKechnie's interpretation of the guidance (that its recommendation of 10 air changes per hour and 10 pascals of positive pressure applied only to isolation rooms), he did not consider there was any reason to change it. Despite the scrutiny applied by NHSL and MML to the contents of the environmental matrix, the detailed comments they made about it, and the fact that those comments included concerns about the matrix specifying parameters which were non-compliant with SHTM 03-01 guidance, they never raised any concern about the air change parameter for the critical care rooms.

88. When (during the procurement phase) the reference design documentation was produced, MML had confirmed that the documentation complied with published guidance, including SHTM 03-01. Despite (during the post-financial close phase) having identified a purported non-compliance with published guidance, no thought appears to have been given to whether there may have been more extensive errors in

the environmental matrix. It appears that NHSL simply assumed that all other parameters, including air changes, were correctly specified in the environmental matrix (Bundle 7, vol 3, page 143).

89. NHSL and MML seek to explain this on the basis of the risk allocation of the Project Agreement, under which responsibility for the design and its compliance with applicable guidance rests with IHSL: they emphasise that it was not their responsibility to detect any non-compliance. They also rely on an interpretation of the Project Agreement under which the environmental matrix included in it was not to be read as their brief but as a contractor's proposal for meeting it. In other words, any non-compliance with guidance which went undetected by NHSL or MML, in contractual terms, remained IHSL's problem to resolve.

90. In our submission, NHSL may well be correct in this interpretation of the Project Agreement (although it is not for this Inquiry to definitively resolve that question). There is, however, an air of unreality about it given the origins of the environmental matrix in NHSL's reference design, the way in which it was used in the procurement process, and the fact it was embedded in the Project Agreement.

91. NHSL may also be correct, in contractual terms, to say that their approval of items submitted under the RDD process was confined to a confirmation that it met their requirements for Operational Functionality and that, despite that limitation, they were nonetheless entitled to make other comments about the matrix and the ventilation design without altering the risk allocation of the contract. The wider point of significance to this Inquiry, however, in our submission, is that this approach (whether consistent with the contract risk allocation or not) failed to achieve what ought to have been achieved: a hospital which at handover was indisputably compliant with guidance.

92. In our submission, the operation of the RDD process in relation to the environmental matrix and the ventilation design was unsatisfactory. The parties approached it at cross-purposes. The matrix was an important foundation for the ventilation design yet remained under constant review and its contents were a source of contention. The ambiguity and confusion about its status that began during the procurement process persisted through the period after financial close. Whatever the correct interpretation of

the Project Agreement (which is not a matter for this Inquiry to resolve), the provision by NHSL of an environmental matrix which had been prepared for them, and its inclusion in the Project Agreement, was apt to lead to its adoption as a starting point for the design and to the understanding that it reflected NHSL's wishes about the way the hospital would be used.

Wallace Whittle checked environmental matrix for compliance with guidance

93. It should be noted, too, that Wallace Whittle maintain that they checked the environmental matrix for compliance with guidance, and concluded that it was compliant (Mr McKechnie, Transcript, page 23). Indeed, on the most controversial issue (the air changes required in the critical care department multi- and single-bed rooms), Mr McKechnie maintains even now that 4 air changes was compliant with the guidance. Given that position, a different outcome could only have been achieved on the RHCYP/DCN project if NHSL had specified, whether in the environmental matrix or during the process of reviewing it, that they wanted 10 air changes in those rooms, and insisted upon it over the views of Wallace Whittle. They had the opportunity to do this – Wallace Whittle sought a line-by-line review of the matrix with NHSL/MML to "*agree that the parameters that we had then recorded in the matrix was the client's brief*" (Mr McKechnie, Transcript, page 81; Hall, Transcript, page 154; PPP 7, Bundle 11, page 217), but that offer was declined by MML on behalf of NHSL. That was a decision to trust in the designer to comply with the guidance, and (insofar as the guidance was open to interpretation) to accept the designer's interpretation of that guidance. That approach was consistent with the design risk allocation under the NPD Project Agreement and is therefore defensible in that context. It is, however, more difficult to defend in the wider circumstances of NHSL having put the environmental matrix into circulation in the first place. It contributed to the failure to detect the air change issue until after the ventilation system had been installed and the hospital handed over to NHSL. This issue links in to the wider theme of whether the NPD model is suitable for healthcare projects.

94. We submit that Mr McKechnie's interpretation of SHTM 03-01 (that the entry in Appendix 1 for critical care areas applies only to isolation rooms) is difficult to reconcile with the language used. However, the chair may consider there to be some

force in the view that nothing in SHTM 03-01 compelled a change from the ventilation parameters set out in the environmental matrix for the critical care single and multi-bed rooms. That is because SHTM 03-01 is guidance for health boards which they were free to depart from in the exercise of their own judgment. Accordingly, if one proceeds (as Mr McKechnie did) on the basis that the environmental matrix set out NHSL's preferences it is, perhaps, legitimate to say that SHTM 03-01 did not compel a change from them, even if they were not consistent with the recommendations which it made. This raises the question of whether or not it is meaningful for a contract to require compliance with guidance which is not, in and of itself, prescriptive.

Single rooms

95. The environmental matrix at financial close made provision for 4 ac/hr in single rooms, including those in the critical care department (2023 Bundle 5, page 1454). A derogation for single rooms was agreed in SA1 (Bundle 13, volume 1, pages 797 and 805, Item 13). The derogation is from 6 ac/hr to 4 ac/hr. It is not therefore intended as a derogation from the SHTM 03-01 recommendation for critical care areas (for which the recommendation is 10 ac/hr). The derogation is justified by the mixed mode ventilation philosophy, which was based upon the availability of openable windows to provide a passive means of ventilation. Such an approach was not suitable for the critical care department.

96. There is disagreement about whether or not the derogation applied to rooms in the critical care department. This is a matter of contractual interpretation, which it is not for the Inquiry to resolve. Mr Pike of Multiplex was unable to identify anything apart from the wording of the derogation itself to confirm it was intended to apply to rooms in the critical care department (Transcript, page 46). The fact that the purpose of the derogation was to confirm the basis on which 4 ac/hr had been selected for the single rooms may be seen as an indication that it was intended to apply to all single rooms for which 4 ac/hr had been specified (whether in the critical care department or elsewhere).

97. The position in relation to air changes in the single bed rooms therefore appears to be the same as for the multi-bed rooms (discussed in section 1.3 below): throughout the period after financial close, and until IOM Limited's inspection, nobody considered the possibility that single rooms in the critical care department were, by virtue of that

location, subject to particular ventilation parameter recommendations in SHTM 03-01; and the derogation was agreed in ignorance of that possibility (see, e.g., Mr Pike, Transcript, page 49). The single rooms in the critical care department were simply treated in the same way as single rooms outside of that department.

98. The environmental matrix at financial close made provision for the single rooms in critical care to have balanced pressure (2023 Bundle 5, page 1454). That was contrary to the recommendation of positive pressure made by SHTM 03-01 for critical care areas, and was reversed by HVC 107 (Bundle 1, page 2992). Our submission following the 2023 hearings addresses the origin of the balanced pressure requirement for the single rooms at paragraphs 154 to 160. We are not aware of the issue having been revisited after financial close, until Settlement Agreement 2.

1.3 Issues that arose concerning the pressure regime. In particular, risk assessments relating to the pressure cascades in four-bedded rooms in various different departments of the hospital and whether implications for critical care rooms were considered.

99. The financial close environmental matrix, which formed part of the Project Agreement, specified positive pressure for the multi-bed rooms throughout the hospital, including in the critical care department (2023 Bundle 5, page 1454).

100. NHSL wanted to be able to use the multi-bed rooms to treat children with similar infections in the same space. They considered that this clinical use required the rooms to be at negative or balanced pressure compared to the adjoining space. Such a pressure arrangement would tend to keep pathogens within the ward, whereas a positive pressure arrangement (all other things being equal) might spread them beyond.

101. Appendix 1 to SHTM 03-01 (2014) specified ventilation parameters for different room types. It did not include an entry for multi-bed rooms, but did include entries for single rooms and general wards. For general wards, no recommendation was made for the pressure arrangement. For single rooms, the recommendation was for balanced or negative pressure (Bundle 1, page 1173).

102. A debate arose between NHSL and IHSL about which entry applied to the multi-bed rooms. NHSL, having taken advice from HFS in June 2016 (PPP 8, Bundle 11, page 183, paragraphs 9.4.22 to 9.4.23), considered the multi-bed rooms to be analogous to single rooms (such that they were therefore subject to a recommendation for balanced or negative pressure). That view supported their clinical preference for such a pressure arrangement in the multi-bed rooms. IHSL considered the multi-bed rooms to be akin to general wards (such that they were subject to no recommended pressure arrangement, and that there was therefore no obstacle in the guidance to the positive pressure which had been specified in the environmental matrix).

103. This debate formed the basis for a serious dispute about the contractual requirements. In simple terms, the dispute was on the following lines. NHSL considered IHSL to be obliged to deliver the balanced or negative pressure, regardless of any contrary requirement being set out in the environmental matrix, because of the requirement in the Project Agreement to comply with SHTM guidance. IHSL considered that they were obliged to deliver the parameters specified in the environmental matrix even if they contradicted SHTM guidance. Wallace Whittle's view, furthermore, was that the parameters specified by the environmental matrix for the multi-bed rooms did not in any event conflict with SHTM guidance. IHSL were content to deliver the pressure arrangement which NHSL required, but the dispute bore upon who would carry the additional cost of doing so. IHSL therefore initially declined to progress development of a design for NHSL's preferred pressure regime until NHSL issued a formal change notice to that effect, which NHSL declined to do.

104. NHSL threatened litigation over this in March 2018 (Bundle 13, volume 9, pages 92, 96). The threatened litigation would have sought court orders against IHSL to produce a ventilation design for the multi-bed rooms which achieved a balanced or negative pressure arrangement in specified rooms, including three in the critical care department. (As the draft summons noted, the fourth multi-bed room in that department had already been designed with balanced or negative pressure.) The litigation sought interim orders to that effect on the basis that the project had already been delayed and that a design for the multi-bed rooms was necessary if progress was to be made. The basis for seeking balanced or negative pressure was articulated in the draft summons to

be the need to inhibit the spread of infection from the multi-bed rooms. The approach in the litigation was based on the position which had been developed in the NHSL project team with input from MML (Goldsmith, Transcript, page 7), and was supported by an affidavit from Mr Greer of that firm. NHSL's Finance and Resources Committee had approved litigation, the NHSL board was aware of it, and the Scottish Government were informed (ibid., page 15).

105. The threat of litigation was withdrawn following a proposal from IHSL on 22 March 2018, to which NHSL agreed, for balanced or negative pressure in fourteen of the multi-bed rooms, at 4 air changes per hour (Goldsmith, Transcript, page 29). A proposal along these lines had been under discussion at the project team level since January 2017 as the Wallace Whittle Multi-Bed Room Ventilation Amendment Proposal (McKechnie, Transcript, page 45 onwards; Bundle 13, volume 2, page 666 to 674). At a meeting on 24 February 2017, NHSL had identified the rooms in which it considered the pressure solution to be essential (including the four multi-bed rooms in the critical care department: Bundle 13, volume 2, page 686). Reflecting the high-level agreement reached in March 2018, the Wallace Whittle proposal was approved by NHSL at level A under the RDD process in July 2018 (Bundle 13, volume 2, page 1279 to 1282).

106. This technical solution to the multi-bed room pressure issue was one of many issues formally documented in SA1, which was executed in February 2019 at the culmination of a detailed negotiation and drafting process (Goldsmith, Transcript, page 29 onwards).

107. The issue at the core of the multi-bed room pressure dispute (that of which recommendation in the SHTM guidance applied to multi-bed rooms) is of some significance to this Inquiry, because it demonstrates that the recommendations made by the guidance can be open to interpretation and debate in the context of a particular project, at least when the parties specify a room type which is not in terms the subject of particular recommendations. The parties spent significant time and effort debating this point.

108. It is important, however, to recognise that that debate did not concern the particular issue which led the Cabinet Secretary to postpone the opening of the hospital (the number of air changes in the critical care rooms). That issue formed no part of the parties' dispute. Nor did the parties' dispute concern the particular question of the pressure gradient recommended for critical care rooms (positive, rather than the balanced or negative arrangement which the parties had agreed). The point of direct significance to this Inquiry is that the multi-bed room dispute led the parties to consider in detail the recommendations made by the guidance for the rooms in question, but did not lead them to identify that the guidance made particular, and different, recommendations for rooms in critical care areas, of positive pressure and 10 air changes per hour.

109. The reasons for this require some explanation. The short explanation is that no one involved in the development of the ventilation system after financial close drew any distinction between multi-bed rooms in the critical care department, and multi-bed rooms in other departments in the hospital; and there was no explicit discussion of the possibility that the former might be subject to a different recommendation in SHTM 03-01.

110. In our submission, the starting point is to note that no distinction was drawn in the environmental matrix between multi-bed rooms in critical care, and multi-bed rooms elsewhere in the hospital. The room-specific part of the matrix specified the same pressure and air change parameters for all multi-bed rooms, whether they were in the critical care department or not. That may have encouraged the belief that all multi-bed rooms were to be treated as normal patient bed spaces, whether they were in the critical care department or not. In other words, the environmental matrix may have encouraged the parties, when debating the issue of pressure in multi-bed rooms, to start and proceed from the assumption that all multi-bed rooms were the same. If this assumption was made, it is likely to have been reinforced by Wallace Whittle's unhighlighted amendment of guidance note 15.

111. The next important point, in our submission, is that NHSL sought the balanced/negative pressure arrangement in the multi-bed rooms for a particular clinical purpose: the cohorting of patients with similar infections. This was described by Ms

MacKenzie as a very common practice in paediatrics (Transcript, day 1, page 216). This was a clinical decision which an engineer would be unlikely to second-guess.

112. Further, NHSL conducted clinical risk assessments in support of their preference. In July 2017, Ms MacKenzie led a risk assessment into the use of positive pressure in the multi-bed rooms (as the environmental matrix then proposed) (Bundle 13, volume 8, page 449). She was aware that some of the multi-bed rooms under consideration were in the critical care department, and her risk assessment took explicit account of that (e.g., Transcript, page 220; Bundle 13, volume 8, pages 449 and 455). The risk assessment was explicit that it proceeded on the basis that the then current multi-bed room ventilation design, in providing for positive pressure, was not compliant with SHTM 03-01 recommendations. That statement was not correct for the multi-bed rooms in critical care if, as NHSL later came to consider, they were governed by the SHTM 03-01 recommendation for critical care areas. Ms MacKenzie's evidence was that the assessment took full account of the views of the children's clinical management team and had been discussed with (and approved by) Janette Richards (Rae) of NHSL's infection prevention and control team. The risk assessments were circulated to, amongst others, the NHSL Project Director Brian Currie, representatives of MML, and NHSL's commissioning manager, Ronnie Henderson. In the email circulating the risk assessment, Ms MacKenzie stated that at least one room was in critical care. According to Ms MacKenzie, none of the recipients (or, indeed, anybody) told her that, since some of the rooms were in the critical care department, they were subject to the SHTM recommendation of positive pressure which applied to critical care areas. Ms MacKenzie's recollection was that the statement in the risk assessment about the positive pressure regime for multi-bed rooms being non-compliant with SHTM 03-01 was based on advice from Colin Macrae, a mechanical and electrical engineer employed by MML, NHSL's technical advisers on the project (Transcript, Day 1, page 227; Day 2, page 1; statement, paragraph 20). The risk assessments gave no consideration to air change rates.

113. The risk assessments were reviewed in January 2018 (Bundle 6, page 14). The revised assessments proceeded on the same assumption that a positive pressure arrangement was not compliant with SHTM 03-01, including for multi-bed rooms in the critical care department. Again, they did not consider the air change rates.

114. NHSL therefore developed their requirement for balanced or negative pressure in multi-bed rooms in the critical care department having erroneously failed to take account of the fact that SHTM 03-01 recommended positive pressure for such rooms. There is no indication of MML pointing out the error.

115. There is no indication the risk assessments were shared with IHSL, Multiplex or Wallace Whittle (McKechnie, Statement, paragraph 54; MacKenzie, Transcript, Day 2, page 11; Henderson, Transcript, page 91).

116. Shortly thereafter, a MML table was circulated to members of NHSL's project team with extracts from the environmental matrix showing positive pressure and supply at 4 air changes per hour for the multi-bed rooms in critical care. The fact the rooms were in critical care was apparent from the use of the department code, B1, and the reference to them being in "PICU and HDU" (Paediatric Intensive Care Unit and High Dependency Unit) (Bundle 13, volume 5, page 1243).

117. Wallace Whittle responded to NHSL's requirement for balanced/negative pressure in the multi-bed rooms with a proposed solution for achieving it. This initially involved reducing the supply air change rate from 4 per hour (Bundle 13, volume 2, page 667; 31 January 2017). The proposal applied to rooms in several departments, including critical care. Whilst it did not explicitly say the rooms were in that department, that fact ought to have been readily apparent to anyone familiar with the project through the use of plans identifying the rooms' location and the "B1" department code used to identify the affected rooms (Bundle 13, volume 2, page 668). The proposal was circulated widely amongst the project teams, including to Brian Currie and Ronnie Henderson of NHSL, and Kamil Kolodziejczky and Colin Macrae of MML, and went through seven versions (Bundle 10, pages 179 to 182). There was a page within the environmental matrix that stated that B1 was the code for critical care (see, e.g., the financial close version: 2023 Bundle, volume 5, page 1460).

118. The designer and contractor team must have been aware that some of the multi-bed rooms under consideration were in the critical care department (not least because the documents dealing with the pressure proposal used the department reference "B1"

for the critical care department). The evidence of Mr McKechnie was that Wallace Whittle drew no distinction between the multi-bed rooms in critical care and the multi-bed rooms elsewhere in the hospital. Furthermore, he maintains that there is nothing in any guidance to require any different approach. On his interpretation, the SHTM recommendation for critical care areas only applies to isolation rooms and not to other bed spaces. Mr McKechnie has been consistent in his position: e.g., Bundle 7, volume 1, page 308, 11 July 2019. That interpretation of the guidance accounts for Wallace Whittle's failure to apply the SHTM recommendation to the critical care rooms.

119. It is not, however, clear that the rationale underlying Wallace Whittle's ventilation design was applicable to critical care rooms. A document prepared by them for Multiplex on 21 February 2017 concluded following a review of the design that the then-current designs for single rooms and multi-bed rooms were "*fully in compliance with SHTM 03-01*" (McKechnie, Transcript, page 60 onwards). It referred to the mixed-mode ventilation philosophy under which a mechanical air change rate of four per hour was combined with natural ventilation. As expressed in that document, that philosophy was based upon opening windows which were not appropriate for critical care rooms. That consideration does not appear to have influenced Wallace Whittle's approach.

120. Mr Greer's evidence was that the discussion around pressure in the multi-bed rooms proceeded on the assumption that all of the rooms, including those in critical care, were "*effectively normal bedrooms, all normal multi bedded rooms*" (Transcript, page 132). He accepted that his colleague, Colin Macrae, would have realised that some of the rooms were in the critical care department, and that he himself was copied in to correspondence in which that was explicit (ibid., pages 134, 137, 141). He did not recall any conversations to the effect that some of the rooms, being in the critical care department, were subject to different ventilation recommendations (ibid.). He pointed to the activities on the room data sheets for the critical care rooms being more akin to those expected in a normal bedroom, and to that being a difference from the activities listed in the ADB sheet for such rooms (ibid. page 133). A Design Issues Report prepared by MML in June 2017 addressed the parties' disagreement about whether or not the ventilation design for single and multi-bed rooms complied with SHTM guidance, but drew no distinction between rooms in the critical care department and

rooms elsewhere in the hospital again because all were being treated as normal bedrooms (Greer, Transcript, page 147).

121. Mr Hall likewise recalled no discussion, in the context of the review of pressure in the multi-bed rooms, about the possibility that, because some of the rooms were in critical care, they might be subject to different SHTM recommendations for air changes and pressure parameters (Transcript, page 150). When (on 5 July 2018) he circulated an extract of the environmental matrix for comment to MML and NHSL, showing the parameters agreed for the multi bed rooms including 4 air changes and positive pressure for the rooms in critical care, he received no objections (Transcript, page 175).

122. Mr Pike saw no issue with four air changes on the basis that, as he understood it, the contract already required that via the environmental matrix (Transcript, page 43).

123. Mr Henderson, the commissioning manager in NHSL's estates team, was familiar with the table of recommended ventilation parameters in SHTM 03-01, and (contrary to the interpretation placed upon the guidance by Mr McKechnie) understood the recommendation for critical care areas to apply to such areas as a whole and not to be restricted in its application to isolation rooms. If he had known that something other than the recommended parameters of 10 air changes per hour and 10 Pascals of positive pressure were being proposed for a critical care area, he would have queried it as a non-compliance with guidance. He therefore had sufficient experience, knowledge of the guidance, and confidence to challenge the use of non-compliant parameters. He did not do so on the RHCYP/DCN project, however, because he did not realise that any of the multi-bed rooms under consideration were in the critical care department. That is despite the fact that information to that effect was readily available to him. For example, when Ms MacKenzie emailed the risk assessment to him in 2017, she made reference to one of the rooms being in critical care in the covering email (Bundle 13, vol 8, p449). Documents about the proposal used room codes and plans from which the location of some of the rooms in critical care could have been discerned, and others included explicit reference to some of the rooms being in the critical care department. He was unable to explain how it was (as he put it) that "*the dots weren't joined*", but pointed to that proposal being very narrowly focused on the pressure arrangements and to the responsibility of others to point it out. He proceeded throughout the multi-bed room

proposal on the mistaken assumption that none of the rooms were in the critical care department (Transcript, pages 71 to 125).

124. Ms MacKenzie signed off NHSL's approval of the multi-bed room ventilation solution under the Project Agreement RDD process on 26 July 2018 (Bundle 10, page 182). She expected MML to have thoroughly reviewed it before she did so (Transcript, Day 2, page 27). Her sign-off came after NHSL's threatened litigation to enforce their preferred pressure arrangement had been called off on the basis of IHSL's proposal to implement it. Although she knew some of the rooms were in the critical care department (and she had led a risk assessment particular to the proposed ventilation pressure in those rooms), neither she nor the clinicians she consulted were aware that the proposed solution would involve a derogation from SHTM 03-01, for either the pressure regime or the air change rates (Transcript, Day 2, page 4). Nobody explained that to her. She was unaware of the SHTM guidance for critical care rooms. Her state of knowledge was, therefore, on these issues, the converse of Mr Henderson's.

125. In the course of development of the multi-bed room pressure proposal, NHSL took independent expert engineering advice from David Rollason Associates, a firm of consulting engineers (Bundle 13, volume 9; page 30; report dated 1 November 2017). The scope of Rollason's instruction was dictated by what was understood by the parties to be the key aspect of their dispute – what pressure arrangement, if any, was recommended by SHTM guidance for multi-bed rooms and the associated question of whether a multi-bed room was akin to a single room or a general ward. Rollason were not asked to advise upon air change rates. Their report noted that NHSL had concerns about IHSL's proposed air change rates, but this does not appear to have been a specific concern related to air change rates in the critical care rooms (Henderson, Transcript, 139). The report did not draw attention to the SHTM recommendations for critical care areas and appears to have proceeded on the assumption that these were not relevant to the parties' dispute. Rollason do not appear to have been asked to take account of the fact that some of the rooms were in a critical care department, although they do appear to have had papers which identified some of the rooms as being there (Bundle 13, volume 9, page 72, entry for "*PICU and HDUs*").

126. NHSL were aware, in the context of the development of the multi-bed room pressure proposal, that four air changes proposed for the haematology/oncology ward (a neutropenic patient area) would be contrary to SHTM 03-01 recommendations for neutropenic patient wards (which, in respect of air change rates and pressure regimes, were the same as for critical care areas; those recommendations appeared in adjacent lines of SHTM 03-01 (Bundle 1, page 1173)). This issue was discussed amongst NHSL, MML, Multiplex and Wallace Whittle. It led to a discussion amongst NHSL's clinicians who, having been told that any change to the air change rates would involve a significant amount of work, cost and delay, decided to accept what they understood to be a ventilation arrangement for those rooms that was non-compliant with SHTM 03-01 on the basis that risks could be managed operationally. This did not prompt any consideration about whether or not the same air change rate was consistent with SHTM 03-01 recommendations for critical care areas (PPP 8, paragraphs 9.6.23 to 9.6.47; Bundle 11, from page 193; Henderson, Transcript, 131).

127. In summary, the pressure proposal for the multi-bed rooms was developed at length and in depth without any of the parties involved realising that some of the rooms were in the critical care department and were thereby subject to SHTM recommendations with which the proposal did not comply.

128. Following agreement on the technical solution for the multi-bed rooms, it was incorporated along with other technical solutions in SA1. The decision-making leading up to the execution of SA1 is discussed below.

1.4 Correspondence, including an email chain on 18 April 2018, where NHSL indicated that 4 air changes per hour were required for areas in the hospital. In particular, whether this requirement included the multi-bed wards in critical care and, if so, the basis for including those rooms.

129. In an email exchange on 18 April 2018 concerning ventilation in the multi-bed rooms, Ronnie Henderson of NHSL said *"...we are seeking design for 4 Air Changes*

to all 14 rooms. Can you confirm that this is the brief to WW". Ken Hall of Multiplex, in his reply, said "*4ACH is the brief...*" (Bundle 1, page 2042).

130. This comment referred to revision 5 of Wallace Whittle's proposal for achieving balanced or negative pressure in multi-bed rooms. That proposal, as explained above, included rooms in the critical care department (Bundle 13, volume 2, page 1248). Mr Henderson's reference to seeking four air changes therefore did concern those critical care rooms.

131. In the agreed proposal which resolved NHSL's threat to commence litigation in March 2018, there is similarly agreement by NHSL to a resolution at four air changes per hour (Goldsmith, Transcript, pages 16 to 34).

132. These might be read as an explicit instruction by NHSL, or at least confirmation of a requirement by NHSL, for four air changes per hour in the critical care multi-bed rooms.

133. In our submission, however, this correspondence should be read and understood in its context.

134. The multi-bed rooms were under discussion because NHSL wanted them to have negative or balanced pressure. Discussions were driven by this desire to change the pressure parameter and not by any desire to change the air change parameter.

135. The air change parameter specified for these rooms in the body of the environmental matrix was 4 ac/hr. Early proposals by Wallace Whittle to achieve balanced or negative pressure in the multi-bed rooms involved lowering the air change rate within the rooms – that is, reducing it from the 4 air changes stated in the environmental matrix. This lowered air change parameter was Wallace Whittle's proposed means of achieving NHSL's desired pressure arrangement and not something which NHSL themselves had asked for.

136. The discussions, and decisions, on multi-bed rooms therefore involved confirmation of an air change rate of 4 per hour, including for the multi-bed rooms in

the critical care department, but this was in the context of 4 air changes having been the parameter applied by the environmental matrix, from financial close and indeed before that, to all multi-bed rooms.

137. Mr Henderson's request for confirmation that 4 air changes would be used for multi-bed rooms was therefore no more than a reminder that the technical solution to achieve balanced or negative pressure in the multi-bed rooms was not to involve any reduction in the air change rates already forming part of the design. It was not intended as a change by NHSL to their brief or as an instruction by NHSL to override IHSL's design solution. In our submission, the agreement to IHSL's proposal to resolve the threatened litigation should be viewed in the same way.

138. The origin of the explanation for having 4 air changes in the multi-bed rooms in the critical care department therefore lies, in our submission, not in the discussions around the multi-bed rooms but in the fact the financial close environmental matrix specified that parameter. The discussions around the multi-bed rooms were, however, a missed opportunity to change it to a 10 per hour air change rate for the critical care rooms.

139. Discussions on the multi-bed room proposal were conducted on the understanding that all multi-bed rooms in the hospital were to be treated in the same way, with no special requirements for those in the critical care department (McKechnie, Transcript, page 57, page 99).

140. Mr McKechnie gave evidence that he considered even if the air changes were reduced below 4 per hour, the design would be consistent with SHTM 03-01 (Transcript, 47). This would not in our submission be compliant with SHTM 03-01 for rooms in the critical care department, given the recommendation in Appendix 1 (Bundle 1, page 1173).

1.5 Correspondence sent by IHSL to NHSL on 31 January 2019 confirming that that the ventilation systems had been designed, installed and commissioned in line with SHTM 03-01 together with further correspondence on this issue in February and March 2019.

141. On 25 January 2019, prompted by awareness of emerging issues at the Queen Elizabeth University Hospital, Glasgow ("QEUH"), Paul Gray, the then Director General of Health and Social Care, wrote to Scotland's health boards seeking confirmation that certain controls were in place and working effectively. These included that all critical ventilation systems were inspected and maintained in line with SHTM 03-01 (Bundle 13, volume 1, page 762).

142. This prompted confirmation from Multiplex to IHSL on 31 January 2019 that, inter alia, all ventilation systems at the RHCYP/DCN had been designed, installed and commissioned in line with SHTM 03-01 "as required" (Bundle 13, volume 1, page 764 and 766). IHSL wrote to NHSL in similar terms on the same date (Bundle 4, page 9). The letter addressed design, installation and commissioning instead of inspection and maintenance because, whilst the ventilation systems at the RHCYP/DCN had been installed by this time they were not yet in operation. According to Mr Pike, the words "as required" were intended to reflect the fact that the design and installation had been done to the contractual standards (Transcript, page 66). However, at that stage, SA1 had not been signed and its technical schedule did not reflect the contractual position between the parties.

143. NHSL understood by this stage that the ventilation system as designed and installed deviated from the recommendations in SHTM 03-01, in relation to the use of 4 air changes per hour throughout the hospital in place of 6 and in relation to the neutropenic ward (where NHSL recognised the as-built 4 air changes was a departure from the SHTM 03-01 recommendation for 10). Otherwise, however, they were under the impression there was full compliance, including for the multi-bed rooms (Henderson, Transcript, page 145; Goldsmith, Transcript, page 70).

144. On 12 February 2019, IHSL sought further written assurance from Multiplex that engineering systems (including ventilation) had been designed and were being

installed and commissioned to meet current guidance and statutory requirements (Bundle 13, volume 1, page 769).

145. Multiplex responded on 6 March 2019 to confirm that the engineering systems had been designed and had/were being installed and commissioned to meet "*the relevant Construction Contract standards, as varied by the Settlement Agreement*" (Bundle 13, volume 1, page 771). This was as much assurance as Mr Pike, who drafted the letter, felt able to give (Transcript, page 75).

146. By the date of Multiplex's letter of 6 March, SA1 had been executed and contained the technical solutions which the parties had agreed, including on ventilation.

2. The decision making and governance concerning the agreement reached between NHSL and IHSL on 22 February 2019 (Settlement Agreement No 1)

2.1 Why NHSL agreed to enter into the agreement.

147. SA1 documented dozens of agreed resolutions to disputed issues which were set out in a technical schedule (Bundle 4, page 38). These included the agreed resolutions to disputes about ventilation (items 4, 7 and 13). The ventilation system was installed by late 2018 in accordance with those resolutions, although SA1 was not itself signed until February 2019. Part of the function of SA1 was to formally record the basis on which the parties had resolved these disputes.

148. SA1 also recorded the Independent Tester's readiness to issue a certificate of practical completion for works, under exception of certain categories of work to be carried out thereafter (Bundle 4, page 13, recital D).

149. A major commercial reason for the parties entering into SA1 when they did was to alleviate financial pressures which had built up on IHSL (Goldsmith, Transcript, page 58 onwards; Templeton, Transcript, 173 onwards; Pike, Transcript, 57 onwards). IHSL's funding arrangements were based on the assumption it would start receiving

payment from NHSL of the unitary charge (which fell due once NHSL accepted the completed hospital) in July 2017. Delays in completion of the hospital meant these payments had not begun on time, placing pressure on IHSL's ability to meet its financing obligations. By early 2019, IHSL was at risk of defaulting on its loans which presented the further risk of its funders stepping in to replace IHSL with another project company leading to further delay. There was the possibility of NHSL (or the Scottish Government) having to pay £150m to repay the debt and take on the hospital themselves – funds which neither had. NHSL agreed to SA1 and to accept practical completion of the hospital to avoid these risks.

150. NHSL agreed to this in the knowledge that the construction work had not been completed and would have to continue thereafter. It planned to carry out its commissioning work in parallel with completion of the building works. This was done with the aspiration of concluding all work in time to facilitate the opening of the hospital in summer 2019. The prospect of opening the hospital after the delays which had affected the project was a source of relief (Goldsmith, Transcript, 51, 59).

151. This arrangement meant it was not possible to carry out the stage four HAI-SCRIBE process at the time of the handover and it had to be deferred until a later stage (ibid.), although this does not appear to have been the subject of conscious consideration at the level of NHSL's board (ibid., page 57). Moreover, there does not appear to have been any input from IPC.

152. This issue links back to wider theme of whether SA1 was a change to NHSL's brief or a design solution to that brief. If it was a change to the brief, arguably, NHSL should have gone back to stage 2 of the HAI-SCRIBE procedure. That this was not considered may be due to the lack of input from IPC. It demonstrates that difficulties may arise if the partnership approach set out in SHFN 30 is not followed.

153. NHSL took comfort from the Independent Tester having issued its certificate, on the assumption that this could be taken as confirmation of compliance with guidance (Goldsmith, Transcript, 60). However, in reality, the Independent Tester was making an assessment against an interpretation of the parties' contract rather than the guidance itself.

154. Furthermore, IHSL had by the date SA1 was executed (22 February 2019) confirmed compliance with SHTM 03-01 in the design, installation and commissioning of the ventilation systems, and in the maintenance of those systems such as to ensure compliance at handover (letter of 31 January 2019, Bundle 4, page 9). That letter was written, not as a formal element in the project governance, but in response to the Scottish Government's letter to all health boards based on their emerging concerns about ventilation at the QEUH. NHSL took assurance from IHSL's letter, but it merely confirmed what they already understood to be the case and it does not appear to have been relied upon by NHSL in deciding to execute SA1 (Goldsmith, Transcript, page 70). At the level of the project team, it was understood that there had been certain departures from SHTM guidance but not in relation to critical care rooms (Henderson, Transcript, page 145; MacKenzie, Transcript, page 44).

155. The letter is also relevant to the issue of governance. NHSL had documentation confirming that the ventilation system complied with published guidance. While there is a dispute between NHSL and IHSL as to what the words "as required" mean in the letter, the Chair may consider this is a minor semantic issue. If Mr McKechnie had been asked whether the design solution for critical care areas fully complied with SHTM 03-01, he would have said that it did. Viewed in this way, the Chair may consider that the issues that arose on the project did not arise from a failure in governance on the part of NHSL or the Scottish Government. The only way that the governance procedures could have detected the issues with the critical care ventilation system would be if they had required an independent audit of the technical solution. The Chair will wish to consider whether that would have been necessary and proportionate in terms of governance of the project.

2.2 Why the ventilation parameters set out in the agreement were deemed adequate and appropriate by NHSL and IHSL, with particular regard to their application to critical care rooms.

156. The process by which NHSL and IHSL reached agreement upon the technical solutions for ventilation is explained in section 1 above. In short, those technical

solutions were agreed without any party considering, or realising, that some of the rooms to which they applied, by virtue of their location in the critical care department, were the subject of particular recommendations in the guidance with which the technical solution did not comply.

2.3 The input (if any) obtained by NHSL from Clinicians, IPC, Estates and Technical Advisors on the ventilation requirements to be included in Settlement Agreement No 1, for critical care rooms, in advance of the agreement being concluded.

157. The involvement of NHSL's clinicians, IPC team, estates team and technical advisors in the development of the ventilation technical solution for critical care rooms is set out in section 1 above. In short, all were involved albeit the IPC team involvement was relatively limited by the time of the finalisation of the technical schedule to SA1. The precise nature of IPC involvement in the period up to SA1 is not clearly documented.

158. Once the technical solutions had been agreed, they had to be formally documented in SA1. MML drafted the technical schedule to SA1. Graeme Greer of MML raised concerns with NHSL's Project Director, Brian Currie, that the way in which the agreement was expressed could disturb the design risk allocation of the Project Agreement in relation to those solutions. This was a reference to the standard design risk allocation of an NPD contract, under which design risk rests with the project company except in relation to operational functionality, the risk of which rests with the health board. In that context, Mr Greer emphasised that, although MML were NHSL's technical advisers, they were not designers and were not therefore in a position to provide design assurance to NHSL in relation to the technical solutions (Bundle 13, volume 5, page 1272; 4 June 2018; Greer, Transcript, page 162).

159. Although it was understood in NHSL's project team that MML were not the designers, or a shadow design team, there was nonetheless a belief that they were providing assurance to NHSL about the technical solutions (Goldsmith, Transcript, page 46; MacKenzie, Transcript, Day 2, page 33; Henderson, Transcript, page 145).

160. Mrs Goldsmith was alert to the need to avoid any risk transfer to the board and referred to legal advice being taken to ensure that did not happen (Transcript, 36; see Bundle 10, page 156). NHSL proposed an approach which involved treating the agreed technical solutions in accordance with the existing procedures in the Project Agreement (Bundle 13, volume 9, page 184). That approach is reflected in the technical schedule of SA1, where each of the ventilation solutions (4, 7 and 13) is referred to as approved under the Project Agreement procedure for RDD (Bundle 4, pages 40 to 46). That is a process under which NHSL's approval constitutes no more than confirmation that the proposed design meets their requirements for operational functionality.

161. Whether or not this approach was successful in treating these agreed technical solutions as part of IHSL's design solution for which they bear the whole design risk is a matter of contractual interpretation, but there is once again an air of unreality about treating the ventilation solutions in that way. There had been serious dispute between the parties about the ventilation and SA1 resolved it following detailed involvement by technical experts on both sides. The solution for the multi-bed rooms featured a pressure arrangement which, whilst contrary to the recommendation for rooms in a critical care department, was based upon a risk assessed, clinical preference of NHSL's paediatric clinicians. It was one which NHSL were prepared to litigate to obtain, and they had taken additional expert advice in support of it. In our submission, the process leading up to SA1 therefore involved clarification by NHSL of their ventilation brief (Goldsmith, Transcript, 39).

162. On any view, and whatever the contractual implications, SA1 set out the technical basis on which NHSL had agreed to installation of the ventilation system. Even if the project company bore the contractual risk of ventilation parameters not complying with guidance, NHSL would suffer the disruption of the hospital opening being delayed for rectification works if the agreed technical solution proved to be non-compliant with guidance.

163. The need for clarity in relation to the ambit of technical advisors, and the need for a clear record of advice being tendered, were highlighted in the Grant Thornton report commissioned by NHSL. Mrs Goldsmith acknowledged a need for greater clarity

when technical advisers were providing formal advice, and explained that NHSL had undertaken work to improve processes around that issue, as had been recommended by Grant Thornton (Transcript, page 48). While these steps have been taken by NHSL, there does not appear to be any similar processes or procedures embedded in the wider NHS. The Chair may therefore consider that there is a risk of other health boards experiencing similar problems on future projects.

2.4 Whether the design parameters for the ventilation system set out in Settlement Agreement No 1 were appropriate for critical care rooms.

164. The agreed ventilation parameters for the multi-bed rooms in the critical care department included negative or balanced pressure and 4 air changes per hour. Both of these are contrary to the SHTM 03-01 recommendation for critical care areas.

165. The pressure parameter was, however, the considered and risk-assessed preference of NHSL's clinicians based on their intended use of the space. A negative or balanced pressure arrangement, as opposed to a positive one, is a comprehensible choice for rooms in which children with similar infections are to be cared for together: all other things being equal, negative or balanced pressure would tend to limit the spread of respiratory viruses better than positive pressure (Inverarity, Transcript, page 152).

166. After IOM Ltd reported in 2019 on the non-compliance of the critical care ventilation with guidance, and the Cabinet Secretary had determined that compliance with IOM's interpretation of the guidance was essential, NHSL's clinicians were initially concerned as to whether reversal of their preference for negative or balanced pressure would be safe. This led to a great deal of discussion between NHSL's infection prevention and control team and the clinicians, and informal consultation with third party experts, to determine whether the use of positive pressure would indeed be safe for NHSL's intended clinical use. The conclusion ultimately reached was that the guidance-compliant arrangement (positive pressure and 10 air changes per hour) would be safe for that use, but that the balanced or negative pressure arrangement could have

been used without an increase in the risk of infection (Inverarity, Transcript, page 161 to 165).

167. The air change parameter, of four air changes per hour, by contrast was not specifically chosen by NHSL for clinical reasons and was not explicitly considered in their risk assessments. As a departure from the recommended 10 air changes, this increased the risk of infection transmission but it was not possible to quantify that increase (Inverarity, Transcript, page 115 onwards. Dr Inverarity's evidence was consistent with the evidence of Professor Humphreys).

168. No risk assessment was undertaken to assess the risk of having 4 air changes as opposed to 10 air changes. This issue was superseded by the Scottish Government's instruction in early July 2019 that the hospital was required to comply with the guidance (ibid.). There was not therefore any concluded assessment of the risk presented by the ventilation system as installed (balanced/negative pressure at four air changes per hour) compared to the ventilation parameters recommended by the guidance and insisted upon by the Government (positive pressure at ten air changes per hour). There were, however, indications that the lower air change rate might be unsatisfactory (such as information informally supplied to Dr Inverarity by Dr Inkster about ventilation issues at the QEUH (Dr Inverarity, Transcript, pages 124 to 149)), and that achieving slight increases through short-term modifications would come with unacceptable compromises (ibid.)).

169. It was recognised at the time that there was sub-optimal evidence in the scientific literature about ventilation air changes and clinical outcomes. There are challenges in researching these matters. The air change parameters recommended in SHTM 03-01 reflect a broad consensus across the developed world (Dr Inverarity, Transcript, page 45 onwards), and an approach in which critical care areas are better ventilated than general wards (Prof Humphreys, quoted in Inverarity, Transcript, page 146).

170. The Cabinet Secretary's decision to insist on compliance with the guidance was, in respect of air changes, a defensible and rational one given that the guidance recommendation reflected a consensus agreed by experts and the absence of any risk

assessment, or clinical need, justifying a departure from it. It had the consequence that a new and unused ventilation system was replaced at significant cost and disruption, but given the uncertainties of the underlying science it is unlikely that any more detailed investigation would have generated comfort that 4 air changes was appropriate for the critical care department. In our submission, it was reasonable and appropriate to treat the guidance as a default standard in the absence of any risk-assessed, clinical choice for something lower (see Dr Inverarity, Transcript, page 58).

171. The subsequent experience of the Covid pandemic has improved awareness of the risks of low ventilation air change rates, particularly for staff (Inverarity, Transcript, pages 52, 143).

172. There remains disagreement over whether or not the SA1 technical solution for single rooms applied to single rooms in the critical care department. That solution was not, in any event, appropriate for such rooms. It was contrary to the SHTM 03-01 recommendation for critical care areas. It had not been risk assessed for them. It was based on the mixed mode ventilation strategy which relied on openable windows which was not appropriate for critical care rooms. It assumed the existence of en suite WCs which the critical care single rooms did not have.

2.5 Whether the design parameters for the ventilation system in critical care and isolation rooms conformed to statutory regulation and other applicable recommendations, guidance and good practice.

173. The design parameters for the critical care rooms (balanced/negative pressure and 4 air changes per hour) were inconsistent with the recommendation made by SHTM 03-01 for critical care areas.

174. Our submission of 2 June 2023 addressed the matter of the interpretation of SHTM 03-01 in that regard (paragraphs 162 onwards). Whilst Mr McKechnie has consistently maintained a different interpretation, that was not supported by any other

witness and in our submission the Chair should accept Mr Maddocks' characterisation of the interpretation as being an "*outlier*".

2.6 Whether NHSL agreed to a formal derogation from the requirements of SHTM 03-01 and, if so, whether any prior risk assessment was conducted.

175. As explained above, NHSL carried out a risk assessment of the pressure arrangement in multi-bed rooms which included some rooms in the critical care department. Whilst the risk assessment considered the pressure parameter, it did not consider the air change parameter. The pressure parameter for the multi-bed rooms in critical care was therefore risk assessed, but the air change parameter was not.

176. Since nobody involved in the development of the pressure solution for the multi-bed rooms realised that, to the extent it included rooms in the critical care department the solution was not compliant with SHTM guidance for critical care areas, there was no formal derogation from that guidance.

177. The technical solution agreed in SA1 for the single bed rooms was for 4 air changes per hour, and this was explicitly stated to be a departure from the SHTM 03-01 recommendation of 6 air changes per hour for single rooms (Bundle 4, page 45; Bundle 10 page 69). This was therefore a formal derogation to that extent. The Inquiry is not aware of any formal risk assessment having been carried out in support of that derogation in advance of that agreement being documented in SA1.

178. There remains uncertainty and disagreement, however, about whether or not this derogation applied to single bed rooms in the critical care department. The Inquiry is not aware of any evidence that NHSL consciously intended the derogation to apply to single rooms in the critical care department, and the derogation does not purport to be a derogation from the SHTM recommendation of 10 air changes per hour for critical care areas. It seems likely that, as was the case for the multi-bed rooms, the parties proceeded on the basis that all single rooms were to be treated in the same way without any realisation that the rooms in the critical care department were the subject of

different recommendations. Whatever the correct interpretation of the derogation (that is, whether or not it includes single rooms in the critical care department), it would follow that there was no formal, conscious derogation from the SHTM recommendation of 10 air changes per hour. The Inquiry is not aware of any risk assessment to assess the risks arising from a departure from 10 air changes per hour in the single bed rooms in the critical care department, and given the departure appears to have been inadvertent there is unlikely to have been one.

179. For the single bed rooms in haematology/oncology, the technical solution in SA1 was for these rooms to have balanced pressure at 4 air changes per hour. This was an agreed derogation from the requirements of guidance and, although not the subject of a written risk assessment, was risk assessed at a meeting on 13 February 2017 (PPP 8, paragraph 9.10.42 and NHSL comment in response: Bundle 11, page 108; Bundle 12, volume 1, page 85).

2.7 The procedure followed by NHSL for the approval of Settlement Agreement No 1. In particular, the consideration of the issue by the Finance and Resources Committee and the Board of NHSL.

180. The Board of NHSL delegated to its Finance and Resources Committee the authority to undertake oversight and responsibility on its behalf of matters pertaining to SA1. The Finance and Resources Committee thereafter approved the business case for SA1 on 25 July 2018, upon which the Scottish Government agreed (by letter dated 8 August 2018) to provide the additional capital funding of £10m in support of SA1. The Finance and Resources Committee received further updates about, and confirmed its support for, SA1 through the latter part of 2018 and early 2019, and provided a report for the main board about it dated 23 January 2019. On that basis, NHSL's board approved SA1 on 6 February 2019, having been asked "*to receive assurance that all negotiations on the terms of this settlement agreement had been supported by the Board's legal and technical advisers*" (Bundle 13, volume 7, pages 1049 to 1163; Bundle 10, page 153).

181. A member of the NHSL board sought clarification of the assurance which had been received in relation to technical advice, and was referred to the settlement agreement having been supported by the board's technical advisers (ibid., page 1163, paragraph 37.3). The minute does not record the Board being told about the limitations which, according to Mr Greer, he explained to NHSL's project director (Brian Currie) were inherent in MML's role as technical adviser.

182. However, this should be viewed in context. Mr McKechnie maintained, and still maintains, that the design fully complied with SHTM 03-01. If the Board had insisted on receiving additional assurances, Mr McKechnie would have confirmed that, in his view, the design fully complied with published guidance. MML would have refused to accept design responsibility and would therefore not have confirmed formal agreement or disagreement. Therefore, the only way this issue could have been detected through the governance procedures would be if the board had insisted on an independent review of the design. That would likely have involved HFS or a third-party independent contractor reviewing the design and reporting upon it. At the relevant time HFS had very limited engineering resources. The evidence indicated they had between 1 and 3 engineers. The Chair may wish to reflect on whether HFS could have provided the type of assurance that would be required, without incurring the cost of an external consultant. The Chair will also wish to reflect on whether the instruction of an independent review of the technical solution would be appropriate, and proportionate, for a project that was structured on the basis that all design risk sat with the private sector project company.

2.8 What assurances (if any) were sought by and/ or provided to the Scottish Government that: (i) it was appropriate for NHSL to enter into Settlement Agreement No 1; and (ii) that the specification complied with published guidance and best practice.

183. The resolution captured in SA1 necessitated around £10m of additional funding from the Scottish Government. NHSL briefed the Scottish Government on the objectives of SA1. The Scottish Government was aware that the settlement resolved around 80 technical issues and that these included issues relating to the ventilation

systems. It was aware of the financial challenges affecting IHSL. It wanted to avoid the risk of the Scottish Government having to pay £150m to acquire the hospital for NHSL if IHSL became insolvent and its lenders called up the debt obligations, although it considered that to be a remote risk. It was motivated by a desire to get the hospital open, given the delays which had already affected it. NHSL submitted a business case to the Scottish Government on 25 July 2018, which approved it on 8 August 2018 (PPP 8, paragraph 9.10.40; Bundle 11, page 233). This was on the basis that it appeared to be the best solution in the circumstances (Morrison, Transcript, pages 106 to 127).

184. In approving NHSL's entry into SA1, the Government took steps to satisfy itself that NHSL's governance arrangements around it were adequate. It did not carry out, or instruct, any assessment of its own of the technical solutions SA1 contained and instead relied on NHSL having secured sufficient input from its own technical advisors. Mr Morrison, who was NHSL's main point of contact within the Scottish Government, accepted that with the benefit of hindsight it would have been reasonable for the government to ask HFS for a review of the technical solutions before approving NHSL's entry into SA1. He candidly accepted, again with hindsight, that it was a failure of governance on the part of the Scottish Government not to do so (ibid.), although said that the approach to decision making was in line with the division of accountability between government and health boards at the time (ibid., page 125). He was unaware that the approval of SA1 led to NHSL accepting handover of the hospital without the stage 4 HAI SCRIBE checks being carried out (ibid., page 123).

185. The Chair may wish to consider the points made at paragraph 182 above in relation to HFS. At the relevant time, HFS had a limited number of engineers. The evidence indicates it had between 1 and 3 engineers. Instructing a view from HFS would likely have involved an external engineer being instructed at significant cost. The Chair may wish to reflect on whether that would have been a necessary and proportionate step to take in the context of a project where design risk was meant to sit with the private sector. The Chair may also wish to reflect on whether any scrutiny of technical solutions is appropriate or proportionate at government level, given the division of accountability between health boards and government.

186. SA1 was not signed until February 2019, by which time the Scottish Government was aware of emerging concerns about the ventilation systems at the QEUH (Mr Gray having written to health boards about that on 25 January 2019). This raises a question about whether or not the Government knew enough at that time that it ought to have insisted on greater scrutiny of the technical solutions. We do not consider the Inquiry to have enough evidence to reach a view, as it depends on the level of knowledge held by the Government at that time about the emerging issues at the QEUH. The Chair may wish to consider asking the Scottish Ministers to address this point in their closing submissions. He may also wish to re-visit it when further evidence has been led in relation to the QEUH and on the timing of issues being raised with the Scottish Government.

2.9 Why NHSL agreed that the certificate of practical completion could be issued at the point Settlement Agreement No 1 was concluded.

187. The recitals to SA1 record the parties' understanding that the Independent Certifier was, subject to certain provisions, ready to issue a certificate of practical completion (Bundle 4, page 11). Practical completion was in fact certified on 22 February 2019, being the same date on which SA1 was executed (Bundle 4, pages 37 and 223). SA1 and the certification of practical completion were therefore linked.

188. As explained above, practical completion of the hospital allowed NHSL to carry out their commissioning works, resulting in progress towards the hospital opening, and triggered payment of the unitary charge to IHSL, which alleviated the financial pressure they were under.

2.10 Whether the organisational culture within NHSL allowed individuals to raise concerns and issues in relation to the proposed agreement.

189. This matter is addressed in chapter 36 of PPP 9 (Bundle 11, page 619). In short, throughout the time period with which the Inquiry is concerned, NHSL maintained policies designed to ensure individuals with concerns were able to raise them. The

Inquiry has seen no evidence to indicate that anyone was aware of problems with the building engineering systems in the RHCYP/DCN yet inhibited or precluded from raising them. There is evidence of individuals raising concerns without difficulty. For example, Dr Inverarity and Ms Guthrie raised concerns about the lack of a validation report. As explained elsewhere in this submission, the problem in the case of the critical care ventilation was, rather, that nobody realised its specification and design were contrary to the SHTM recommendations for critical care areas.

3. The financing of the RHCYP/DCN

3.1.Whether the financing arrangements for the project contributed to issues and defects in the hospital. In particular, whether there was a perceived need for the building to be certified as practically complete as soon as possible to ensure the solvency of the project company.

190. The financing arrangements are set out in detail in PPP 10 (Bundle 11, page 625).

191. In our submission, the financing arrangements did not directly contribute to issues and defects in the hospital. The Inquiry heard evidence that other revenue funded projects were delivered without significant issues. Moreover, the QEUH was capital funded and significant issues arose.

192. This submission is controversial and a contrary position is taken by NHSL in its response to PPP 10 (Bundle 12, page 530). The Chair should carefully consider PPP 10 and the responses from Core Participants before making any findings on this issue.

193. Although we submit that the financing arrangements did not directly contribute to the defects, there were clearly problems that arose from the deal structure. That gives rise to an issue as to whether the revenue funded model is suitable for future hospital projects. Several witnesses gave evidence indicating that they do not consider that revenue funding is appropriate for hospital projects given their complexity and the

difficulties that arise if changes need to be made to technical solutions after the contract is signed.

194. The NPD model seeks to place most design risk onto the private sector. That is an understandable aspiration given the private sector is financing the hospital. However, the effectiveness of the risk transfer relies on two factors: (1) the clarity of the brief; and (2) the solvency of the special purpose vehicle. The project highlights problems with both aspects.

195. Changing the brief after a contract is signed is problematic. There is a nexus of contracts that sit underneath the Project Agreement. These include arrangements with the principal building contractor, their sub-contractors, and the lenders. Any changes to the Project Agreement have implications for these associated agreements. Witnesses gave evidence of NHSL effectively having to negotiate with IHSL's contractor (Multiplex) despite there being no contract between the parties. Therefore, any changes are problematic and result in complicated negotiations to resolve issues. For a project to be successful, a very clear brief requires to be set out before the Project Agreement is concluded. That creates challenges for a complex project such as a hospital where the relevant science and technology is often evolving. This indicates that the model – in which changes can be problematic – is potentially not fit for purpose.

196. The added risk factor in an NPD project is the solvency of the special purpose vehicle. In the project, there were a range of delays. IHSL required to start making debt payments before the hospital was practically complete. NHSL were not making payments under the Project Agreement. IHSL therefore had significant debt payments to make with no regular, guaranteed, income stream. The problem was initially alleviated by damages payments made by Multiplex. However, there came a point where Multiplex stopped making payments as it considered that it was not responsible for the delays. If a resolution had not been reached, IHSL would have faced insolvency.

197. An inherent risk in revenue funded projects is that the special purpose vehicle incurs obligations but has no revenue as a result of delays. That is what happened on the project. By 2018, there was a real risk of insolvency. Any insolvency would have created significant delays for the project. It could have triggered a requirement for

NHSL to repay £150m. That was the commercial backdrop to SA1. It meant that a deal had to be struck.

198. The commercial pressure to reach a compromise resulted in standard procedures not being followed. HAI-SCRIBE Stage 4 was not completed before the hospital was handed over due to the need for the payments to be made to service the debt. Dr Inverarity described the Stage 4 review as the last chance for a health board to be assured a hospital is safe. Had the Stage 4 review been completed before the agreement was concluded, there was the opportunity for the issues with the critical care rooms to be spotted before NHSL committed to paying for remedial works and before NHSL was bound to pay the unitary charge.

199. The deal structure meant that the transfer of risk from the public sector to the private sector was more theoretical that real. This calls into question the suitability of the revenue funded model. If the revenue funded model is to be used on future healthcare projects, it is critical that the brief is clearly set out and a mechanism is found for more streamlined changes to be made.

4. The decision-making and governance structure for the project in the period after financial close

Particular emphasis will be placed on the decision making and governance concerning SA1, the instruction of IOM Limited, the consideration of the reports produced by IOM Limited and the escalation to Scottish Government

4.1 The decision making and governance processes NHSL had in place to oversee the project and whether they were adequately and effectively implemented.

200. In the period after financial close, there were no changes made to the decision making and governance structures up until July 2019. The detail of the governance structure is set out in PPP 9 (Bundle 11, page 255). Changes were made after problems were identified by IOM Ltd. An incident management team was established (later renamed the executive steering group). Further changes were made when NHSL was

escalated to level 3 and then level 4. This is addressed at question 4.10 (paragraph 218 below).

4.2 Whether the operational management and governance provided by NHSL was adequate and effective for the scale of the project.

201. The operational management and governance was in line with standard procedures in place at the time. The Chair is invited to find that the operational management and governance structures were not key factors resulting in the problems with the hospital.

4.3 The extent to which decision makers sought and facilitated input from clinical leadership teams, IPC, Estates, technical experts and other relevant parties when making key decisions to ensure that the built environment made proper provision for the delivery of clinical care.

202. Decision makers did facilitate input from clinical leadership teams, IPC, estates and technical experts. However, all relevant disciplines were not involved at all the key stages.

203. There were some key failings in decision making that arose from not ensuring all relevant disciplines were consulted in advance of decisions being made. By way of example, IPC were not involved in the decision making around SA1. They were not aware of the terms of the technical solution set out in SA1 and were not aware that the Stage 4 HAI-SCRIBE would not be completed before the hospital was handed over (Bundle 5, pages 30-31). As a result, the hospital was accepted by NHSL in circumstances where it could not be satisfied that the hospital was safe.

4.4 The steps taken by NHSL's IPC team, in particular the lead infection control doctor for NHSL, to ensure that a validation report that complied with SHTM 03-01 was obtained.

204. SHTM 03-01 (2014) outlined the requirements for commissioning and validation (Bundle 1, pages 1035, 1148). These involved a range of tests to demonstrate that the system was working as required. At the end of the validation process, a validation report was to be produced. This was addressed at paragraphs 8.64 and 8.65:

"Ventilation system commissioning/validation report

8.64 Following commissioning and/or validation a full report detailing the findings should be produced. The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.

8.65 The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:

- *the user department;*
- *infection control (where required);*
- *estates and facilities."*

205. There is a degree of ambiguity in the guidance as to what the "required standard" is. Is it the standards set out in the guidance or the contractual standard (which may involve a derogation from the guidance)?

206. There was a degree of confusion on the part of NHSL as to the level of inspection and testing that required to be conducted before the hospital could open. Mr Henderson (Estates) explained in his evidence that complications arose due to the NPD model. NHSL had responsibility for providing healthcare at the hospital. However, it did not own the building. The building was owned by IHSL. Mr Henderson was

therefore unclear as to what reports should have been instructed/ obtained by NHSL as opposed to IHSL.

207. Dr Inverarity raised the need for validation for theatres to be carried out on 24 August 2018. Dr Inverarity highlighted the need to do this *"...given the recent experiences by my microbiology colleagues in Glasgow with their new children's hospital"* (Bundle 7, vol 1, pages 218-219). Dr Inverarity's point was raised again, including by email on 4 January 2019 (Bundle 4, page 4). Dr Inverarity had flagged the requirement for formal validation reports rather than "*a collection of documents*". This was raised with the project management team before SA1 was formally signed.

208. A variety of documentation was provided by IHSL to NHSL to demonstrate that the system was working to the required standard. This was in the form of raw data as opposed to a formal report. Mr Henderson of NHSL was initially content with the documentation provided by IHSL in relation to commissioning and validation (Bundle 4, page 6). However, the IPC team, including Dr Inverarity and Ms Guthrie, were not content with the available information. The IPC team were not able to readily interpret the raw data and wished to see a report that complied with the guidance set out in SHTM 03-01. In particular, they wished to see a clear statement that there was performance to the required standard and that only routine maintenance would be required. The project team agreed to additional testing as they wished IPC to be wholly satisfied with the technical performance of the ventilation system (Bundle 6, page 11).

4.5 Contact between NHSL and individuals involved in the Queen Elizabeth University Hospital and whether this had any role in the key decisions made in the period after financial close, including the decision to instruct IOM Limited.

209. Ronnie Henderson sought advice from an estates department colleague at the QEUH on the pressure parameter for multi-bed rooms (email exchanges, July 2017: PPP 8, paragraph 9.7.26, Bundle 11, page 210). Consistently with the way in which NHSL approached that issue, the exchange did not appear to involve consideration of the possibility that different parameters would apply if the rooms were in a critical care department.

210. Dr Inverarity was aware of emerging problems at the QEUH in the summer of 2018. As highlighted at paragraph 207 above, on 24 August 2018, Dr Inverarity raised the need to obtain a formal validation report given the experiences of his colleagues at QEUH. Dr Inverarity described this as "*absolutely an issue we need to get right*" given the experiences of his microbiology colleagues at the QEUH. The importance of an independent validation report does not appear to have been appreciated by the key decision makers in the project team despite the potential problems at the QEUH having been drawn to their attention by Dr Inverarity.

211. A discussion Dr Inverarity had with infection control consultants at the QEUH in March 2019 drew to his attention that ventilation systems in the QEUH isolation rooms had to be refitted because their original design had not provided appropriate pressures and air flows. This prompted him to ask a colleague to ensure that NHSL's ICT were given appropriate information about air flows and pressure in the RHCYP isolation rooms (PPP 8, paragraph 9.13.9, Bundle 11, page 246; Dr Inverarity, Transcript, page 77).

4.6 The reasons for the instruction of IOM Limited by NHSL to conduct testing of the ventilation system.

212. IOM Ltd were instructed to seek to ensure that the ventilation system fully complied with the requirements of SHTM 03-01 (2014). The reason for the instruction was the fact that Dr Inverarity and his colleagues in IPC had not accepted the raw data provided to them as complying with the validation requirements set out in SHTM 03-01. Without a formal validation report that addressed the issues set out in SHTM 03-01, they did not consider that they could complete the Stage 4 HAI-SCRIBE procedure and confirm that the hospital was safe for patients.

4.7 The commissioning and testing carried out by IOM Limited and the consideration of the results by decision makers, and governance bodies, within NHSL.

213. IOM Ltd was instructed to test the ventilation system against the requirements set out in SHTM 03-01.

214. The testing conducted by IOM Ltd identified that for certain spaces in the hospital the pressure regime and air changes did not conform to the guidance set out in SHTM 03-01 (Bundle 6, pp202, 205, 209, 213, 216, 220, 221, 227, 234, 235, 238, 241, 245, 254, 256).

215. Mr Currie was aware of the emerging issue on 24 June 2019. Senior management at NHSL were aware of the issue on or around 28 June 2019 (Bundle 6, page 252). Mr Davison of NHSL was aware of the issue on or around 1 July 2019. The issue was escalated to the Scottish Government on 2 July 2019.

4.8 When concerns regarding the ventilation system at the RHCYP/DCN were escalated by NHSL to Scottish Government.

216. The issue was escalated to the Scottish Government on 2 July 2019.

4.9 Whether there was any deliberate suppression of concerns regarding the ventilation system by any party involved in the project.

217. There is no evidence of any deliberate suppression of concerns regarding the ventilation system by any party involved in the project.

4.10 The escalation of NHSL to Level 3 and subsequently to level 4 of the NHS Board Performance Escalation Framework.

218. There was a framework for escalation of health boards set out in the "NHS Board Performance Escalation Framework". NHSL was escalated to level 3 and then level 4 of the framework during the project.

219. NHSL was escalated to level 3 on 12 July 2019 (Bundle 7, vol 1, page 339). An Oversight Board was appointed. The Oversight Board was created to provide advice to the Scottish Government on the readiness of the facility to open (Bundle 3, pages 9, 11). The Oversight Board started work in August 2019. Clinicians and IPC were fully involved in the work being carried out (Bundle 3, page 13).

220. The Oversight Board contained a range of skills. It was tasked with reporting to the Scottish Government on when the hospital could open.

221. NHSL was escalated to level 4 of the framework on 13 September 2019 (Bundle 7, vol 3, page 564). When NHSL was escalated to level 4, a senior programme director (Mary Morgan) was appointed. The evidence indicates that she assisted with resolving the problems with the project. The governance structure after the appointment of the Oversight Board and the appointment of Mary Morgan is set out in Bundle 3, page 335.

4.11 Changes made to the decision making and governance structure including: (i) the appointment of a Senior Programme Director; and (ii) the creation of the Oversight Board.

222. This is addressed in the answer to topic 4.10.

4.12 Whether the organisational culture within NHSL encouraged staff to raise concerns and highlight issues in relation to the projects at appropriate times.

223. NHSL had appropriate policies in place which would allow concerns to be highlighted. There is no evidence indicating that any issue regarding organisational culture prevented relevant issues being raised. See answer 2.10 above.

4.13 Whether there were failures in the operation of systems and, if so, whether that was a result of failures on the part of individuals or organisations tasked with specific functions.

224. There was a failure to fully comply with the requirements of SHFN 30. In particular, the stage 4 HAI-SCRIBE was not completed before the hospital was handed over. This was a decision that was taken by NHSL for commercial reasons. IPC had no knowledge of, or input into, this decision.

4.14 Whether national oversight and support was adequate and effective.

225. National governance is addressed in chapter 32 of PPP 9.

226. When the Scottish Government was asked to provide additional funding, it did not seek any specific technical assurances. For example, it did not instruct a review by HFS. On one view, this indicates that national oversight and support was not adequate and effective. However, for the reasons set out at paragraphs 182 and 185 above it is not clear that this was the forum for such issues to be identified. The Chair will require to consider the level of oversight that it is appropriate for national government to have over technical issues in projects being run by health boards.

4.15 Whether there was effective communication between relevant organisations (including NHSL, Scottish Government, and NHS NSS).

227. The available evidence indicates that there was, in general, effective communication between relevant organisations.

228. There may have been a failure to ensure NHSL's chief executive, Mr Davison, knew of the Cabinet Secretary's decision to postpone the opening of the hospital before that decision was announced to the public. Any such failure would be regrettable, given the importance and the urgency of the matter to NHSL. The delay may only have been a matter of minutes, but there was obvious risk of embarrassment to NHSL and to Mr Davison personally (Wright, Transcript, page 71; Davison, Transcript, page 220; Freeman, Transcript, page 63; Connaghan, Transcript, pages 122, 148).

229. The Cabinet Secretary's requirement that communications be approved by the Scottish Government may have unduly inhibited NHSL's ability to communicate effectively (Davison, Transcript, page 118; cf. Freeman, Transcript, page 65). However, we have not identified any specific issues that are material to the TOR.

5. The decision making, and governance, around the decision not to open the hospital in 2019

230. Mr Currie was aware of the problems emerging from the testing conducted by IOM Ltd on 24 June 2019. The senior management team at NHSL were aware of the issue by 28 June 2019. Mr Davison was made aware on or around 1 July 2019. The issue was escalated to the Scottish Government on 2 July 2019. On 4 July 2019, the Cabinet Secretary, Ms Freeman, took the decision that the hospital would not open as planned. Ms Freeman took responsibility for the matter and determined that the hospital should not open until she was sure that the Hospital complied with extant published guidance, including SHTM 03-01. This was on the basis she wanted to be sure that the

hospital was safe for patients. Ms Freeman equated compliance with SHTM 03-01 with patient safety.

231. The decision was taken by Ms Freeman. However, NHSL (and Mr Davison, in particular) were in full agreement with the decision. At that time, all parties considered that there was insufficient evidence to show that the hospital would be safe for patients (Bundle 7, vol 1, page 51).

232. There was significant national oversight from 2 July 2019. This was in the form of the Cabinet Secretary taking control of the key decision making. Regular reports were provided to the Cabinet Secretary. She was only prepared to allow the hospital to open when she received assurances that it fully complied with the relevant published guidance (Bundle 7, vol 1, page 79). Regular briefings were provided to the Cabinet Secretary on the progress being made in rectifying the issues with the ventilation system (e.g. Bundle 13, volume 4, page 465).

233. There was also additional national oversight through use of the "NHS Board Performance Escalation Framework". NHSL was escalated to level 3 and then level 4 of the framework during the project.

234. When NHSL was escalated to level 3, an Oversight Board was appointed (Bundle 7, vol 1, page 339). The Oversight Board was created to provide advice to the Scottish Government on the readiness of the facility to open (Bundle 3, pages 9, 11). The Oversight Board started work in August 2019. Clinicians and IPC were fully involved in the work being carried out (Bundle 3, page 13).

235. The Oversight Board contained a range of skills. It was tasked with reporting to the Scottish Government on when the hospital could open.

236. NHSL was escalated to level 4 of the framework on 13 September 2019 (Bundle 7, vol 3, page 564). When NHSL was escalated to level 4, a senior programme director (Mary Morgan) was appointed. The evidence indicates that she assisted with resolving the problems with the project. The governance structure after the appointment of the Oversight Board and Mary Morgan is set out in Bundle 3, page 335.

237. HVC Notice 107 was issued, and Settlement Agreement 2 was entered into, by NHSL. HVC Notice 107 specifies the technical requirements for changes to the ventilation system for critical care in terms of the pressure regime and required air changes per hour to ensure compliance with SHTM 03-01.

238. Hoare Lea and Imtech were engaged by IHSL to design and build a ventilation system to comply with the requirements set out in HVC Notice 107.

239. IOM Ltd then carried out validation testing to demonstrate compliance of the system with SHTM 03-01. They confirmed that the system complied with SHTM 03-01.

240. Ms Freeman was only prepared to agree to allow the hospital to open (first the DCN, then the RHCYP for out-patients, then the entire RHCYP) when she was satisfied that it complied with published guidance.

241. The system was tested by IOM Ltd and was found to comply with the requirements of SMTM 03-01. Mr Maddocks has produced a report indicating that the revised system complies with published guidance.

242. Ms Freeman did not seek any advice on whether the hospital was "*unsafe*" with the original specification (as per SA1). Mr McKechnie (Wallace Whittle) contends the specification complied with SHTM 03-01. This view was not communicated to the Scottish Government. No substantial consideration was given to Mr McKechnie's views, or to the risk assessments completed in 2017 and 2018, when the decisions were made not to open, and then to open, the hospital. There was an assumption made that compliance with SHTM 03-01 is the means to ensure a critical care department is safe.

5.1 When the Scottish Government became aware of a potential issue with ventilation at the RHCYP/DCN.

243. The Scottish Government became aware of this issue on or around 2 July 2019. The issue was escalated to the Cabinet Secretary who took personal responsibility for the matter.

5.2 Whether perceived issues with the QEUH impacted on the decision making. This will include consideration of contact from whistle-blowers at the QEUH with the Scottish Government and its relevance (if any) to decisions taken in relation to the RHCYP/DCN.

244. Ms Freeman was aware of emerging issues in relation to QUEH when she took her decision not to open the RHCYP/DCN. In particular, she was aware of concerns that had been raised by Dr Inkster who worked there.

245. The emerging issues at the QUEH were part of the relevant background to the decision. In particular, Ms Freeman was aware of the difficulties in seeking to rectify problems once a hospital had opened to patients. However, the key reason for the decision was that the hospital did not comply with SHTM 03-01. Ms Freeman considered that non-compliance with the published guidance created an unreasonable risk to the safety of patients. She was also concerned as to whether the identified issues were the only issues with the hospital, or an indication that there might be others.

5.3 The basis for the Cabinet Secretary's decision not to open the hospital, including the material available to her.

246. The Cabinet Secretary was aware that there was non-compliance with published guidance. She considered that the non-compliance resulted in a risk to patient safety. She was concerned as to whether the non-compliance with SHTM 03-01 was the only issue with the hospital.

247. No evidence was available to Ms Freeman indicating that the hospital was safe for patients.

248. No risk assessment was undertaken prior to the decision being taken not to open the hospital. Ms Freeman determined that the new hospital had to comply with SHTM 03-01. Therefore, no risk assessment was subsequently undertaken in relation to the safety of the hospital as built under SA1. No consideration was given after that point to whether additional measures could be implemented to allow the hospital to open without significant remedial works being undertaken.

5.4 Communications with patients and families. This issue was covered at the Inquiry's first set of hearings in relation to patients and families. The intention is for relevant individuals within NHSL and Scottish Government to have an opportunity to address the issue from their perspective.

249. The physical, emotional and other effects on patients and families were addressed at the first set of hearings held by the Inquiry. The evidence indicates that patients and families were shocked and extremely concerned by the decision to cancel the opening of the hospital. In relation to the RHCYP, children required to be treated in a sub-optimal Victorian building. In relation to the DCN, there was a known risk of harm to patients due to the problems with the water system which NHSL required to manage to seek to reduce the risk of harm to patients.

250. A large number of patients, and appointments, were impacted by the decision not to open the new hospital. Approximately 2255 appointments required to be rescheduled immediately from July 2019 alone. Of these, 1586 were paediatric appointments and 669 were for DCN patients (Bundle 7, vol 1, page 303).

251. No formal complaints were received by NHSL or the Scottish Government in relation to the decision not to open the hospital or in relation to the rescheduling of appointments so they could take place in other hospitals (Bundle 7, vol 2, pages 113 and 117).

252. There are several aspects to the communication with patients and their families. The evidence indicates that NHSL informed all patients of the fact that appointments would not be taking place at the RHCYP/DCN as planned. A strategy was put in place to seek to ensure that patients and families knew where to attend for treatment. No evidence was led of any adverse issues surrounding that communication.

253. Patients and families were not provided with a written explanation, for the reasons for the RHCYP/DCN not opening as planned, by either NHSL or the Scottish Government. Two letters were sent to staff by the Cabinet Secretary providing an explanation of the situation. However, no similar letters were sent to patients and families. Mr Davison and Ms Freeman agreed that the communication to patients and families was sub-optimal in this regard. Ms Freeman acknowledged that if a similar problem was to arise in the future, a letter should be sent to patients and families.

254. Ms Freeman attended the old Sick Kids and DCN in August and October 2019 to seek to explain to staff and patients the reasons for the decisions that had been taken and to understand what steps could be taken to facilitate treatment being provided at the hospitals in the period until the new hospital could open.

255. The Scottish Government took overall responsibility for communication. This meant that NHSL could not have direct contact with patients or staff without prior approval from Scottish Government. Mr Davison indicated that this prevented NHSL being open and transparent with patients. Ms Freeman's position was that this decision was taken to ensure that there was clear and consistent messaging and to avoid confusing the public. We have not identified any specific issues that are material to the TOR.

6. The changes to the ventilation system required by HVC Notice 107 and made prior to the opening of the hospital

256. There were significant changes made to the ventilation system as a result of HVC 107 and Settlement Agreement 2. These resulted in the critical care rooms

(specified as balanced/ negative pressure and 4 air changes per hour) being changed to positive pressure and 10 air changes per hour. This required extensive remedial works. The ductwork and air handling units required to be replaced. The works were carried out by Imtech and Hoare Lea. They are addressed in the witness statement of Mr Winning. The revised system was tested by IOM Ltd and found to fully comply with SHTM 03-01 (Bundle 1, p2995, 3000 to 3002, 3008, 3014 and 3233). This was confirmed by Mr Maddocks in his report and in his oral evidence to the Inquiry.

6.1 Why the brief, and agreed strategy, for the ventilation system for critical care rooms and isolation rooms (as at the point of SA1) was deemed no longer to be adequate or appropriate.

257. NHSL had always wished the ventilation system to fully comply with SHTM 03-01 unless it agreed to a formal derogation. It did not knowingly agree to any such derogation for critical care rooms. Therefore, changes were made to seek to ensure that the ventilation system in critical care rooms fully complies with SHTM 03-01.

258. NHSL's overall requirement was to safely cohort infectious patients, for example, patients with respiratory syncytial virus (RSV). This requirement did not change throughout the project. However, the brief and strategy to achieve this objective changed significantly during the project. As at SA1, the technical solution was balanced or negative pressure. By HVC 107 and Settlement Agreement 2 this had changed to positive pressure.

259. Clinicians considered that the objective of safely cohorting infectious patients should be achieved by way of balanced or negative pressure. The evidence available to the Inquiry indicates that this is an acceptable strategy to cohort patients. However, this strategy would be in conflict with the published guidance set out in SHTM 03-01. This was not recognised by NHSL at the point SA1 was entered into.

260. NHSL produced a risk assessment in 2017 (which was refreshed in 2018) outlining the need to cohort patients. The risk assessments were not formally signed off by anyone in IPC. There does appear to have been some involvement from IPC,

potentially Janette Richards (or Rae). However, there is no clear evidence that she was aware that some of the relevant spaces were in critical care. She is not a signatory to the Risk Assessments. There is no communication available to the Inquiry indicating that anyone in IPC was shown the Risk Assessments.

261. At no point was any specific consideration given to air changes by clinicians or estates. There is reference to 4 air changes in various communications. However, these were merely outlining what had been specified in the environmental matrix. There was no appreciation that this was lower than the specification in SHTM 03-01.

262. In the period after the IOM Ltd reports were available, there were intensive discussions about whether it would be safe to change the ventilation system from balanced/ negative pressure to positive pressure. The consensus view was that this would be a safe environment. This view was also endorsed informally by Peter Hoffman (Public Health England) and Malcolm Thomas (one of the authors of HTM 03-01).

263. The key change was to air changes per hour. Ultimately, either pressure regime (balanced/ negative or positive) was likely to be adequate and safe. The change to positive pressure and 10 air changes per hour was made because Ms Freeman considered that the new build hospital must comply with the requirements of SHTM 03-01. No party – either from NHSL or Scottish Government – gave any consideration to a permanent solution that did not fully comply with SHTM 03-01.

264. No risk assessment was undertaken to assess whether 4 air changes per hour would have been safe either itself or with additional protective measures. The evidence of Dr Inverarity is that research conducted after the Covid-19 pandemic indicates that any air changes of less that 6 would likely have caused unacceptable risk to staff members treating infectious patients. This is consistent with the evidence of Professor Humphreys.

265. Given that the available evidence indicates that patients could be safely cohorted using either balanced/ negative pressure or positive pressure, the key issue was that the system was not providing 10 air changes per hour.

266. The evidence of the NHSL witnesses was that the intention was always for full compliance with SHTM 03-01. There was an error in the specification of the air change rates that was not spotted by clinicians or technical advisors. MML contend that although they drafted the technical schedule to SA1, they had no responsibility for the content of the document. It is no part of the remit of the Inquiry to determine whether MML has any legal liability for the technical schedule it drafted.

6.2 Whether lessons were learned from QEUH in relation to the ventilation system.

267. There were lessons learned from the QEUH. For example, a letter was circulated seeking confirmation about various controls, prompted by emerging issues at the QEUH (Bundle 13, vol 1, page 762).

268. Dr Inverarity was aware of potential problems with the ventilation system in summer 2018. He raised this with the project team to seek to ensure that an appropriate validation report was obtained. This is an example of lessons being learned by some individuals involved in the project. However, these learning points were not immediately apparent to all members of the project team.

269. While Dr Inverarity had discussed general concerns regarding the ventilation system with colleagues working at the QEUH in 2018, the evidence indicates that it was only in July 2019 that he was aware that there were potential issues with air changes and pressure rates at the QEUH (Bundle 13, vol 8, page 2226). By this time, the ventilation system had been installed at the RHCYP/DCN and SA1 had been concluded.

270. The QEUH was being built around the same time as the RHCYP/DCN. There were clearly emerging issues at the QUEH in late 2018 and early 2019. These issues had not been fully investigated. Therefore, there was limited opportunity to learn lessons. Moreover, the QEUH had a different specification for the ventilation system. Given the fact that the systems were not identical, there were no clear opportunities for lessons to be learned.

271. However, there was a lack of formal procedures to allow knowledge from the QEUH to be shared in relation to the RHCYP/DCN. Contact was largely on an informal colleague to colleague basis. There were no formal structures for information and knowledge to be exchanged between health boards.

272. Dr Inkster (QEUH) had discussions with Dr Inverarity. However, there was no evidence of any structured meetings between GGCHB and NHSL to discuss emerging issues at the QEUH. The Chair will need to consider whether this should be addressed for the future.

273. There are also gaps in the ability for other health boards to learn lessons from the RHCYP/DCN. NHSL commissioned a report from Grant Thornton. It accepted the conclusions of the report and the need for changes to be made to systems. These learnings have not been shared more widely within the NHS. This gives rise to a real risk of similar mistakes being made on future projects by other health boards.

6.3 The input (if any) from clinical leadership teams, IPC teams, estates teams, technical experts and other relevant parties prior to HVC Notice 107 being issued and Settlement Agreement No 2 being concluded.

274. There was significant input from clinicians, IPC, estates and technical advisors prior to HVC Notice 107 and Settlement Agreement 2 being concluded.

275. Dr Inverarity was involved in discussions with stakeholders on whether the proposed solution would be safe. The consensus view was that the new solution would be safe.

276. Dr Inverarity and Ms Guthrie were involved in risk assessing every clinical space in the hospital. This included a line by line review of the proposed technical solutions (Bundle 13, vol 7, page 152; Guthrie, Transcript, pages 127 to 131).

277. HFS were content with the proposed solution (Bundle 3, page 797; 944) albeit HFS were not taking design responsibility itself.

278. MML confirmed that they had identified no "*red flags*" in relation to the proposed solution albeit no design assurance was provided (Bundle 3, page 972).

279. MML maintained throughout the remedial works process that they could not confirm that any design solution was appropriate without undertaking design responsibility. MML could not be designer and client advisor (Bundle 3, page 943). The qualified statements are consistent with this approach.

280. There was some evidence given at the hearings that gave the impression that MML had approved the final solution set out in Settlement Agreement 2 and had signed the "AHU Remedials Cover Sheet" (Transcript for Mr Maddocks, pages 66-67). Mr Maddocks was asked to consider the AHU Remedials Cover Sheet (Bundle 1, page 3233) which was signed by a number of individuals. The document available to Mr Maddocks at the hearing contains redactions hiding the signing blocks. The redactions suggest that all listed individuals may have signed the document. However, that is not the case. The unredacted document was not signed by any individual from MML. The only assurance provided by MML was that it has identified no "*red flags*" with the design (Bundle 3, page 972).

6.4 The reasons for NHSL issuing HVC Notice 107 and entering into Settlement Agreement No 2.

281. NHSL issued HVC Notice 107 and entered into Settlement Agreement 2 to ensure that the new hospital fully complied with the guidance set out in SHTM 03-01.

6.5 The changes made to the design for the ventilation system for critical care rooms and isolation rooms.

282. Significant changes were made to the design. In particular, the pressure regime was changed to positive pressure. The air changes were changed to 10 air changes per hour.

6.6 Remedial works undertaken to the ventilation system in relation to critical care and isolation rooms.

283. The remedial works were extensive. The ventilation system, concerning the critical care where the dispute arose, was effectively replaced. By way of example, the ductwork and Air Handling Units were replaced.

6.7 Whether the remedial works have been adequate and effective. In particular, whether the ventilation system in critical care and isolation rooms is designed, and commissioned, in compliance with published guidance and best practice.

284. The remedial works have been adequate and effective. The ventilation system in critical care and isolation rooms is designed, and commissioned, in compliance with published guidance and best practice.

285. This is evidenced by the testing carried out by IOM Ltd (Bundle 1, p2995, 3000, 3002, 3008, 3014, 3233). It is addressed in the report by Mr Maddocks and in his oral evidence. There is no evidence before the Inquiry indicating any residual safety concerns arising from the ventilation system.

7. The decision making, and governance, around the decision to open the hospital

7.1 The basis for the Cabinet Secretary determining that the hospital should open.

286. Governance is dealt with in detail in PPP 9.

287. The Cabinet Secretary was only prepared to agree to allow the hospital to open when she was satisfied that the ventilation system complied with published guidance.

288. The air changes and pressure in critical care was a standing item on the agenda of the Oversight Board. (The minutes of the Oversight Board are included in Bundle 3). By 8 March 2021, Ms Morgan, the Senior Programme Director, was satisfied that the hospital was safe to open. By this time, the IOM Ltd reports had been obtained showing that the hospital complied with SHTM 03-01, IOM Ltd confirmed that the ventilation system was fit for purpose and would only require routine maintenance to remain so. Gordon James, HFS, had reported no outstanding issues from HFS' perspective. HAI Scribe 4 had been completed by Lindsay Guthrie (Bundle 8, page 240).

8. Whether the hospital provides a suitable environment for the delivery of safe, effective person-centred care

8.1 The material demonstrating that the ventilation system in critical care and isolation rooms provides a suitable environment for the delivery of safe, effective person-centred care.

289. IOM Ltd carried out testing that demonstrates that the ventilation system complies with SHTM 03-01 (Bundle 1, p2995, 3000, 3002, 3008, 3014, 3233). IOM Ltd confirmed that the ventilation system was fit for purpose and would only require routine maintenance to remain so.

290. NHSL also received assurances from various parties including Dr Inverarity. Ms Guthrie completed the stage 4 HAI-SCRIBE.

291. HFS and the Authorising Engineer confirmed that they were content with the revised specification. MML provided confirmation that no issues had been identified by them albeit they were not taking design responsibility.

292. The hospital provides a suitable environment for the delivery of safe, effective person-centred care.

9. Changes in Policies, Procedures, Protocols and Governance Arrangements after the project

9.1 Whether NHSL, and the wider NHS, have implemented recommendations from previous reports (including the Grant Thornton report) and whether these are now embedded in the wider NHS.

293. Grant Thornton reported to NHSL on the governance and internal controls for the RHCYP/DCN project (Bundle 10, page 4). Their report included recommendations for NHSL to strengthen its internal controls for major capital projects, and NHSL's response to those recommendations (ibid., page 39).

294. NHSL accepted the recommendations made by Grant Thornton, having been involved with discussions about them before they were made, and have sought to implement them. This work has been complex, and delayed both by the Covid pandemic and by NHSL's desire to take account of the establishment of Assure ("Assure").

295. NHSL wish to test the measures they have developed in real projects. Whilst this initiative has been started it has not been possible yet to complete it because of a pause on capital expenditure.

296. NHSL has supplied to the Inquiry a bundle containing its draft assurance framework documentation (Bundle 13, volume 11, pages 4 to 88) and internal committee papers relating to it (ibid. pages 89 to 143).

297. The Grant Thornton report was shared with the Scottish Government but, because it was commissioned by NHSL for their own use, it has not been shared more widely within the NHS. NHSL have, however, circulated their framework to the Scottish Government and it is available to other health boards via NHSL's website.

298. The following witnesses dealt with the issue:

- Susan Goldsmith, Transcript, 125 to 137
- John Connaghan, Transcript, 159 to 162
- Alan Morrison, Statement, paragraphs 74 to 77

9.2 Whether there are systemic knowledge transfer arrangements in place to learn lessons from healthcare construction projects and whether they are adequate and effective

299. Prior to the creation of Assure, there were no formal knowledge transfer arrangements in place. While there was scope for the Scottish Government and/ or NHS bodies to communicate with health boards, there was no structured mechanism to ensure that lessons were learned from previous projects.

300. Assure has introduced procedures to seek to ensure that lessons are learned from previous projects. On 13 December 2022, it published a paper on its website identifying lessons learned by HFS and ARHAI from significant healthcare construction projects (Assure Lessons Learned: Overview for the Interim Review Service; https://www.nss.nhs.scot/publications/nhs-scotland-assure-lessons-learned/). The lessons learned informed Assure's Key Stage Assurance Review Workbooks (ibid., page 3), and included:

- The need to establish a clear brief which is understood and agreed by all stakeholders at a sufficiently early stage (page 4)

- The need to audit design, with input from chartered engineers and infection control specialists (page 4)

- The need for risk assessment in accordance with guidance (page 6)

- The need for rigorous scrutiny of derogations by all stakeholders (page 6)

- The need to assess the competence and experience of contractors for the work (page 8)

- Particular examples of lessons learned in relation to key building engineering systems (fire, ventilation, electrics, medical gases, and water) (page 10).

301. Assure has replaced their Initial Agreement KSAR with a briefing for health boards on lessons learned, which takes place at the early stages of a project (Rodger, Transcript, page 123).

302. As for infection control incidents arising from engineering issues, infection control protocols are outlined in the National Infection Prevention and Control Manual. Assure's engineers support ARHAI staff in that context (Rodger, Transcript, 219).

9.3 Whether NHSL and the Scottish Government had an opportunity to learn lessons from the experience of issues relating to ventilation at the QEUH and whether they took advantage of that opportunity.

303. Informal communications amongst infection control doctors about the functioning of PPVL isolation rooms took place in 2016 (Dr Inverarity, Statement, paragraph 95). Dr Inverarity raised the need for validation for theatres to be carried out on 24 August 2018. He highlighted the need to do this *"...given the recent experiences by my microbiology colleagues in Glasgow with their new children's hospital"*, and emphasised the need to do so prior to handover: "*Glasgow have identified many issues since accepting their building that they are in the process of retrospectively addressing and we should avoid finding ourselves in that position*" (Bundle 7, vol 1, pages 218-

219). Dr Inverarity's point was raised again, including by email on 4 January 2019 (Bundle 4, page 4). He had flagged the requirement for formal validation reports rather than "*a collection of documents*". This was raised with the project management team before SA1 was formally signed, but this did not result in the Stage 4 HAI-SCRIBE being completed before the hospital was handed over. Whilst Dr Inverarity appeared to have learned the lesson from the QEUH, NHSL as an institution failed to act upon it.

304. Dr Inverarity was made aware in March 2019 through discussions with infection control consultants at the QEUH about air flow and pressure issues in their isolation rooms, and on that basis asked his colleague to ensure that similar details were properly assessed in the context of NHSL's HAI SCRIBE review (Inverarity, Transcript, page 77; Bundle 13, volume 3, page 462).

305. Otherwise, information sharing about the QEUH ventilation appears to have been minimal until late 2018 into early 2019 (Donald Inverarity, Transcript, page 71; Janice MacKenzie, Transcript, page 70). The ventilation systems at the RHCYP/DCN were, in their original form, completed by late 2018.

306. Sufficient concern about ventilation at the QEUH had arisen within the Scottish Government by early 2019 to prompt a meeting of the Strategic Facilities Group on 23 January 2019. Paul Gray, the then Director of Health and Social Care, wrote to all Scottish health boards on 25 January 2019 seeking confirmation that certain controls were in place and working effectively. The letter sought confirmation that all critical ventilation systems were being inspected and maintained in line with SHTM 03-01 (Bundle 13, volume 1, page 762). The focus at that stage was on inspection and maintenance, rather than design and installation.

307. The underlying cause(s) of the issues arising at the QEUH may not, however, have been known at that time (Wright, Transcript, page 31).

308. The Inquiry has correspondence between QEUH whistle-blowers and the Scottish Government from 2019 onwards (Bundle 13, volume 10; Jeane Freeman Supplementary Statement, paragraph 8). The Inquiry has, however, yet to hear detailed evidence about the issues relating to ventilation at the QEUH. From the evidence which

the Inquiry has heard in relation to the RHCYP/DCN, very little information was available to NHSL and the Scottish Government about lessons to be learned from the ventilation systems at the QEUH prior to completion of the RHCYP/DCN critical care ventilation in 2018.

309. After IOM Limited had reported to NHSL in June/July 2019 that the ventilation in the RHCYP critical care department delivered air changes below the recommended level, Dr Inverarity corresponded with Dr Theresa Inkster, his microbiologist colleague at NHS Greater Glasgow & Clyde. That helped inform his thinking but there were differences in the ventilation systems between the two hospitals (Donald Inverarity, Statement, paragraphs 136, 142, 152, 190; Transcript, pages 77, 124, 128, 135).

310. Jeane Freeman's decision-making about the RHCYP/DCN from July 2019 was influenced by her knowledge of events at the QEUH (Supplementary Statement, paragraphs 16 to 20) including the difficulties of making changes to key building systems after a hospital has opened and patients are being treated in it.

9.4 The changes in relation to new hospital projects arising from the creation of Assure.

311. Assure ("Assure") is a division of NHS NSS. It provides the services formerly supplied by Health Facilities Scotland (HFS) and Antimicrobial Resistance and Healthcare Associated Infection Scotland (ARHAI) together with the new Key Stage Assurance Review process (Bundle 9).

312. Assure was set up to seek to prevent a recurrence of what happened at the RHCYP/DCN, being the late discovery that the performance of a key building engineering system (the ventilation in the critical care department) fell below the parameters recommended in SHTM guidance.

313. Plans for Assure's creation began to form a matter of days after IOM Limited had reported on that non-compliance (Alan Morrison, Transcript, 118; Malcolm

Wright, Transcript, 76). These plans were prompted by Jeane Freeman's desire that the Cabinet Secretary for Health, who is ultimately accountable to Parliament for the health service, be given robust assurance about healthcare construction projects (Morrison, Assure Statement, paragraph 9).

314. Assure was launched on 1 June 2021. From that date, all projects requiring approval from the Scottish Government Capital Investment Group ("CIG") have been required to undertake Assure's Key Stage Assurance Reviews ("KSARs"). The key stages of project approval at which KSARs are to take place are Outline Business Case, Full Business Case, Construction, Commissioning and Handover. CIG approval will require satisfactory completion of the relevant KSAR (DL (2021) 14, Bundle 9, page 70). The Scottish Government may also commission Assure to undertake reviews on other projects where it considers that appropriate (Morrison, Assure Statement, paragraph 29). Since 6 February 2023, no building project undergoing Assure's KSARs may open to the public until it has received "supported status" from Assure (DL (2023) 03 Bundle 9, page 75).

315. In practical terms, therefore, Assure has significant influence over the funding and progress of healthcare building projects in Scotland and whether or not they open to patients. An important limitation on Assure's role, however, is that it does not certify that design solutions are adequate or safe. It does not, for example, provide confirmation that the projects have complied with all applicable guidance. Responsibility and accountability for that compliance remains with the NHS board which is running the project, and any contractors or consultants which the board engages for that purpose.

316. Assure is neither an inspector, not a regulator.

317. Assure has published workbooks for each of the KSARs, which explain the process and set out a framework of questions to be addressed in each review (Bundle 9, pages 107 to 266).

318. Assure describes its KSARs as delivering "*an independent peer review*" and "*a challenge to the robustness of the Health Board's brief, plans and processes*" (e.g.,

Bundle 9, page 124). They provide an opportunity to identify, and allow health boards to address, potential shortcomings in project governance in particular around compliance with guidance applicable to building engineering systems (water, plumbing and drainage; ventilation; electrics; medical gases), and infection prevention and control in the built environment.

319. The KSARs aim to gain assurance that the boards have suitable expertise and procedures in place to ensure proper decision-making about their requirements in relation to these matters, and that they maintain appropriate records about those decisions. Assure's Head of Engineering emphasised the importance of a "*golden thread*" by which key project decisions are documented for future reference (Rodger, Transcript, page 131). In the particular context of ventilation design, the KSARs require (for example) evidence that the ventilation requirements for particular rooms have been signed off by various stakeholders (Bundle 9, page 138), and that the board's authorising engineer has been involved and reviewed the design proposals (ibid., page 139).

320. In Mr. Rodger's words, the Key Stage Assurance process "*aims to ensure that the Health Board's project governance and procedures are such that the risk of inadvertent non-compliance with guidance is reduced*". The key term is "*reduced*": the KSAR process is not a guarantee that such risk will be eradicated (Transcript, page 118). He explained that Assure does not check all project details for compliance with guidance, but carries out sample reviews to a degree necessary to gain confidence in the project's management. The degree of scrutiny required to gain that confidence may vary from project to project (Transcript, 165, 175). The process therefore requires sound judgment by the Assure staff who carry it out.

321. Mr Rodger emphasised the centrality to the KSAR process of a comprehensive understanding of the needs of the patients using the facility (Transcript, page 140).

322. The chair may wish to consider the adequacy of these arrangements. In our submission, they represent a robust challenge to help improve boards' governance and compliance with guidance, both on the project undergoing review and for future projects, and provide assurance to government (and indirectly to boards and the public)

about these matters. Whilst they do not involve Assure certifying compliance, or inspecting buildings to check for compliance, that may represent a reasonable compromise on grounds of cost and practicality. It may also help maintain the division of responsibility between government and health boards on which the NHS in Scotland is currently based. It may be that, over time, and as a result of undergoing KSARs, health boards' understanding of guidance, and their project governance practices will improve, reducing the future burden of the KSARs (Rodger, Transcript, 202, 208). It may also be that Assure's own expertise and experience will develop through their engagement with health boards and their projects, helping them to refine and improve the KSARs and the guidance.

323. The Chair will also wish to carefully consider Ms Freeman's evidence on these issues. Ms Freeman's vision was for a centre of excellence to undertake a role akin to a clerk of works. She wanted to ensure that there was physical testing of key building systems. Assure does not undertake that role. Ms Freeman also outlined that, in her view, Assure is not a complete answer to the challenges that arise in healthcare building projects. She considered that more consideration may need to be given to whether the Government should have a greater role in such projects due to the fact that the Cabinet Secretary ultimately has responsibility for the public being treated in safe hospitals (Transcript 34, 78, 114 to end). This was not favoured by other witnesses, who generally preferred leaving accountability with health boards (Wright, Transcript, page 92, 100; Morrison, Transcript, page 173; Morgan, Transcript, page 264; McQueen, Transcript, page 221; Connaghan, Transcript, page 157).

324. Key witness evidence on Assure is set out in the following documents:

- Jeane Freeman, Statement, paragraphs 150 to 157; Transcript, 34, 78 to 80, 114 to 137
- Alan Morrison, Statement on Assure; Transcript, 161 to 180
- Julie Critchley, Statement and Transcript
- Thomas Rodger, Statement and Transcript

- Malcolm Wright, Transcript, 90 to 102
- Steve Maddocks, Report paragraph 6.1
- Lindsay Guthrie, Statement, paragraph 268 onwards
- Tracey Gillies, Transcript, page 67 onwards
- Alex McMahon, Transcript, page 63 onwards
- Professor Connaghan, Transcript, page 154 onwards
- Mary Morgan, Transcript, page 264 onwards
- Lindsay Guthrie, Transcript, page 153 onwards
- Graeme Greer, Transcript, page 193 onwards
- Ronnie Henderson, Transcript, page 181
- Stewart McKechnie, Transcript, page 142
- Sarah Jane Sutherland, Transcript, page 196
- Dr Donald Inverarity, Transcript, page 173

325. Points which the chair may wish to consider include:

- Whether Assure unnecessarily duplicates work which others are already engaged to deal with: designers, technical advisers, etc
- The KSARs are mandated only for projects requiring CIG approval; for other projects, it is a matter for the health boards whether or not they choose to follow them (Rodger, Transcript, 138).

- The need to refine, and streamline, the various processes which aim to ensure compliance with guidance, such as NDAPs and KSARs (Rodger, Transcript, page 142).

- The benefits in efficiency and consistency to be derived through the same Assure team carrying out each KSAR stage on any given project (Rodger, Transcript, 210).

- Concerns that Assure has gone too far in emphasising that boards must themselves take responsibility for compliance with guidance, tending to avoid providing the assistance that boards need (Rodger, Transcript, 211).

- The need to work with resource limitations which affect health boards, and to ensure the KSAR process does not put pressure on staff (in particular IPC professionals) to work beyond their competence.

- Related to the above, ensuring that clinicians and IPC staff are involved only where their expertise is genuinely needed.

- The recognition by various witnesses that Assure is new and will require time to bed down.

- The KSAR workbooks may require to be updated to reflect the most recent SHTM guidance (Rodger, Transcript, 179).

326. Witnesses were generally positive about the Assure KSAR process, although few had direct experience of it and no project has yet gone through the full process.

9.5 Changes introduced by the most recent version of SHTM 03-01, including the creation of the Ventilation Safety Group.

327. A new version of SHTM 03-01 was issued in February 2022 (Bundle 1, page 2263). It is substantially revised from the previous version (2014 version: Bundle 1, page 1035). Important provisions of the revised guidance include:

- The recommendation to treat it "*as the standard to be achieved*", and for new build facilities to comply with it unless the Ventilation Safety Group has agreed a derogation (pages 2268, 2289).

- The introduction of the Ventilation Safety Group ("VSG"), the remit of which is to assess all aspects of ventilation safety and resilience required for the safe development and operation of healthcare premises.

  Its remit explicitly applies to the design, commissioning and validation of new systems. It is to report to a designated person at board level. Derogations from SHTM guidance are to be subject to the scrutiny, and agreement in writing, of the VSG; and derogations are to be supported by a body of evidence that the proposal will provide a degree of safety no less than if the SHTM guidance had been followed (pages 2269, 2286).

- Definitions are provided for clinical areas and critical systems (the latter of which includes critical care areas) (page 2288).

- Clarification of the areas where natural ventilation is appropriate (e.g., paragraph 5.6, page 2298)

- Improved clarification of recommendations for particular areas, including recommended air change rates.

  Critical care areas are now defined as being those in which level 2 or 3 care is provided (paragraph 5.41, page 2304; chapter 8, page 2314; pages 2340, 2341; Appendix 2, page 2431; Appendix 12 (defining care levels), page 2487).

- Guidance on validation, including a requirement for all new and refurbished ventilation systems to be independently validated prior to acceptance by the client.

  This validation is to be carried out by the health board's authorising engineer or someone of similar standing, who is completely independent of those who designed, supplied, installed, commissioned, or are to operate and maintain, the system. It is now essential for the validating engineer to have been involved in the initial brief and design specification, and for any derogations to be clearly defined, agreed and documented during those earlier stages. This should prevent issues of non-compliance arising from inadequate design being detected unexpectedly only at the stage of final validation. The validating engineer is to provide a full report of the validation findings, which concludes with a clear statement on whether or not the system achieved the standard set out in the agreed design specification (chapter 12, page 2402 onwards).

328. Further comment on these issues is available in the following:

- Henderson, Transcript, page 186
- MacKenzie, Transcript, page 83
- Greer, Transcript, page 200
- Pike, Transcript, page 94
- McKechnie, Transcript, page 132
- Sutherland, Transcript, page 142
- Inverarity, Transcript, pages 21, 178
- Maddocks, Transcript, page 70
- Greer, Transcript, pages 136, 200
- Pike, Transcript, page 96
- Hall, Transcript, page 184

329. The Chair may wish to consider whether the issue with non-compliant ventilation in the RHCYP/DCN critical care department would have arisen had the updated version of SHTM 03-01 been in place at the time. In our submission, had the

foregoing changes been in place, and implemented, it is much more likely that the RHCYP/DCN ventilation would have been designed and installed to meet the SHTM recommendations first time, and that the cost and disruption of remedial works would have been avoided.

330. The Chair may also wish to consider whether, in the particular context of ventilation at least, the changes to SHTM 03-01 would be a sufficient and proportionate way to address the type of issue which arose on the RHCYP/DCN project without the need for Assure's KSAR process. That is particularly so given the cost and time which compliance with the KSARs is likely to involve, and the fact that Assure neither certifies compliance nor purports to eradicate issues of non-compliance.

9.6 Lessons learned to ensure past mistakes are not repeated

331. We address this matter in section 5 below, on potential recommendations.

4. The questions posed in Terms of Reference 1 - 12

Remit

332. The overarching aim of the part of the Inquiry dealing with the RHCYP/DCN is to consider the planning, design, construction, commissioning and, where appropriate, maintenance of that hospital. Planning and initial design were considered at the earlier hearing diet. The remaining issues were dealt within at the most recent hearings diet. No relevant issues concerning maintenance have been identified. The focus of the hearings was on the pressure and air changes in critical care. Other relevant issues, that had the potential to adversely impact on patient safety and care, are addressed in PPP 7 and the accompanying Note.

333. The ventilation system for critical care at the RHCYP/DCN, as originally installed and commissioned, was not adequate and had the potential to adversely impact on patient safety and care.

334. The evidence before the Inquiry indicates that safety is not a binary issue. Rather, there is a sliding scale of risk from safe to unsafe, which can be influenced by many factors. SHTM 03-01 sets out recommended parameters reflecting a consensus about what is appropriate to create an appropriate level of patient safety. These are consistent with parameters set in other countries. Any departure from such recommendations, taken in isolation, is liable to increase risk. However, the evidence indicates that other factors could be introduced to make a space that did not have ventilation compliant with SHTM 03-01 sufficiently safe such that patients could be treated there. For example, the old Sick Kids hospital at Sciennes did not have any mechanical ventilation but the other control measures ensured that a safe environment was created in which to treat patients.

335. The available evidence indicates that achieving 4 air changes per hour when 10 are recommended creates an unacceptable level of risk to the safety of patients unless other sufficient control measures are introduced. This was the evidence of Professor Humphreys at the earlier diet of hearings. His view was that achieving less than 50% of the air changes specified in guidance would create an unacceptable risk to patient safety. Dr Inverarity gave evidence indicating that achieving less that 6 air changes per

hour gave rise to a real risk to the safety of staff, based on the additional knowledge those working in the field have gained following the Covid-19 pandemic.

336. The shortcomings in the ventilation system at the RHCYP/DCN were only identified a matter of days before the hospital was due to open. Those shortcomings could have been prevented if a clear brief had been agreed before financial close. They could have been identified earlier than they were if the standard HAI-SCRIBE procedures had been followed prior to handover.

337. The decision not to open the hospital as planned had a significant impact on patients and families. Patients and families were shocked and scared. They had limited information as to why the hospital was not opening as planned.

338. In relation to the RHCYP, care required to continue in the sub-optimal, Victorian Sick Kids hospital building at Sciennes. However, safe care could be provided there. There is no indication of adverse clinical outcomes for patients, in the period up to the RHCYP opening, arising from the built environment. The issues were more acute for the DCN. It had problems with the water system, including pseudomonas. Patients had contracted brain infections. There was a reduction in capacity for operations. There were therefore risks associated with its continued use.

339. Significant remedial works were carried out to the ventilation system at the RHCYP/DCN to remedy non-compliance with SHTM 03-01. This involved extensive works to replace the ventilation system for the relevant areas.

340. The independent testing, and expert evidence, indicates that the remedial works have been successful. The ventilation system in the hospital fully complies with published guidance, including SHTM 03-01. The hospital environment is suitable for the delivery of safe, effective person-centred care. No evidence is available to the Inquiry indicating any contrary position.

TOR 1

341. The Chair is invited to find that a key building system at the hospital was defective in the sense used in the TORs. The specification for the ventilation system for the RHCYP/DCN – in the period from financial close until the remedial works were completed – did not clearly conform to relevant guidance. This is not a finding that the ventilation system was in breach of the Project Agreement, but that it did not fully comply with SHTM 03-01 as NHSL had intended that it should.

342. The key deficiency was with air changes per hour. The ventilation system in critical care provided fewer than half the recommended air changes per hour in certain rooms. Pressure did not conform to the guidance in SHTM 03-01 but this had been risk assessed and found to be preferable for the proposed clinical functions.

343. The ventilation system was replaced. The ventilation system is now adequate. It is capable of the function for which it was intended. It conforms to applicable recommendations, guidance and good practice. In particular, it fully complies with the guidance in SHTM 03-01.

344. In a report published by NHS NSS on 9 September 2019, the following comments were made on the state of the evidence base:

"From an infection prevention and control perspective, there is low-quality to no evidence from outbreak reports and current guidance, respectively, to support minimum ventilation requirements. Therefore, it is not possible to make conclusive statements regarding the individual minimum ventilation parameters for inpatient care areas. A rapid review of the literature found limited clinical evidence to directly implicate air change rates alone in having a direct impact on the development of an outbreak or incidence of infection. Therefore, it is reasonable that, in the absence of evidence, healthcare design teams should continue to adhere to current national guidance. In the event of a deviation from the current recommended ventilation parameters, design teams should ensure that air changes per hour are maintained as close as possible to the recommended air changes per hour without compromising other aspects of the ventilation system requirements. In addition a full assessment of the services and patient

population should be carried out and mechanisms for monitoring established. Caution is advised in relying on air change rates alone to provide adequate protection from infection; this is only one part of a multifactorial process involved in creating the appropriate airflow patterns with appropriate mixing and dilution of contaminants. Nationally, further research is required to look beyond air change rates to examine the effects that other factors such as supply and exhaust location, door position and motion, spatial orientation, surface composition, temperature, humidity, and air distribution patterns have on particle migration in clinical areas." (Bundle 3, p119, paragraph 4.2.6).

345. The issue of "risk" to patients from non-compliance with parameters set out in published guidance is an area the Chair may consider should be the subject of recommendations. In particular, the Chair may consider that there is a need for more research into the link between air change rates and risk to patients.

346. Professor Humphreys gave evidence indicating that there needs to be a wholesale review of hospital ventilation including consideration being given to new technologies. The Inquiry heard evidence from Mr Maddocks that the science and technology in this area is developing. The concept of "equivalent air changes" per hour has been introduced as a result of technological advances including the use of air scrubbers/ portable HEPA filters and ultra violet light technology. The Chair may consider that this is an area where suitable recommendations should be made.

347. Issues concerning the ventilation system (other than pressure and air changes) are set out in the Note to PPP 7. Non-ventilation issues are addressed in PPP 7.

TOR 2

348. The contractual structure and financing are addressed in detail in PPP 10 and our previous submissions.

349. The contractual structure did not directly contribute to the defects that arose. If a clear brief had been set out at financial close, it is unlikely that problems would have arisen on the project.

350. NHSL's decision to depart from the original project requirements (including the requirement for a full set of room data sheets at financial close) resulted in a situation where the brief for the ventilation system was not clear or finalised at financial close.

351. The Chair will require to consider whether the NPD model contributed to mistakes that were made at later stages of the project.

352. For example, the Inquiry has heard evidence that IHSL was in financial difficulties at the point of SA1. It had significant liabilities but no income stream. NHSL departed from standard procedures, including completing HAI-SCRIBE stage 4 prior to handover, because of the need to accept the hospital and trigger the payments to IHSL. Had the standard procedures, including HAI-SCRIBE Stage 4, been followed, the issues with the ventilation system would have been detected sooner than they were, albeit still after they had been built in.

353. NPD contracts aim to transfer full design risk to the project company, except in relation to operational functionality. However, the health board still has responsibility for the delivery of safe healthcare. The project demonstrates that it can be difficult to make changes to technical specifications after financial close in a revenue funded project. It can be particularly difficult for a health board to obtain clear advice on perceived problems with a specification for a technical building system at the later stages of a project because advisors do not wish to risk taking overall design responsibility for a proposed design. When issues of non-compliance with SHTM 03-01 were identified, MML were resistant to advising on the adequacy of the solution as they did not consider they could take on the design risk for the ventilation system.

TOR 3

354. NHSL put in place governance procedures to oversee the project. These were in line with the procedures set out in the Scottish Capital Investment Manual. The governance structures are set out in detail in PPP 9.

355. The project was overseen at key milestones. However, the Chair will wish to consider whether the governance procedures at key stages, particularly for the approvals of SA1, were adequate and effective.

356. The project team determined that the proposed technical solutions set out in SA1 were acceptable to NHSL. The governance bodies were told the technical solutions were appropriate. However, there was no vouching provided by the project team to support this view. In particular, no report from IPC, engineers or technical advisers was provided. IPC had not been involved in the discussions leading up to the agreement. The technical advisors had declined to sign off on the appropriateness of the solution as they were not designers and did not wish to take on design responsibility. These difficulties do not appear to have been reported to the governance bodies, including the Finance and Resources Committee and the Board of NHSL.

357. However, unless the governance bodies had insisted on an independent technical review being undertaken, it is difficult to see how the problems with the project could have been avoided.

358. Input was provided by clinicians, IPC, estates officers and technical experts. One key problem was that not all relevant disciplines were involved at the correct times. In particular, IPC were not involved in the decision to accept the technical solution set out in SA1 or in the decision to accept the hospital without the standard stage 4 HAI-SCRIBE procedure being completed. Another problem was that NHSL staff with the requisite knowledge did not combine it to reach the correct conclusion: NHSL's project clinical director and commissioning manager between them knew enough about the clinical context, the proposed technical solution, and the SHTM guidance to identify the departure from that guidance, but did not identify that departure because each lacked

information the other had. These issues resulted in decisions being taken which resulted in a built environment that was not safe for patients.

359. There is no evidence indicating that there were issues with organisational culture that discouraged staff from raising concerns. There were formal policies in place in relation to raising concerns and whistleblowing in particular. This is addressed in greater detail in PPP 9.

360. Staff did raise concerns during the project. By way of example, Dr Inverarity raised concerns in relation to the lack of a suitable validation report. This led to a suitable report being instructed and the detection of the ventilation problems before patients were transferred to the hospital.

TOR 4

361. There is no evidence indicating any deliberate concealment or failure to disclose wrongdoing.

362. NHSL had whistleblowing policies in place during the project and there were a variety of channels through which concerns could be raised. These are addressed in PPP 9, chapter 36 (Bundle 11, page 619).

363. From September 2005, NHSL had in place a "Freedom of Speech Policy and Procedure". This policy was for staff to raise concerns at work and where the NHSL grievance procedure and wider polices such as race equality and equal opportunities would not be appropriate.

364. In 2016, this was replaced with the 'Whistleblowing Policy and Procedure'. The purpose of this policy "*is to ensure employees have a proper and widely publicised procedure for voicing whistleblowing concerns*."

365. Prior to 2013, human resources policies were publicised to members of staff through an 'Employment Policies Manual'. This was first produced in 2005 and distributed to all NHS workplaces with regular updates issued. This manual was withdrawn in 2013 with the development of the HR Online website which sat within the NHSL intranet. Thereafter, staff were directed to HR Online to ensure they were accessing the most up to date version of the policies and guidance.

366. NHSL communicated polices to members of staff in a variety of ways namely using a bulletin to all staff entitled 'Team Brief', intranet content and information cascaded to staff through the management structure.

367. In 2019, NHSL introduced "Speak Up", an initiative designed to encourage staff to feel safe and supported in raising concerns. This was introduced so that staff who had a concern could discuss this confidentially and receive advice and guidance on what to do next to address the issue.

368. NHSL had in place Incident/Adverse Event Management Policies throughout the period of the project which provided another avenue through which concerns could be raised.

TOR 5

369. The Scottish Government, and Cabinet Secretary in particular, had ultimate responsibility for the NHS and healthcare delivery in Scotland. However, the responsibility for delivering the project sat with NHSL.

370. The Scottish Government had an oversight role. However, once the funding had been put in place, the national oversight was relatively limited. The Scottish Government would only have further involvement if the project experienced problems.

371. A degree of national oversight was provided in relation to SA1. The Chair will require to consider whether the national oversight was adequate and effective.

372. Statements made to the Scottish Government on the suitability of the technical solutions set out in SA1 were taken at face value without any supporting material. For example, no view was sought from HFS and no report from a qualified expert was provided to confirm that the works were necessary and appropriate. On one view, this was a missed opportunity to identify the problems at an earlier stage.

373. However, it is not clear that any potential problems with this aspect of governance made any material contribution to the shortcomings in the ventilation system. IHSL had confirmed that the ventilation system fully complied with published guidance (Bundle 4, page 9). Mr McKechnie still maintains that position. If he had been asked for confirmation at the time, he would presumably have given it. Greater scrutiny of those involved in the project would have been unlikely to detect the problem.

374. Unless a full audit of the proposed technical solution had been instructed, it is difficult to see how the issues could have been detected by the governance bodies. The Chair will require to consider whether the instruction of such a review would have been realistic or proportionate.

375. Further assurance would now be provided within the health board through the Ventilation Safety Group, with additional oversight external to the health board from Assure. Therefore, even if the Chair concludes that there were problems with national governance and oversight, significant and substantial steps have been taken to address them.

376. There was very substantial national oversight from 2 July 2019. This was in the form of the Cabinet Secretary taking control of the key decision making. She was only prepared to allow the hospital to open when she received assurances that it fully complied with the relevant published guidance (Bundle 7, vol 1, page 79). Regular briefings were provided to the Cabinet Secretary on the progress being made in rectifying the issues with the ventilation system (e.g. Bundle 13, vol 4, page 465).

377. There was also additional national oversight through use of the "NHS Board Performance Escalation Framework". NHSL was escalated to level 3 and then level 4 of the framework during the project.

378. National oversight and support for the project also came from SFT. This involved assistance for NHSL in preparing the project for procurement under an NPD structure and in carrying out Key Stage Reviews at important stages in the procurement process. SFT's focus, consistently with the nature of its expertise, was on the commercial and financial aspects of the project. This included an interest in design and the terms of the Project Agreement but only insofar as they impacted upon those aspects. It was never part of SFT's role to consider compliance with technical guidance such as SHTMs, never mind to detect errors at the level of detailed parameters in an environmental matrix of which the Board and its advisers were unaware.

379. The available evidence indicates that there were effective communications between NHSL and Scottish Government in the period to 4 July 2019. Updates were provided to the Scottish Government on the progress of the project. For example, when there was the potential for litigation, NHSL regularly briefed the Scottish Government.

TOR 6

380. SHTM 03-01 (2014) outlined the requirements for commissioning and validation (Bundle 1, pages 1035, 1148). These involved a range of tests to demonstrate that the system is working as required. At the end of the validation process, a validation report was to be produced. This was addressed at paragraphs 8.64 and 8.65:

"Ventilation system commissioning/validation report

8.64 Following commissioning and/or validation a full report detailing the findings should be produced. The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.

8.65 The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:

- *the user department;*
- *infection control (where required);*
- *estates and facilities."*

381. There is a degree of ambiguity in the guidance as to what the "required standard" is. Is it the standards set out in the guidance or the contractual standard (which may involve a derogation from the guidance)?

382. There was a degree of confusion on the part of NHSL as to the level of inspection and testing that required to be conducted before the hospital could open. Mr Henderson (NHSL's commissioning manager) explained in his evidence that complications arose due to the NPD model. NHSL had responsibility for providing healthcare at the hospital. However, it did not own the building. The building was owned by IHSL. Mr Henderson was therefore unclear as to what reports should have been instructed/ obtained by NHSL as opposed to IHSL.

383. A variety of documentation was provided by IHSL to NHSL to demonstrate that the system was working to the required standard. This was in the form of raw data as opposed to a formal report. Mr Henderson of NHSL was initially content with the documentation provided by IHSL in relation to commissioning and validation (Bundle 4, page 6). However, the IPC team, including Dr Inverarity and Ms Guthrie, were not content with the available information. The IPC team were not able to readily interpret the raw data and wished to see a report that complied with the guidance set out in SHTM 03-01. In particular, they wished to see a clear statement that there was performance to the required standard and that only routine maintenance would be required. The project team agreed to additional testing as they wished IPC to be wholly satisfied with the technical performance of the ventilation system (Bundle 6, page 11).

384. The Board of NHSL was not involved in the original decision to instruct testing by IOM Ltd. This was instructed by the project team as a result of the position adopted

by IPC. But for the position of IPC, there is a real risk that the hospital would have opened without all required testing having been carried out. The project team were content with the original raw data provided by IHSL. There is no indication that the Board itself would have insisted on any further testing being carried out or the production of a report that complied with SHTM 03-01 to be produced.

385. The original testing of the system was conducted in line with an interpretation of the contractual requirements. The system was not tested against the requirements of SHTM 03-01.

386. It is important to highlight that, at this stage, NHSL considered that the system had been designed to fully comply with SHTM 03-01 with the exception of known derogations for the neutropenic ward, and from 6 to 4 air changes. Otherwise, NHSL did not understand there to be any difference between the contractual requirements and the requirements set out in the published guidance.

387. The testing conducted by IOM Ltd identified that for certain spaces in the hospital the pressure regime and air changes did not conform to the guidance set out in SHTM 03-01 (Bundle 6, pages 202, 205, 209, 213, 216, 220, 221, 227, 234, 235, 238, 241, 245, 254, 256).

388. Mr Currie was aware of the emerging issue on 24 June 2019. Senior management at NHSL were aware of the issue on or around 28 June 2019 (Bundle 6, page 252). The issue was escalated to the Scottish Government on 2 June 2019.

389. When the non-conformance was identified, remedial works were carried out and further testing was conducted by IOM Ltd. This demonstrated that the system was functioning in conformance with SHTM 03-01.

390. The additional testing by IOM Ltd was against the standards set out in SHTM 03-01. It provided assurance to the Board of NHSL that the ventilation system functioned in accordance with the final contractual specification, guidance and good practice.

391. No relevant issues have been identified in terms of the information and training provided on the operation and maintenance of key building systems.

TOR 7

392. To remedy the defects, the critical care ventilation system was effectively replaced. Imtech and Hoare Lea were engaged to design and install a ventilation system that provided positive pressure and 10 air changes per hour.

393. The revised specification for the ventilation system is set out in HVC 107 (Bundle 3, page 1146) and Settlement Agreement 2 (Bundle 3, page 1204). These documents set out that NHSL wanted to amend the critical care ventilation system from 4 air changes to 10 air changes per hour with an associated change to the pressure regime (all as described in HVC 107).

394. In accordance with Clause 33 of the Project Agreement and Schedule Part 16 of the Project Agreement, NHSL issued IHSL with a Board Change Notice in respect of the required works. The works were carried out and testing was then carried out by IOM Ltd.

395. IOM Ltd confirmed that the ventilation system met the requirements of SHTM 03-01. Mr Maddocks has provided an expert report confirming that the system is designed, and operating, in conformity with SHTM 03-01.

396. HFS was fully involved in relation to reviewing NHSL's proposed permanent solution for the ventilation and the *"…contracting, design, installation, commissioning and setting to work processes as well as assurance around the appropriate advice on infection control."* (Bundle 3, pages 16, 17). All topics were to be reviewed from Estates and IPC perspectives and an assessment made against the published guidance.

397. Air changes and pressure were regular items on the agenda of the Oversight Board. On 8 August 2019, the Oversight Board agreed in principle that:

"…if a technical solution was designed that would allow 10 air changes per hour in the required rooms in the critical care area, which complied with the relevant SHTM standard, and was properly implemented, then the critical care area would be fit for use." (Bundle 3, pages 43, 44).

398. Mr Henderson (NHSL commissioning manager), Mr Jameson of IOM Ltd and Mr Rayner (Authorising Engineer) were content that air handling units were acceptable to the client because, at the time of validation, they were considered fit for purpose and would only require routine maintenance in order to remain so for their projected life (Bundle 1, page 3233).

399. John Rayner, authorising engineer, issued a design assurance statement on 17 May 2020. He stated that, following a review of the design, he was satisfied that it met NHSL's performance requirements (Bundle 3, page 974).

400. HFS were content with the proposed solution (Bundle 3, page 797; 944) albeit HFS were not taking design responsibility itself.

401. MML confirmed that they had identified no "*red flags*" in relation to the proposed solution albeit no design assurance was provided (Bundle 3, page 972).

402. MML maintained throughout the remedial works process that they could not confirm that any design solution was appropriate without undertaking design responsibility. MML could not be designer and client advisor (Bundle 3, page 943). The qualified statements are consistent with this approach.

403. All of the evidence before the Inquiry indicates that the remedial works were adequate and effective. No witness has expressed any concerns about the safety of any key building system at the RHCYP/DCN since the hospital opened.

TOR 8

404. The physical, emotional and other effects on patients and families were addressed at the first set of hearings held by the Inquiry. The evidence indicates that patients and families were shocked and extremely concerned by the decision to cancel the opening of the hospital. In relation to the RHCYP, children required to be treated in a sub-optimal Victorian building. In relation to the DCN, there was a known risk of harm to patients due to the problems with the water system which NHSL required to manage to seek to reduce the risk of harm to patients.

405. A large number of patients, and appointments, were impacted by the decision not to open the new hospital. Approximately 2255 appointments required to be rescheduled immediately. Of these, 1586 related to paediatric patients and 669 to DCN patients (Bundle 7, vol 1, page 303).

406. No formal complaints were received by NHSL or the Scottish Government in relation to the decision not to open the hospital (Bundle 7, vol 2, pages 113, 117).

407. There are several aspects to the communication with patients and their families. The evidence indicates that NHSL informed all patients of the fact that appointments would not be taking place at the RHCYP/DCN as planned. A strategy was put in place to seek to ensure that patients and families knew where to attend for treatment. No evidence was led of any adverse issues surrounding that communication.

408. Patients and families were not provided with a direct explanation, for the reasons for the RHCYP/DCN not opening as planned, by either NHSL or the Scottish Government. Two letters were sent to staff by the Cabinet Secretary providing an explanation of the situation. However, no similar letters were sent to patients and families. Mr Davison and Ms Freeman agreed that the communication to patients and families was sub-optimal in this regard. Ms Freeman acknowledged that if a similar problem was to arise in the future, a letter should be sent to patients and families.

TOR 9

409. This is not applicable to the RHCYP/DCN

TOR 10

410. This is addressed in the previous closing submissions.

TOR 11

411. There were no systematic knowledge transfer arrangements in place to learn lessons from healthcare construction projects in the period prior to the creation of Assure.

412. The Scottish Government did write to health boards in relation to certain discrete issues that arose on the QEUH. However, the evidence before the Inquiry indicates that there was no centralised system for capturing and recording learnings from healthcare construction projects. Therefore, any board faced with a new build hospital project would not have been able to readily access learnings from previous projects.

413. The landscape for projects has undoubtedly changed with the creation of Assure. It is a specialist body which is intended to gather knowledge and experience about healthcare building projects, and make it available to boards undertaking new projects. If done properly, this should allow lessons to be learned on an ongoing basis. The procedures are addressed in more detail in answer to topic 9 in the list of topics.

TOR 12

414. NHSL had opportunities to learn lessons from the experience of issues in relation to ventilation and water at the QEUH.

415. The Scottish Government wrote to all health boards in relation to the risk of cryptococcus following issues emerging at the QEUH (Bundle 4, page 8). This prompted NHSL to seek assurances in relation to the design of the hospital. An assurance was provided by IHSL that there was full compliance with SHTM 03-01.

416. There were wider opportunities to learn from experiences at the QEUH. There was contact between Dr Inverarity and Dr Inkster in relation to emerging issues at the QEUH.

417. Dr Inverarity knew, in 2018, that issues had arisen with the ventilation system at the QEUH that needed significant remedial works to be carried out. He sought to avoid similar issues occurring at the QEUH. However, Dr Inverarity was not involved in key decisions, including the decision to not complete the standard stage 4 HAI-SCRIBE procedure before the hospital was handed over to NHSL.

418. The more difficult issue is whether there were truly opportunities to learn from the experiences at the QEUH and avoid similar issues at the RHCYP/DCN. The key dispute in relation to the RHCYP/DCN came to a head in 2018. Agreement was reached and the works to the ventilation system were carried out in 2018, albeit the agreement was not formally approved and documented until February 2019. Over this period of time, there was little concrete evidence available to NHSL about the problems with the QEUH ventilation system. Therefore, learning opportunities were limited. The Chair may wish to keep this term of reference under review when further hearings take place in relation to the QEUH.

5. Potential Recommendations

419. In this section, we discuss potential recommendations. Some of these the Chair could make now. Others may be better deferred until the Chair has heard evidence on the QEUH, although he may nonetheless welcome Core Participants' comments on them now.

420. Appendix 2 of our previous written submission records witnesses' suggestions for improving the procurement and building process for new hospitals. These remain valid for consideration and we do not repeat them here.

421. We repeat the suggestion we have previously made for a symposium or round table meeting to discuss potential recommendations with stakeholders. This may best be done after the Chair has heard the evidence in relation to the QEUH. The Chair may wish to consider circulating a paper to interested parties in advance of the symposium, setting out proposals for discussion.

422. It is important to note that there have been significant reforms since the hospital opened. These have gone a long way to addressing key problems. SHTM 03-01 was updated in 2022 and a further version is expected in 2024. The introduction of the VSG is, in our submission, perhaps the single most important improvement for avoiding in the future the type of issues which arose on the RHCYP/DCN project. It provides a forum for all relevant disciplines to meet, consider and approve ventilation decisions. It should ensure that the "partnership" model (as set out in guidance such as SHFN 30) is fully achieved.

423. The revised guidance also improves clarity around recommended parameters, for example linking them to definitions of the level of care being provided in a space. Such changes should reduce the risk of misunderstandings, particularly on the part of engineers, on future projects.

424. The establishment of Assure is also a positive step. Assure conducts key stage assurance reviews on projects to seek to ensure that similar problems to those that arose on the RHCYP/DCN do not arise in the future. There is an issue as to whether the

current model for Assure – which is neither an inspector nor a regulator – is the correct one. We address this further below.

Potential Recommendations – Suitable for an Interim Report

Risk assessment if funding route changes

425. The RCHYP/DCN project demonstrates that risks can arise if design or specification-related material generated in the context of one funding model is then used, without proper assessment of the risks of doing so, after the funding model is changed. The risks of using the environmental matrix from the capital-funded phase for the revenue-funded phase were inadequately assessed or mitigated. It was provided to tenderers with insufficient assessment as to whether it would be useful. NHSL intended that it was a document that could not be relied on by tenderers. That is not how IHSL interpreted the document. In our submission, the lack of a suitable risk assessment is the genesis of many of the problems that arose on the project. As Mr Maddocks explained in his report, and in his evidence, there is little point in providing a "draft" environmental matrix that could not be relied on. Its inclusion was likely to cause confusion to tenderers but this was not appreciated at the time.

426. In situations where the funding model or procurement route changes mid-project, a risk assessment should be conducted to assess whether work done on the project to that point is suitable for the revised project. The rationale for decisions taken in this regard should be formally recorded.

Clarity in brief

427. It is critical that the health board's brief for key building systems is clear, unambiguous and finalised before a contract is signed and financial close is achieved. While development of the design can be carried over to the reviewable design development phase, clarification of the health board's brief should not.

428. In determining whether or not the health board's brief is sufficiently clear and unambiguous, appropriate consideration must be given to the element of judgment and

interpretation of guidance which may be necessary for the building systems to meet the clinical needs of the board. The board is best placed to identify which output parameters of key building systems are essential for the particular clinical uses it has in mind for the hospital. Those should be specified by the board as part of its brief and not left to the judgment of the project company and its subcontractors during the design phase.

Derogations – Requirement for a Standard Form

429. SHTM guidance now requires the VSG to be involved in any decision to depart from guidance. However, there is no standard form for a derogation from guidance. The requirement is simply that there should be a body of evidence justifying a decision. Different health boards could therefore adopt different procedures for recording a derogation.

430. The evidence before the Inquiry from the public sector (including NHSL), and industry, indicated that a standard form derogation for use throughout the NHS would be beneficial. This would ensure that derogations are captured and recorded in a uniform way. This would result in consistent and uniform practices. It would also bring clarity to how a derogation is agreed and ensure that the approval of all parties is recorded in an appropriate and familiar way.

Duplication of Procedures

431. A range of procedures now exists to help ensure health board projects meet appropriate standards. One is the NHS Scotland Design Assessment Process ("NDAP"). There is also a Sustainable Design and Construction Procedure ("SDAC"). In addition, there is the Assure KSAR procedure. These can be time consuming and demanding to complete. There is a risk they become unduly bureaucratic and focused on process rather than substance. It is important that they be streamlined, and potentially merged, to ensure they are thorough and robust whilst avoiding duplication and unnecessary delay and cost. They must be genuinely helpful to boards and cognisant of the commercial and other pressures likely to affect projects.

432. Consideration should also be given to how complimentary procedures – such as aspects of HAI-SCRIBE – can potentially be streamlined to avoid duplication with other procedures.

Information about common errors

433. SHFN 30 (2007) stated that common errors on projects included incorrect air turnover and airflow patterns (Bundle 13, vol 3, pages 554, 557). This was removed from the most recent version of SHFN (2014), but the RHCYP/DCN project demonstrates that the risk persists.

434. It is important that common project errors are not repeated. One helpful step is to ensure health boards undertaking projects have ready and early access to useful information about such errors so that they are aware of them and thereby better equipped to avoid them. The information should be updated as new, significant errors are identified. It should be drafted to be genuinely useful, so should focus on material errors which, if repeated, would have a material impact, and for which there are identified solutions which are capable of being readily implemented. Information which is not prepared with rigour is unlikely to be helpful and may be counterproductive.

435. Consideration should be given to whether the "*lessons learned*" process introduced by Assure adequately addresses this issue. It may be helpful for the Chair to request NHS NSS to address this issue in its closing submissions.

Commissioning and Validation for Revenue Funded Projects

436. The evidence indicated some uncertainty about which entity should be responsible for commissioning and validation of engineering systems on revenue funded projects: the health board which is to be responsible for health services in the building, or the project company which owns and maintains it.

437. In a standard capital funded project, the facility would be owned by the health board. It would therefore be for the health board to instruct the commissioning and validation. The answer is less clear for a revenue funded model and this should be

clarified. However, the end result should be the same. A short report should be generated confirming whether there is full compliance with published guidance.

Role Specifications

438. There are two aspects to this issue: (1) role specifications within the NHS; and (2) the role of advisors.

439. Within the NHS, there is a lack of clarity about the role to be played by particular disciplines in new build hospital projects. There is clear guidance that there should be a partnership approach, with all relevant disciplines involved. However, there is a lack of clarity about the tasks each should undertake and the extent of their involvement at various stages. This risks undermining the partnership model as there is scope for different disciplines to consider that a specific issue/ decision is not within their sphere of knowledge and/ or it is not for them to be actively involved. There is also a risk that disciplines are involved at some stages where this is not necessary or beneficial. This potentially risks wasting limited resources: for example, clinicians and IPC personnel being involved in highly technical meetings about engineering issues that they have no experience in and can contribute nothing to; or about engineering issues where well-established guidance is to be applied without giving rise to any clinical or infection control issues on which their expertise is needed.

440. This issue is most acute in relation to IPC. Dr Inverarity, Ms Guthrie and Ms Sutherland highlighted the demands placed on IPC professionals. Ms Guthrie and Ms Sutherland highlighted that under the new system, IPC professionals believe they are being forced into the role of "quality control" officers. They consider that IPC professionals are being put under pressure to "sign off" technical aspects of design for key building systems for which they have no relevant expertise.

441. It is important that there is clarity as to what is expected from individual disciplines at various stages of a project. That is particularly so given that the VSG now mandates multi-disciplinary decision making.

442. The evidence before the Inquiry indicates that a job/ role specification for various disciplines, particularly IPC, would be beneficial.

443. The Inquiry heard evidence that NHS National Education Scotland is working on a knowledge and skills framework for the built environment. Professor McMahon outlined that there is also a proposal to produce a role specification for IPC. He indicated that this should be completed before he retired in Easter 2024. The Chair may wish to have an update on the progress made in relation to these initiatives from relevant parties in their closing submissions.

444. Consideration should also be given to whether there are sufficient IPC professionals to resource the current system. Several witnesses raised concern about there being insufficient IPC staff to implement the procedures introduced by Assure. If there are insufficient personnel to resource the system, it will not work effectively.

445. Similar issues arise in relation to advisors. The evidence before the Inquiry indicates that there was a lack of clarity in relation to role of technical advisors, particularly MML, after financial close.

446. MML was appointed to provide a project management role and to provide "*ad hoc*" advice on a range of technical matters. It was often unclear when and if NHSL were instructing, and when and if MML were providing, formal advice on technical matters which NHSL were entitled to rely upon.

447. This created a situation whereby there was a lack of clarity in relation to what advice and assurance (if any) MML were providing. NHSL considered that specific input and assurance was being provided on technical solutions. For example, Mr Henderson and Ms MacKenzie outlined that they considered that MML were providing a very wide range of technical advice and assistance including advising on the suitability of the technical matters in SA1. Mr Greer of MML considered that MML had a more limited role and had specifically not agreed to have any responsibility for the technical solution set out in SA1.

448. Purported assurances from technical advisors on the suitability of technical solutions formed the basis of some decision making at Board level. Communications were also provided to Scottish Government on certain technical solutions being appropriate because there had been input and assurance from advisors.

449. There is an absence of contemporaneous documentation demonstrating when technical advice was sought and when technical advice was provided.

450. The lack of clarity in relation to technical advice can be contrasted with the role of the solicitors. When legal advice was sought, there tended to be a very clear instruction with a very clear statement of the advice provided in response.

451. In our submission, a similar procedure should be considered when technical advisors (particularly engineers) are providing specific technical advice. There should be a clear record of the advice requested and the advice tendered. This should ensure that there is clarity around what input advisors are providing. This is particularly important where, as on the RHCYP/DCN project, the technical advisors work closely day-to-day with the health board's project team. Such arrangements can lead to informality and a lack of clarity about the scope and role of the advice, and the reliance which can be placed upon it. Following our recommended approach should generate a body of evidence to support and document relevant decisions. This should contribute to more robust governance and oversight of decision making.

452. This issue was highlighted in the Grant Thornton report. NHSL has taken steps to address the issue. However, it is not clear form the available evidence that any such changes have taken place more widely within the NHS. In our view, a uniform policy or procedure for boards undertaking new build hospital projects in relation to obtaining, and recording, technical advice on key issues would be beneficial.

Training

453. Good decision-making about building engineering systems and their role in infection control depends upon contributions from a number of distinct professional disciplines, in particular engineers, IPC professionals and clinicians. Their decisions

are likely to be improved if each has a basic understanding of the way in which the various disciplines overlap in ensuring patient safety and care.

454. Healthcare engineering does not feature in the mandatory training for microbiologists or IPC professionals. The evidence indicates that there is the potential for individuals with little or no training, or practical experience of the key building system in a hospital (e.g. water and ventilation), to be asked to undertake key roles on projects.

455. In our submission, it would be helpful for IPC professionals to receive some basic training on the recommendations made by the NHS's own guidance for engineering systems, insofar as they are made in the interests of patient safety and care, before working on large scale hospital projects.

456. The evidence also indicates that engineers would benefit from basic training on infection control principles and clinical requirements before embarking on new build hospital projects.

457. Clinicians involved in projects would benefit from basic training in the recommended output parameters of building engineering systems which have a direct bearing on the safety and care of patients in their departments. For example, it would be helpful for clinicians working in departments for which specialist output parameters are recommended, such as the particular pressure gradients or air change rates recommended for critical care departments, to have basic knowledge of what those recommendations are.

Risk assessment of the implications of non-compliance with guidance

458. When the decision was taken not to open the RHCYP/DCN, no risk assessment was undertaken to determine if the ventilation system (as installed) was unsafe. The decision, instead, was that the hospital should not open until there was full compliance with SHTM 03-01. The evidence indicates that the system as installed would have had unacceptable risk. Therefore, the decision was justifiable. However, mere non-compliance with recommendations/guidance will not always, automatically, equate to an unsafe environment. In future, an individual risk assessment should be undertaken

to ensure that appropriate decisions are taken, and that expensive remedial work is not instructed unnecessarily.

Potential Recommendations – For Consideration after the Evidence about the QEUH

459. There are a range of other potential recommendations that the Chair may wish to consider. At this stage, we do not consider that there is sufficient material for the Chair to reach a definitive decision on these matters. We consider that evidence in relation to the QEUH would assist the Chair in determining whether any are necessary or appropriate. Therefore, while we set out a range of options below, we are not advocating that any recommendations are made in relation to these issues at this stage.

A Review of Hospital Ventilation

460. The evidence before the Inquiry indicates that there is a lack of clear, research-based evidence in relation to the healthcare built environment, including the link between specific air changes per hour and infection risk (Bundle 3, page 199).

461. Professor Humphreys gave evidence indicating that there should be a review of hospital ventilation. Professor Humphreys stated that:

"There is a need for a review of ventilation quality in healthcare facilities, particularly for vulnerable patients even if risks are complex and there are a number of factors, which affect the development of infection."

"I think that over the last 10 or 15 years, the complexity of care has increased in hospitals and particularly in in critical care areas, and we're now seeing a much greater, I think, number of vulnerable patients who are immunocompromised and a more heterogeneous group of patients, some of which may not be recognised as vulnerable…"

"…in the context of the COVID-19 pandemic, we have realised that…our hospitals were under huge pressure because of the transmissibility of COVID and because we

had very, very defined and, in many instances, very limited facilities in which to care for these patients because most of our areas within hospital were naturally ventilated and we had no control over where the airflows were going. So we often had to come up with innovative ideas in terms of, for example, putting fans on windows to extract the air from a core area where there might be COVID patients to make sure the air from those COVID patients was not going back into the rest of the ward."

"…we need to review and I think probably either increase the number of air control ventilated facilities or avail of alternative technologies such as portable HEPA filtration systems, or there are various air purification systems that are marketed out there commercially that may be worth looking at."

"I think we need to look at the categories of patients we now have in hospital compared to 10 or 15 years ago because most of the facilities that many of us work in are not only 10 or 15 years old, but would be older, much older than that, and we need to look at the proportion of those patients that are low risk, medium risk, high risk, and maybe very high risk, such as our neutropenic patients. We need to look at what current facilities we have for those patients and whether we believe that those are adequate or not. Then I think we need to incorporate into that some sort of future planning not only for increased numbers of some of those patients that I talked about, but perhaps a bit more flexibility such that if we have another pandemic, we can perhaps react better. So those would be, in very broad general terms, the kind of things I'm talking about."

"…[the review] would need to…involve, obviously, management and healthcare planners, it would need to involve infection prevention and control and infection specialists, it would need to involve clinicians looking after these patients, engineers, architects and probably health economists as well amongst others…"

(Humphreys, Transcript, page 67).

462. The Chair may consider that further research requires to be conducted to ensure that national guidance is adequate, appropriate and has a robust scientific underpinning.

463. The Chair may consider that any such research should address emerging areas including "equivalent air changes per hour" and new technologies (such as ultra violet light) for which there is no national guidance in Scotland (cf. England: Bundle 13, vol 10, page 297).

464. Assure has a research engineering department. It is involved with Napier University in research into the healthcare built environment. It may be helpful for the Chair to receive submissions on the nature of this research to determine whether Assure should be left to progress with the matter of whether a wider review is required. It may be helpful to the Chair if the nature of the research being conducted was addressed further in the closing submissions on behalf of NHS NSS.

Legislative Intervention

465. When the new centre of excellence was under consideration, one of the issues identified by research was that the published guidance required "*more teeth*" (Bundle 9, page 60). No specific steps appear to have been taken in this regard beyond requiring projects to have approved status under the KSARs (which include a degree of technical assessment) before funding is provided.

466. The Chair will require to consider whether this is sufficient or whether further steps require to be taken to seek to ensure that hospitals provide a safe environment for patients, families and staff.

467. Several witnesses considered that key parameters for critical building systems (particularly ventilation and water) should not be mere guidance. The Chair may wish to consider whether the parameters for key building systems should be enshrined in law. That may depend on the view the Chair reaches on whether further research is required in this area.

468. The Scottish Government equated compliance with SHTM 03-01 with patient safety. Non-compliance was considered to be an unacceptable risk to patient safety. If that is the prevailing view, then it is hard to understand why the parameters would be mere "guidance" rather than a legal standard that must be complied with.

469. If the Chair considers that recommendations should be made on this issue, changes could made to the Building (Scotland) Regulations 2004 and/ or the Technical Handbook.

470. The Building (Scotland) Regulations 2004 set standards for buildings in Scotland. Building Standard 3.14 concerns Ventilation. It states that:

> *"Every building must be designed and constructed in a way that ventilation is provided so that the air quality inside the building is not a threat to the building or the health of the occupants".*

471. Section 3.14.5 of the Mechanical Ventilation, Environment (Non-domestic buildings) Technical Handbook provides that at least 8 litres/second of fresh air per occupant should be provided. There is no further specification as to the air quality for a building such as a hospital.

472. The Buildings Standards Technical Handbook does not contain any references to published guidance or associated standards. That is in contrast to the regime in England. There, the Building Regulations 2010 introduce the concept of "Approved Documents". These set out what, in ordinary circumstances, may be accepted as one way to comply with the Building Regulations. Approved Document Part F "Ventilation requirements vol 2" contains specific reference to published guidance such as Health Technical Memorandums as a method of complying with the building regulations.

473. The Cabinet Secretary gave clear evidence that she equated compliance with the guidance with ensuring an adequate level of patient safety. Until the hospital complied with the parameters set out in SHTM 03-01, it was not in her view sufficiently safe for patients to occupy the building.

474. If the Chair accepts this analysis, it is difficult justify setting out the requirements in non-binding "guidance". The Chair may consider that compliance with the parameters should be a legal requirement unless there is a justification for non-compliance with a suitable derogation.

475. However, an overriding theme of the evidence was that it was difficult to take guidance – that is open to interpretation, and requires judgment to apply – and to make compliance with it a contractual requirement. Those same issues would arise for a legislative requirement. Therefore, thought may need to be given to whether specific parameters for key building systems could be set out clearly and comprehensively in the Technical Handbook and/ or legislation.

476. Any such provision should also allow for a derogation if the clinical need arises. A process for documenting a derogation would need to be included in any legislative provision.

477. In our submission, any such provision should be for new build hospitals at the point of construction. There should not be an ongoing requirement to comply with any updated standards at a later point in time to avoid the need for existing facilities to constantly be updated to the most modern of requirements. In our submission, that is likely to be practically unworkable, prohibitively expensive and disproportionate.

The role of NHS Assure

478. The Inquiry heard two competing views on the role the centre for excellence should have.

479. Certain witnesses considered that the centre for excellence should have an inspection role and formally "sign off" that a building complies with published guidance. This approach was favoured by individuals that had worked for NHSL on the project (including Mr Henderson and Ms McKenzie). Other witnesses did not think that Assure should have any such role. Responsibility for the project should sit with the health board.

480. The Chair will require to consider whether any changes are necessary in this regard.

A review of NHS Assure

481. The majority of the evidence available to the Inquiry indicates that Assure has made a positive contribution in seeking to minimise the risk of key building systems having inappropriate specifications. However, it has created a significant burden, particularly for IPC professionals. A review of Assure's role may be appropriate to ensure that it builds on the positive work it has done to date.

The briefing of Projects

482. The critical issue with the project was the lack of clarity in the brief. Assure has produced a template environmental matrix. The template is not mandatory and there is no absolute requirement for it to replace room data sheets.

483. The evidence from Mr Maddocks was that there should be "one source of truth" (i.e. one document that sets out the specific technical requirements). The Chair may consider that the brief should be defined either by room data sheets or by an environmental matrix, but not both. Having both risks confusion and contradiction. An alternative is to ensure any environmental matrix (which the evidence indicates to be a helpful document welcomed by those who work on projects) is derived directly from the room data sheets with appropriate document control to ensure no divergence between them. In this regard, the Chair may recall Mr Maddocks' evidence that an environmental matrix can be derived directly from the ADB database.

484. If the environmental matrix option is to be adopted, the Chair may wish to consider whether the notion of "room function" (included in the template environmental matrix) is helpful. It was the incorrect application of generalised "room function" data to rooms in departments subject to different recommendations that resulted in the problems in the environmental matrix for the project.

Standardisation

485. The Inquiry has heard evidence about the benefits of standardisation. Assure is working on "*repeatable rooms*". To date, 7 have been produced. The Chair may wish to consider whether this work should be expanded.

486. Hospitals require to provide a similar level of care throughout the country. It may be that problems could be reduced if there was a standard layout and technical specification for specific spaces. These would be uniform throughout the NHS. That would avoid a situation where clinical output specifications, bespoke environmental matrices, etc have to be created for individual projects. Projects may be able to be conducted with less risk, and at lower design cost, if that work was carried out in advance. This would, however, come at the cost of flexibility.

487. One option the Chair may wish to consider is whether a fully populated template environmental matrix, that is maintained and updated by the NHS, would be beneficial for health boards. This might include room entries which reflect standardised rooms or the recommendations made by guidance.

488. Mr Stevenson, of MML, highlighted the potential benefits of an Environmental Matrix maintained by the NHS. Such a system would avoid the need to create a bespoke environmental matrix for each project (Transcript, page 41):

> *"…it would be good if we had, say, an NHS- provided Environmental Matrix for the industry to use. That would certainly get rid of a lot of conflicts and discussions over variations…If we had something produced by the NHS, give a definitive list from the schedule of accommodations and the provisions, the industry could feed back into that as things develop and change – because they always change, technologies change, procedures change, rooms change – the industry could then be bringing that back to the NHS, HFS, etc. and saying, "Look, we've got a new room type here. Can we agree on this as a criteria?" for that criteria to then be embedded into the master matrix, say. So, again, that would be the industry giving active feedback back into a centrally held NHS document. I think that would be a worthwhile exercise."*

489. The Chair will wish to consider whether there is further standardisation work that could contribute to reducing errors. For example, it may be worth considering preparation of an NHS standard set of Board Construction Requirements which set at least a starting point for hospital building projects. In preparing these, consideration could be given to how best to avoid problems which can arise from unfocused requirements to comply with NHS guidance which, in itself, is neither mandatory nor definitive in all circumstances.

Procurement

490. The Target Operating Model outlined that current procurement processes were "*not fit for purpose*" (Bundle 9, page 59). Witnesses were unable to assist the Inquiry with what specific aspects of procurement were considered to be not fit for purpose. The Inquiry has thus far only considered the procurement of the NPD model. However, we have been unable to identify any specific aspect of the procurement procedure itself that was not fit for purpose, as opposed to its implementation in the particular circumstances of the RHCYP/DCN project. The Chair may wish to revisit this issue after hearing evidence on the QEUH.

The Funding of Projects

491. A number of witnesses questioned whether revenue funding was appropriate for healthcare projects. Mr Greer outlined that while, theoretically, the risk is transferred that is not always the reality. Fundamentally, the requirement to provide safe healthcare facilities rests with the health board. The evidence before the Inquiry indicates that making changes after a contract is signed, particularly changes to technical specifications, is very difficult on a revenue funded project. Any such decisions can lead to delays in the delivery of projects and significant increases in cost. There is also no clear route to obtain quick technical advice on changes, as the entire ethos of the model is to push design risk to the private sector partner and advisors will be reluctant to take on any design assurance role if changes need to be made mid-way through a project.

492. The Chair may wish to review this issue once he has heard further evidence on the QEUH which proceeded by way of capital funding.

Alternative Models

493. Mr Maddocks outlined that one issue with current healthcare projects is that they can be adversarial. He gave evidence on partnering models whereby there is project insurance rather than various parties holding their own insurance. He outlined the potential benefits of this model in fostering a more collaborative approach to projects.

494. When the Chair has evidence of the capital funded model, the Chair may wish to give consideration to whether this model would be appropriate for hospital projects.

John MacGregor KC (Senior Counsel to the Inquiry)

and

Ross McClelland, advocate (Junior Counsel to the Inquiry)

7 May 2024

SCOTTISH HOSPITALS INQUIRY

CL.OSING STATEMENT RELATIVE TO HEARING COMMENCING 26TH FEBRUARY 2024 CONCERNING RHCYP/DCN

ON BEHALF OF JOHN AND MOLLY CUDDIHY AND LISA AND EILIDH MACKAY

INTRODUCTION

Direction 6 outlines the expectations of the Chair of the Inquiry in relation to Closing submissions. These directions and the oral direction provided by the Chair at the conclusion of the February hearing emphasised his expectation that any written submissions made should relate only to the RHCYP/DCN. It is, of course, for the Chair to determine the Terms of Reference of the Inquiry. It is worthy of a reminder that the overarching aim of the Inquiry is to consider the planning, design, construction, commissioning and where appropriate maintenance of both the QEUH/RHC and the RHCYP/DCN. The remit of the Inquiry was to "determine how issues relating to adequacy of ventilation, water contamination and other matters adversely impacted on patient safety and care occurred; if these issues could have been prevented; the impacts of these issues on patients and their families; and whether the buildings provide a suitable environment for the delivery of safe, effective person-centred care. The Inquiry will make recommendations to ensure that any past mistakes are not repeated in future NHS infrastructure projects."

Given the Remit of the Inquiry and the Terms of Reference, which are described as applying to both hospitals, it is disappointing to note that the conduct of the February 2024 was approached by both Counsel and the Chair to the Inquiry as only dealing with matters that related to the Edinburgh Hospital. This approach stymied the opportunity to consider the influence and impact of GGC and the staff of QEUH/RHC and the crisis they were facing in 2018 and 2019 on the decision making in respect of the Edinburgh project. Core Participants legal representatives were prohibited from asking questions of key witnesses such as the past cabinet Secretary for Health Jeane Freeman and representatives of NHS Assure - specifically Julie Critchley (Director) and Thomas Rodger (Head of Engineering). No undertaking was provided that they would be called to give evidence at later hearings dealing with the Glasgow hospitals.

The approach taken - of ring fencing the examination of each of the hospitals - sets the Inquiry on a path to fail to effectively identify past mistakes and ensure they are not repeated in future. The design and build of these types of infrastructure projects was described by a number of witnesses as “a once in a career opportunity”. This was tacitly given as an explanation why there appeared to be a lack of personnel with actual experience of delivering such projects. Clearly, in a country of approximately 5.454 million people, hospital infrastructure projects are not a regular occurrence. However, the Inquiry was established to consider fundamental errors and problems that arose in respect of two projects that overlapped and were designed to provide healthcare to the majority of the Scottish population. By “ring fencing” (as the Inquiry has done) the focus is on the individual projects rather than the systemic issues of governance and accountability. A clear example of this was the refusal by Counsel to the Inquiry to ask Julie Critchley about the refusal by GGC to allow NHS Asssure to inspect the Schehallion Unit at the RHC in Glasgow prior to its re-opening after an extensive multi-million pound refurbishment. The Core Participants we represent were given no reassurance that this witness would be recalled in autumn 2024 when the Glasgow Hospitals were the focus of the Inquiry. The best offer we had was that another witness would be asked this important question. We were not told who. It is notable that the scope of the evidence was to consider decision making and governance around the decision to open the Edinburgh Hospital. NHS Assure was not in place at the time the opening of the Edinburgh Hospitals was delayed but was in place when the refurbished Schiehallion re-opened without any external check or validation that the hospital environment was now safe. We submit that the issue of validation (or the lack thereof) should properly be explored as a systematic failure which is evidenced in both the Edinburgh and Glasgow Hopspital projects. In terms of addressing this systemic issue in the future, it should be noted that the creation of ASSURE was designed to “improve how we manage risk in the healthcare built environment across Scotland. Managing risk in the right way gives those involved in maintaining NHS buildings, facilities and equipment confidence and reassurance.” Evidence is available (but which the Inquiry refused to explore with the Assure witnesses) to suggest that Assure is and will be prevented from fulfilling their remit whilst health boards such as GGC can refuse them access to examine and validate healthcare facilities as was seen in 2022.

MATTERS TO BE ADDRESSED BY LEGAL REPRESENTATIVES

In Direction 6 the Chair requested that Core participants' representatives address the following issues:

3.4.1 In so far as they differ with Counsel to the Inquiry, what themes they submit have emerged from the evidence which are relevant to the Terms of Reference of the Inquiry

A. We agree with the themes identified by Counsel to the Inquiry at Section 2 of the closing submissions.
B. We accept Counsel's proposed explanations of and, where framed as questions, proposed answers to, each of the topics listed in the List of topics;
C. We accept Counsel's proposed answers to the questions which are posed in Terms of Reference 1 to 12.
D. We agree as appropriate Counsel's proposed recommendations and, propose some additional recommendations.
E. We accept Counsel's proposed material findings of fact.

The Key issues arising from the themes and recommendations are explored below:

1. The error in the environmental matrix, relating to air changes per hour in critical care rooms, was identified by one of the tenderers. Despite the failure of the environmental matrix to comply with SHTM-03-01 being highlighted at this stage, not only was the matrix revised to correct the highlighted error but the sole tenderer who had highlighted the issue was ultimately unsuccessful. It is unclear the extent to which the contract deviated from the 'exemplar' design that involved Robert Menzies in liaison with clinicians.

2. Whilst it is agreed that NHSL had a governance structure in place, it cannot be said to have been effective. Evidence led at the hearing in February together with the extensive written evidence available expose a lack of effective

governance in respect of the project. It remains unclear to the core participants who was in charge. The role of Mott Macdonald (MML) appears to be very vague and they robustly denied being involved in providing design advice. However, it is clear (as recognised by Counsel to the Inquiry) that they should have provided technical advice. Whilst they were not design reviewers, they were lead technical advisors. They should have provided advice to ensure that the clinical requirement of each room (including critical care) was met. The approval of SA1 is a clear example of MML failing to discharge their duties. There is no record of the technical solution being approved by subject specialists and this resulted in SA1 being approved by the Finance and Resources Committee and Board of NHSL based on false reassurance.

3. Many witnesses referred to Ronnie Henderson have a key leadership role. His evidence was that he had good knowledge - but not expertise - in respect of SHTM-03-01. This witness stated that if there were questions around SHTM-03-01, then he would pose these to colleagues or, if more complex, to HFS. Despite Mr Henderson being relatively low in terms of seniority, oral evidence of witnesses repeatedly placed responsibility at his door. This was notwithstanding a lack of objective evidence that he had the expertise or seniority to take on the lead governance role that others repeatedly attributed to him. At the end of this chapter of evidence the following question remained unanswered:- “Who was in control and who owned the risk?”

4. Despite the numerous individuals and organisations involved in the Edinburgh project, no one appears (except the one body at the tender stage) to have identified that the proposed air changes in critical care rooms in the environmental matrix did not meet the 10 AC/PH required by SHTM-03-01.It should be noted that on 17th October 2016, Mott MacDonald emailed Multiplex (A46440425) stating “…the Board reminds Project Co that unless the Board has already accepted a derogation, it is Project Co’s obligation to comply with the BCR’s/SHTMS etc, and the Board not commenting does not remove that obligation on Project Co.”

5. Taking the evidence as a totality, it remains unclear who was responsible for the critical aspects of the project that resulted in the delayed opening. For effective governance, those responsible for risk assessment, quality assurance and delivery must be clearly identified and be aware that responsibility lies with them. This infrastructure project provides support for external assessors to be mandatory to "sign off" on all aspects from design to settlement agreements. In the present case the expected internal scrutiny from the stage of the environmental matrix to SA1 was absent or ineffective.

6. The agreement of derogations and SA1 appear to have been primarily driven by a desire to save face, save IHSL and to avoid the expense and complications should IHSL cease to operate. These failures apply to both NHSL and the Scottish Government.

7. The absence of governing guidance on derogation added to the problems. It is noted that SHTM guidance now requires the VSG to be involved in any decision to depart from guidance.

8. The failure to identify the omissions around critical care areas was compounded by the response to the delayed project - namely entering SA1. It is of particular concern that SA1 was signed off without stage 4 HAI-SCRIBE procedure being completed. The effect of this is that SA1 took place without consultation or "sign off" by IPC and in the absence of external independent scrutiny having taken place. This lack of validation is inconsistent with patient safety being prioritised as is the failure to engage IPC in critical decisions such as signing off SA1.

9. The question raised in para 424 regarding the current model for Assure is important. So long as Assure is neither an inspector nor a regulator, its ability to provide key stage assurance review on refurbishment projects will be seriously restricted. This is demonstrated by the refusal of their offer to inspect the Schiehallion Unit. The letter from Richard McCallum, Director of Health, Finance and Governance which was co-signed by the Chief Nursing Officer, Professor Amanda Croft, dated 27 May 2021, states "NHS Scotland Assure has been co-designed with users to deliver a co-ordinated approach to the

improvement of risk management in new builds and refurbishment projects across NHS Scotland… From the 1 June 2021, all NHS Board projects that require review and approval from the NHS Capital Investment Group (CIG), will need to engage with NHS Scotland Assure to undertake key stage assurance reviews (KSARs).” The question that should have been asked of NHS Assure is whether health boards are inhibiting or preventing them fulfilling their remit.

10. The full extent to which NHSL and, in particular, IPC staff had opportunities to learn lessons from the experiences at the QEUH has not yet been fully explored. Witnesses called, including Dr Inverarity, were asked very limited questions around this issue and no evidence was obtained on what was discussed when meetings between GGC and NHSL took place. The evidence of IPC professionals, including Dr Inkster is an opportunity to gather a clearer picture on the opportunities that arose.

11. Following the Innovated Design Solution Report and NSS HFS Report in respect of the Glasgow Hospitals, the then Director General of Health and Social Care wrote to Scotland’s Health Boards on 29th January 2019 seeking confirmation that all critical ventilation systems were inspected and maintained in line with SHTM-03-01. This prompted Multiplex to state to IHSL that critical ventilation systems were compliant. IHSL thereafter wrote to NHSL in similar terms. This was not the case.

12. It appears that various points throughout the project pressure to prevent further delay and fiscal concerns/interests were prioritised over patient safety.

Clare Connelly, Advocate

Scottish Hospitals Inquiry (the "Inquiry")

Royal Hospital For Children and Young People and Department of Clinical Neurosciences, Edinburgh ("RHCYP/DCN" or "Hospital" or "Project")

Closing Statement on behalf of IHS Lothian Limited ("IHSL")

Hearing commencing on 26 February 2024 covering the period from Financial Close to the Opening of the Hospital

1. INTRODUCTION

1.1 This is the Closing Statement on behalf of IHSL in relation to the hearing that commenced on 26 February 2024 (the "**Hearing**"). This Closing Statement covers the period from Financial Close to the opening of the RHCYP/DCN. It does not repeat the points covered in IHSL's Closing Submission dated 30 June 2023 but is supplemental to that earlier Closing Submission. That said, given the significance of the events that occurred prior to Financial Close on events that occurred thereafter, there will be some overlap with matters addressed in IHSL's previous Closing Submission.

1.2 This Closing Statement also supplements IHSL's responses to the Inquiry's further Provisional Position Papers 6, 7, 8 and 10.

1.3 IHSL is the Project Company (i.e. the special purpose vehicle) in relation to the RHCYP/DCN and is a Core Participant in the Inquiry. IHSL was granted leave to appear at the Hearing.

1.4 This Closing Statement has been prepared in response to the Closing Statement by Counsel to the Inquiry dated 7 May 2024 and which was circulated to Core Participants by the Inquiry team on that same date ("**Counsel's Closing Statement**").

1.5 This Closing Statement does not seek to respond to Counsel's Closing Statement on a paragraph-by-paragraph basis. IHSL broadly adopts the contents of Counsel's Closing Statement subject to the comments made in this Closing Statement. This Closing Statement includes IHSL's own brief Summary (which summarises what IHSL considers to be the key points from Counsel's Closing Statement and the Executive Summary contained in it). From section 3 onwards, this Closing Statement adopts the same section headings as those used in Counsel's Closing Statement. This Closing Statement is structured as follows:

1.5.1 Section 2 – Summary for IHSL;

1.5.2 Section 3 - the correspondence from IHSL dated 31 January 2019;

1.5.3 Section 4 - Financial pressures on IHSL at the date that SA1 was entered into;

1.5.4 Section 5 - Executive Summary in Counsel's Closing Statement;

1.5.5 Section 6 - Key Themes;

1.5.6 Section 7 - List of Topics;

1.5.7 Section 8 - The questions posed in Terms of Reference 1-12; and

1.5.8 Section 9 - Potential Recommendations.

1.6 The Chair requested Core Participants in Direction 6 dated 22 February 2024 (and the Note by the Chair attached to Direction 6) to address certain matters in their written closing statements. This Closing Statement seeks to address the issues highlighted by the Chair in Direction 6.

1.7 IHSL recognises Counsel to the Inquiry's wish (paragraph 9 of Counsel's Closing Statement) to highlight that it is not the function of the Inquiry to make any determination about parties' rights and obligations or to resolve disputes between them as to the meaning of documents, particularly the correct interpretation of contractual provisions.

2. SUMMARY FOR IHSL

2.1 The issues on the Project arose from a lack of clarity in NHSL's brief. For a project procured using the NPD model to be successful, a very clear brief requires to be set before the final contract is concluded. That did not happen on the Project.

2.2 Many of the witnesses at the Hearing highlighted the importance of a clear and finalised brief or said that on reflection the absence of a clear and finalised client brief caused problems on the Project (Mr Henderson, Transcript, pages 136-137; Ms McKenzie, Transcript, page 77; Mr Greer, Transcript, pages 138, 139,199-200, 204; Mr Maddocks, Transcript, pages 16-18; Mr Templeton, Transcript, page 193).

2.3 The matter of what did or did not constitute NHSL's brief on the Project is controversial, chiefly the status of the Environmental Matrix. The Environmental Matrix was originally created by NHSL and its design team when the project for the design and construction of a new Royal Hospital for Sick Children was intended to be capital funded. A significant amount of time and money had been spent by NHSL on the procurement of the capital funded project. The Scottish Government announced its decision in November 2010 that the new RHCYP with the addition of the DCN were to be delivered as a revenue-funded project using the Scottish Government's NPD model.

2.4 One of the decisions taken by NHSL and Mott Macdonald Limited ("**MML**") (NHSL's Lead Technical Adviser on the NPD project) was to use a reference design. The reference design would harness the design work already undertaken by NHSL and the design team on the capital funded project. Consequently, that design work (and the costs that NHSL had incurred) would not be wasted and the procurement programme for the NPD project shortened. The Environmental Matrix formed part

of the reference design and was developed by MML and its reference design team throughout the reference design period.

2.5 NHSL's clinicians complained of being disengaged from the design discussions (Inquiry's PPP9, Bundle 12, page 353). The clinical team had no real involvement in reviewing the Environmental Matrix (NHSL's 'Chronological Table of Clinical Input into the Design', 2023, Bundle 12, pages 104-109). Robert Menzies (Senior Healthcare Architect for BMJ Architects) referred to the problems encountered by the reference design team members during the reference design period (Witness Bundle Vol 1, page 343).

2.6 On completion of the reference design MML's reference design team gave written assurance that the reference design complied with the relevant Scottish guidance.

2.7 NHSL issued the developed Environmental Matrix to the bidders during the procurement phase. The status of the Environmental Matrix in the bid documents issued to the bidders from the start of the procurement phase in early 2013 is controversial. As late as August 2012, it was NHSL's and MML's intention that the Environmental Matrix that was to be issued to bidders through the procurement period would set out specific parameters and criteria which bidders required to meet (2023, Bundle 2, page 605). In other words, it would act as NHSL's brief. The Inquiry heard that NHSL's and MML's original intention subsequently changed. However, that change was not (or not clearly) reflected in the bid documents.

2.8 The Environmental Matrix was issued to bidders and was described in the bid documents as forming part of the "Room Information" which set out NHSL's specific room requirements. Bidders were required to prepare Room Data Sheets generated from the Activity Database but to "tailor" them to reflect the Room Information. The tender submission requirements indicated that the Environmental Matrix was mandatory and any changes would only be considered on an exception basis. The IHSL bidding consortium considered the Environmental Matrix to be NHSL's brief.

2.9 NHSL, in contrast, does not accept that the Environmental Matrix formed part of its brief. The Environmental Matrix was described as a "draft" and so in its view bidders should have been aware that it could not be relied upon. NHSL considered it was for the bidders to adopt or disregard the Environmental Matrix issue with the bid documents as they saw fit. Mr Maddocks does not offer any view on the status of the Environmental Matrix, but observes in his report (at page 6) that:

> *"the production of a project specific EM would, in my opinion, be viewed by an engineer as a statement of the client's specific requirements unless the contrary intention was clearly stated. There would be no point in issuing such a document unless it contained a client specific project brief. There would be no point in a client issuing a "draft" EM that could not be relied upon by the engineer."*

2.10 That was IHSL's main contractor's (Multiplex) understanding and its sub-consultant designer's understanding of the Environmental Matrix (Mr Pike, Transcript, pages 15-6; Mr McKechnie, Transcript, page 17).

2.11 The Project was unusual in so far as NHSL had decided to use a "reference" design (and not an "exemplar" design, which was up to that date standard practice on PFI/PPP projects). NHSL provided more extensive and more detailed briefing information to the bidders through the reference design than would otherwise have been the case had NHSL adopted an exemplar design. NHSL needed to ensure that by providing more detailed reference design information it did not breach the relevant accounting rules which required comprehensive design risk transfer to ensure that the Project remained "off-book". But NHSL's position is that following Financial Close IHSL could not rely upon any of the reference design. Ironically, while NHSL initially provided more detailed briefing information than would normally be the case through the reference design, if IHSL could not rely on it after Financial Close IHSL was left with little or no briefing information at all (i.e. less than IHSL would have received had NHSL adopted the customary route and used an exemplar design that IHSL would have been able to rely upon as a brief).

2.12 In any event, at the conclusion of the procurement phase there did not appear to be a clear, unambiguous and finalised client's brief. The *status* of the Environmental Matrix at the conclusion of the procurement phase is disputed. NHSL's closing submission following the hearing in May 2023 states that there was no such brief: properly considered, NHSL's "brief", they now say, was set out in the Board's Construction Requirements and specifically the obligation to comply with SHTM guidance. The *content* of the Environmental Matrix at the end of the procurement phase was also disputed. This was demonstrated by the fact that prior to Financial Close NHSL had highlighted certain issues with the Environmental Matrix, amongst them issues of alleged non-compliance with SHTM guidance. This, however, did not prompt a wider review of the Environmental Matrix by NHSL or MML.

2.13 In determining whether or not a health board's brief is sufficiently clear and unambiguous, appropriate consideration needs to be given to the element of judgement and interpretation of guidance which might be necessary for key building systems to meet the board's clinical needs. The health board is the party best placed to identify which output parameters of key building systems (such as ventilation) are essential for the particular clinical uses it has planned for the Hospital. Those output parameters should be specified by the board as part of its brief and not left to the judgement of the project company and its subcontractors during the design phase especially if those subcontractors had limited access to clinicians or the health board's medical planners.

2.14 NHSL's position in its closing submission following the hearing in May 2023 on what constituted its "brief" (i.e. the obligation to comply with guidance) relies wholly on the judgement and interpretation of the designers. If the health board is best placed to identify what output parameters are essential

for the particular clinical uses it cannot rely wholly on the judgement of the designers to second-guess those parameters (especially if those designers have limited access to the health board's clinicians and medical planners). NHSL's position on its brief would help explain the unsatisfactory way that the Environmental Matrix progressed through the RDD procedure.

2.15 The Project demonstrates the risks that can arise if design or specification-related material generated in the context of one funding model is then used, without proper assessment of the risks of doing so, after the funding model is changed. The risks of using the Environmental Matrix from the capital-funded phase were inadequately assessed or mitigated. The Environmental Matrix appears to have been provided by NHSL to bidders with insufficient assessment of how it was to be used.

2.16 Had it been NHSL's intention that the Environmental Matrix was not to be relied upon by bidders and it did not represent its brief, the bid documents failed to clearly reflect that intention.

2.17 The Environmental Matrix at the end of the procurement phased failed to meet NHSL's clinical requirements. This became evident when the dispute around the pressure regime arose in the multi-bed rooms in around 2016. The Inquiry heard at the Hearing of the significant input from clinicians, IPC personnel, estates and technical advisers following the postponed opening of the Hospital in July 2019 prior to the instruction of High Value Change 107 and the execution of Supplemental Agreement 2. The IPC team was involved in risk assessing every clinical space in the Hospital. Arguably, that was the level of input from all relevant stakeholders that should have been provided either (i) before the procurement phase commenced in 2013 (and certainly before the Project Agreement was finalised in 2015) if the Environmental Matrix had been intended as a brief or (ii) during the bid phase with an appropriate programme to accommodate that dialogue.

2.18 The genesis of the problems that ultimately resulted in the RHCYP/DCN not opening as planned was an error in the Environmental Matrix. That is why the Environmental Matrix (and the status of it) has played such a significant part in the parties' submissions and why its status has proved to be so controversial between certain Core Participants. The designers of the ventilation (Wallace Whittle) did not recognise it as an error because it was not inconsistent with its interpretation of the summary recommendations in Table A1 of SHTM 03-01.

2.19 The disputed status and content of the Environmental Matrix was followed through into the terms of the Project Agreement. The interpretation of the relevant provisions of the Project Agreement (particularly around the status of the Environmental Matrix) is also controversial between certain Core Participants. In particular, the relationship between the Environmental Matrix and the Board's Construction Requirements ("**BCRs**") is disputed. The bid documents had consistently pointed towards the Environmental Matrix forming part of the BCRs in the Project Agreement. The BCRs in the Project Agreement required compliance with the Environmental Matrix. However, the Environmental Matrix was identified as being reviewable design data ("**RDD**") and was found in the

Project Agreement alongside the Room Data Sheets (in Schedule 6 Part 6). The Environmental Matrix was not contained in the Project Co's Proposals (those were contained in Schedule 6 Part 4). The status of the Environmental Matrix as RDD led to ambiguity because it became subject to NHSL's approval. The extent to which the Environmental Matrix became subject to NHSL approval through the RDD process is also controversial.

2.20 The RDD procedure is a familiar concept in NPD and PFI/PPP contracts for developing and finalising the design post-financial close. While development of the design can be carried over to the RDD procedure (and, indeed, that is necessary because the design will not be finalised by a bidder through the bid phase before a contract is entered into) the clarification of the health board's brief should not. The RDD process on the Project was used by NHSL to clarify its brief (not just for IHSL and its contractor Multiplex to develop its design) which caused significant problems through the construction period. Consequently, Mr McKechnie expressed surprise at the range and volume of issues that NHSL identified each time the Environmental Matrix was submitted for review and the confusion caused by NHSL challenging the contents of what Wallace Whittle understood to be NHSL's brief. The RDD process might have been appropriate for the Environmental Matrix had there been consensus that it was limited to the few outstanding issues that had been highlighted by NHSL prior to Financial Close. The RDD process was not appropriate where NHSL considered that the whole Environmental Matrix was subject to RDD and felt free to undertake a review on a sample basis and comment each time the Environmental Matrix was submitted for review.

2.21 The significance of all of this lies in NHSL's position that the Project Agreement and the BCRs gave primacy to the SHTM guidance. That position is ill-founded. The Project Agreement and the BCRs did not give primacy to the SHTM guidance: in fact, they gave primacy to the BCRs themselves. This is demonstrated by clause 5.2.4 of the Project Agreement which stated:

> "*5.2 Project Co shall at its own cost be solely responsible for procuring that the Project Operations are at all times performed:*
>
> *5.2.4* ***except to the extent expressly stated to the contrary in the Board's Construction Requirements*** *or the Service Level Specification, in compliance with all applicable NHS Requirements; …"*

2.22 Clause 5.2.4 has its genesis in the Scottish Futures Trust's standard form of NPD project. The purpose of the clause is to enable a procuring authority to depart from NHS Requirements (which includes the SHTM guidance) and to impose its own project-specific requirements.

2.23 Paragraph 2.3 of the BCRs is to the same effect:

> "***unless the Board has expressed elsewhere in the Board's Construction requirements a specific and different requirement****, that Facilities shall comply with but*

not limited to the provisions of the NHS Requirements as the same may be amended from time to time:…. (h) HTM and SHTM…."

2.24 The BCRs communicated NHSL's Project-specific requirements to IHSL. NHSL did not need to demonstrate (at least as a contractual matter) that there had been a formal derogation from NHS Requirements (including SHTM guidance): the BCRs themselves were sufficient to communicate those Project-specific requirements to IHSL. IHSL had no visibility into how NHSL and its professional team had prepared the BCRs or how it had arrived at the relevant requirements contained within them. The IHSL bidding consortium had limited access to clinicians during the procurement phase and would have no or very limited opportunity to question the requirements set out in the BCRs. It was not incumbent upon NHSL to demonstrate any departure from guidance to IHSL by way of a formal derogation. The BCRs themselves had the contractual force of expressing what NHSL's Project-specific requirements were. NHSL's Ian Graham stated at the hearing in May 2023 that he had not realised that, given the drafting, the BCRs could impose a less onerous standard than was contained in the relevant guidance (he had only considered the BCRs imposing a stricter standard).

2.25 This misunderstanding that the Project Agreement and the BCRs gave *primacy* to the SHTM guidance led to a disconnect between what NHSL "wanted" and what was ultimately specified and delivered. This misunderstanding surrounding the primacy of the SHTM guidance is repeated throughout NHSL's submissions to the Inquiry's PPPs and its closing submissions following the hearing in May 2023.

2.26 A significant dispute arose between NHSL and IHSL (and its contractor, Multiplex) during the construction period relating to the pressure regimes in the multi-bed rooms in the Hospital. The dispute did not concern the air changes in those rooms.

2.27 The point of interest for the Inquiry is that this dispute led to NHSL and MML considering in detail and at some length the air change rates and the pressure regimes for multi-bed rooms, including those in Critical Care. NHSL wanted the multi-bed rooms to have a balanced or negative pressure relative to the adjacent corridor because it wanted to cohort infectious patients.

2.28 NHSL's position on the pressure regime in the multi-bed rooms in that dispute was founded upon clinical need. NHSL relied upon the terms of the BCRs, Project Co's Proposals and Good Industry Practice (a term defined in the Project Agreement) as imposing an obligation upon IHSL to design and deliver a system that met that clinical need. This was explained, for example, in NHSL's letter dated 13 March 2018 (Bundle 13, Volume 9, page 92). NHSL threatened legal proceedings against IHSL in which NHSL would have sought court orders compelling IHSL to design and deliver balanced or negative pressure in all the multi-bed rooms (including those in Critical Care, in non-conformance with the SHTM guidance) in order to meet its clinical requirements.

2.29 In the period both before March 2018 and thereafter, NHSL's estates team was focussed on delivering a system that met what the clinicians wanted (Mr Henderson, Transcript, page 71).

2.30 NHSL placed little or no reliance upon the SHTM guidance as a basis for the ventilation system it required IHSL to deliver. NHSL's case was based on clinical need. NHSL developed their requirement for balanced or negative pressure in multi-bed rooms in Critical Care having failed to identify that the summary recommendations in SHTM 03-01 19 recommended positive pressure for those rooms. There was little input from IPC professionals in developing that requirement, but it was developed with MML as the Lead Technical Adviser.

2.31 NHSL Project staff had the requisite knowledge but did not combine it when the requirement for balanced or negative pressure in multi-bed rooms was discussed. Mr Henderson, for example, was familiar with the table of recommended ventilation parameters in SHTM 03-01 but he did not realise that any of the multi-bed rooms under consideration were in Critical Care (even though information pointing to the room locations was readily available to him). NHSL's project clinical director (Janice McKenzie), in contrast, knew that some of the rooms under consideration were in Critical Care but neither she nor the clinicians she consulted were aware that the proposed solution to the pressure regime was a departure from SHTM 03-01.

2.32 NHSL developed their requirement for balanced or negative pressure in the muti-bed rooms based on clinical need. This was a clinical decision which IHSL was unable to challenge (NHSL's position was, after all, that Good Industry Practice demanded it) and a decision that an engineer would be unlikely to second guess. NHSL was best placed to identify which output parameters were required for the ventilation system for the particular clinical uses it had in mind for the Hospital. The primacy on this occasion was given to needs of the clinicians, not the guidance in Table A1 of SHTM 03-01.

2.33 The parties agreed to resolve the dispute through the execution of SA1. The negotiation of SA1 involved detailed and lengthy discussions around the requirements that the ventilation system required to achieve. The Technical Schedule which reflected the "Agreed Resolution" to the disputed ventilation issues was drafted by MML. The Technical Schedule specified 4 ac/hr at balanced or negative pressure for the 14 no. multi-bed rooms. NHSL had previously identified the 14 no. multi-bed rooms that were essential to have balanced or negative pressure at a meeting on 24 February 2017. The air change of 4 ac/hr reflected the room specific sections of the Environmental Matrix. There was no disagreement through the construction period over the air change rate for rooms in Critical Care: for both single and multi-bed rooms in Critical Care, the room specific sections of the Environmental Matrix specified 4 air change per hour and that remained the position throughout.

2.34 Although MML had prepared the Technical Schedule, MML did not consider that it was giving technical advice to NHSL.

2.35 Ms Goldsmiths' evidence was that the technical schedule and agreement in SA1 made it very clear what NHSL had agreed; it documented what NHSL had agreed met its brief and essentially what NHSL was buying; it made crystal clear where there wasn't clarity previously (Ms Goldsmith, Transcript, page 43). IHSL, and its contractor Multiplex, designed and delivered the ventilation system as clarified by NHSL and specified in SA1 as it was contractually obliged to do.

2.36 Malcolm Wright highlighted in his evidence the importance of getting "*the right people in the right places with the right skills"* (Wright, Transcript, page 6). SHTM 30 had highlighted the need for a partnership model which brought the relevant disciplines together. Had all the correct stakeholders been involved in late 2016/early 2017, when clinicians first expressed their clinical requirements for the system, the issues which led to the opening of the Hospital being postponed may have been identified much earlier. Too much weight appears to have been given to the clinicians' requirements for the ventilation system with insufficient input taken from IPC or technical advisers. NHSL appeared determined to deliver what the clinicians required: not all the relevant disciplines were involved at the right times.

2.37 Similarly, had all the relevant disciplines been involved in early 2018 when NHSL clarified its requirements through the discussions around SA1, the disconnect between what NHSL absolutely required to deliver a compliant hospital (compliance with the summary recommendations in Table A1 of SHTM 03-01) and what it told IHSL it wanted, would have been identified. The summary recommendations in Table A1 recommended 10 ac/hr and +10Pa in Critical Care areas. Those parameters had never been specifically noted in any of the technical documents in either the Project Agreement or SA1 and NHSL had never asked for those parameters. MML's position was that it did not provide technical advice to NHSL on the agreed solution in SA1 (notwithstanding that it had drafted the Technical Schedule and recognised that it was responsible for advising NHSL on compliance with SHTM guidance). MML considered it could not provide technical advice: it was concerned that the design risk transfer could be disturbed.

2.38 The decisions on ventilation of such significance as those taken by NHSL in early 2017 (when the requirement for balanced or negative pressure was first identified and developed) and in early 2018 (when legal proceedings were threatened and then a resolution reflecting clarification of the brief was agreed) required input from all relevant disciplines and stakeholders. Those were not decisions that could be taken solely by the clinicians and NHSL's project team. Had the ventilation issues been addressed by a group such as the Ventilation Safety Group (recently introduced by the new version of SHTM 03-01) the issues that led to the opening of the Hospital being postponed could have been identified much earlier.

2.39 In early January 2019, the Cabinet Secretary instructed Director General of Health and Social Care (Paul Gray) to write to all NHS Boards seeking assurance around maintenance and inspection standards. On 25 January 2019, Paul Gray wrote to the health boards seeking assurance on

maintenance and inspection standards. NHSL wrote to IHSL on 28 January seeking that assurance. IHSL, in turn, sought that assurance from Multiplex and BYES as its contractors. In addition to addressing maintenance and inspection matters (i.e. those matters with which Paul Gray's letter were concerned) Multiplex's letter of 31 January also referred to design, installation and commissioning being in accordance with SHTM 03-01 "as required". This was, in turn, reflected in a letter from IHSL to NHSL dated 31 January 2019. NHSL now say that they took a significant level of assurance from the letter of 31 January 2019. But NHSL wrote a further letter to IHSL on 12 February 2019. On that occasion, NHSL did specifically request assurance from IHSL regarding design and installation matters regarding building systems. IHSL's response was given to NHSL by letter dated 13 March 2019. That response made clear that the building systems in the Hospital had been designed and installed in accordance with the relevant standards in the Project Agreement as varied by SA1. When read in context, the 31 January 2019 letter was understood by NHSL at the time as addressing maintenance and inspection matters, hence the need for a follow-up letter on 12 February 2019 seeking assurance on design and installation matters.

2.40 The Cabinet Secretary made the decision not to open the Hospital on 4 July 2019 after testing carried out by IOM identified that certain rooms in Critical Care did not have positive pressure and 10 ac/hr. This decision was on the basis that the non-compliance with SHTM 03-01 was equated with a risk to patient safety.

2.41 No risk assessment was undertaken at the time to assess the risk of having 4 ac/hr as opposed to 10 ac/hr. The Scottish Government's position was that the Hospital was required to comply with the guidance. Consequently, there was no concluded assessment of the risk presented by the ventilation as installed compared to the ventilation parameters recommended by the guidance.

2.42 NHSL issued High Value Change 107 ("**HVC 107**") pursuant to the Project Agreement which included works to ensure that single bedrooms and multi-bed rooms in Critical Care achieved 10 ac/hr at +10Pa. Those are the parameters identified in the summary recommendations in Table A1 of SHTM 03-01. NHSL and IHSL entered into Supplementary Agreement 2 to give effect to HVC 107. The Hospital had a phased occupation commencing in April 2020 and became fully operational on 23 March 2021.

3. THE CORRESPONDENCE FROM IHSL DATED 31 JANUARY 2019

3.1 The Inquiry heard evidence at the Hearing on the correspondence which was issued by IHSL to NHSL dated 31 January 2019. The background to the letter from IHSL to NHSL dated 31 January 2019 is summarised in paragraphs 141 to 146 of Counsel's Closing Statement.

3.2 It is IHSL's position that the letter dated 31 January 2019 requires to be considered in its proper context.

3.3 That context is explained in the witness statement of Jeane Freeman (Witness Bundle, Volume 1, page 160 at page 170). Ms Freeman states at paragraph 34 of her statement:

> *"In January 2019 we had what had been referred to by some as the "Pigeon Incident" (the reporting of deaths where potential infection caused by pigeon droppings was a "contributing factor") at the QEUH. Once I became aware of the very concerning issues at QEUH, I wanted a greater level of assurance that the issues arising were being given particular attention by the Chief Executives in all our territorial boards, particularly those with ongoing infrastructure projects of all sizes, and that standards were being complied with. I instructed Paul Gray, as the Director General of Health and Social Care, to write to all NHS Boards to that effect, which he did. A letter was sent by Paul Gray to all the Chief Executives of the Health Boards in Scotland. It included a section relating to assurances being sought that all critical ventilation systems were being inspected and maintained in line with SHTM 03-01. This was to make sure that any maintenance issues were being followed through and that they were maintaining an adequate maintenance programme. The focus was on maintenance of existing estate because, at least in part, the issues arising at QEUH appear to have been exacerbated or contributed to by inadequate maintenance".*

3.4 On 25 January 2019, Paul Gray wrote to Scotland's health boards along the lines instructed by Ms Freeman. Having received Paul Gray's letter, NHSL then wrote to IHSL by letter dated 28 January 2019. The focus of that correspondence was on inspection and maintenance. IHSL, in turn, wrote to Multiplex and BYES reflecting the terms of the letter which it had received from NHSL. This resulted in Multiplex's written response to IHSL dated 31 January 2019 and IHSL's response to NHSL that same date. In addition to addressing maintenance and inspection matters (i.e. those matters with which Paul Gray's letter were concerned) Multiplex's letter of 31 January (and, in turn IHSL's letter to NHSL) also referred to design, installation and commissioning being in accordance with SHTM 03-01 "as required". Darren Pike was the author of Multiplex's letter 31 January 2019 and explained the preparation of that letter in his evidence at the Hearing (Mr Pike, Transcript, page 64 onwards) and any drafting ambiguity in it.

3.5 NHSL has suggested in its submissions to the Inquiry that it took significant assurance from that letter. However, Susan Goldsmith's evidence (Goldsmith Transcript page 70) was that NHSL took assurance "*but …we wouldn't have expected anything else, so I think we noted it and accepted it but that's probably as far as it went, to be honest".*

3.6 It is critical to note that NHSL's Brian Currie wrote further to IHSL on 12 February 2019 (around two weeks after that earlier letter dated 28 January) seeking written assurance on various matters, including specifically that "*engineering systems have been designed and are being installed and commissioned to meet current guidance and statutory requirements."* (Bundle 13, Vol.7 page 427).

Mr Currie's letter was copied to Susan Goldsmith as NHSL's Director of Finance. In contrast to NHSL's earlier letter dated 28 January 2019 (which concerned inspection and maintenance), NHSL's subsequent letter of 12 February 2019 did specifically address design, installation and commissioning of the ventilation systems.

3.7 IHSL wrote to Multiplex in the same terms as NHSL's letter dated 12 February 2019. Multiplex responded to that letter on 6 March 2019. In its response Multiplex confirmed that the ventilation system had been designed and installed to "*meet the relevant Construction Contract standards, as varied by the Settlement Agreement*." IHSL responded to NHSL's letter on 13 March 2019 (Bundle 4, page 246). In that response, IHSL stated that the engineering systems had been designed, installed and commissioned to meet the relevant Project Agreement standards as had been amended by SA1.

3.8 Had NHSL taken the level of assurance from the letter dated 31 January 2019 that is now suggested, there would have been no need for NHSL to have issued a further letter (around two weeks later) specifically seeking assurance on design and installation. It appears that, at the relevant time in January/February 2019, NHSL had understood IHSL's letter dated 31 January 2019 to be responding to the matters set out in NHSL's request of 28 January (i.e. inspection and maintenance matters). That is, NHSL understood IHSL's response in the relevant context of inspection and maintenance.

3.9 Had any assurance been taken by NHSL from the letter dated 31 January 2019, such assurance must have been short-lived because it was quickly superseded by NHSL's further request of 12 February 2019.

3.10 NHSL's further letter dated 12 February 2019 seeking assurance on the design and installation of engineering systems was issued 10 days before NHSL and IHSL executed SA1. NHSL's request for assurance around the design and installation was still extant, and IHSL's response still pending, at the date that SA1 was executed. NHSL executed SA1 notwithstanding that extant request for assurance on design and installation thereby demonstrating that NHSL took no real assurance at all from the letter of 31 January 2019 with regards to design and installation issues.

4. THE FINANCIAL PRESSURES ON IHSL AT THE DATE SA1 WAS ENTERED INTO

4.1 The Inquiry heard evidence at the Hearing on the financial pressures on IHSL when SA1 was executed in February 2019.

4.2 At paragraph 15, Counsel's Closing Statement states that SA1 was signed against a backdrop of financial pressure on IHSL. That is a fair summary of the position. However, some of the witnesses at the Hearing speculated on the extent of those financial pressures. Likewise, certain parts of Counsel's Closing Statement make statements around the extent of those pressures which are speculative and not supported by any evidence heard at the Hearing. There is a significant degree

of speculation in the witness evidence (particularly the NHSL witnesses) around the perceived risk of IHSL entering into insolvency which might have ultimately resulted in the Scottish Government having to pay £150m for the Hospital. The figure of £150m is also speculative: any such figure would have been subject to complex calculation or valuation through the provisions of the Project Agreement upon termination and those circumstances did not arise. Ms Goldsmith stated in her evidence that she was not sure how this calculation was made (Transcript, page 64). The figure can only be described as indicative.

4.3 Whilst it might be said that SA1 was signed against a backdrop of financial pressure on IHSL (given the delay in concluding the terms settling the parties' disputes which, in turn, led to a delay in the Hospital being certified as Compete), the "risk" of the company entering into insolvency was not one that the Scottish government considered to be a likely outcome (Alan Morrison Transcript, pages 113-114).

4.4 Mr Morrison explained to the Inquiry that when he was considering NHSL's business case for SA1 he did not consider this to be a realistic risk. Had it been a real risk it would have been escalated right up to the Cabinet Secretary. Mr Morrison's recollection was that he may have touched upon it with the Cabinet Secretary, but it was more along the lines of "*there is this possibility*". Mr Morrison's view was that it if it had been a real possibility of that being the outcome that would have been signalled very clearly to the Cabinet Secretary, but it was not. Mr Morrison's evidence was that he did not think that he was ever truly concerned that he may be at the point where he needed to speak to his central finance team asking for £150m. It was a risk he was aware of but didn't ever feel was a particularly likely outcome.

4.5 Jeane Freeman did not have any recollection of IHSL being in any form of financial distress (Transcript, page 36).

4.6 IHSL's Mr Templeton acknowledged that there would be the potential risk of insolvency but there would have been a number of different options available to the shareholders of IHSL, such as having further discussions with Multiplex with respect to liquidated damages, dialogue with the Senior Lenders regarding any restructuring or further injection of subordinated debt by shareholders. Further options may have included the pursuit of legal proceedings by IHSL (upstream against NHSL and/or downstream against Multiplex) or exercising such other contractual protections that IHSL may have had in place.

4.7 Had IHSL or the Senior Lenders taken no measures then it could be said that there would have been a risk of insolvency. But that speculates on what measures might have been taken had SA1 not been executed but that is an entirely hypothetical issue. The likelihood of either IHSL or the Senior Lenders taking no measures to prevent an insolvency, however, could be considered to have been remote.

4.8 NHSL appears to have made a different assessment of the perceived risk to the assessment made by the Scottish Government. In its submissions to the Inquiry, NHSL has gone so far as to describe SA1 as in effect being a "bailout" of the Project. Not only is such a view inconsistent with the evidence, but also this was not a view shared by the Scottish government which provided the additional funding for NHSL's financial contribution in SA1 (Alan Morrison, Transcript pages 125-125). Mr Morrison explained that he would not describe SA1 as a "bailout". His view was that "*it was more that it was necessary to get the project to the point where it was completed, the Hospital was handed over and services delivered to it*."

4.9 It is significant to note that parties agreed to resolve their disputes through agreement (rather than through legal proceedings) in around March 2018. But SA1 was not executed by the parties until 22 February 2019. Had NHSL truly considered SA1 to be a "bailout" at the time or had it been NHSL's intention to avert the threat of insolvency, NHSL could have taken steps much earlier that would have alleviated the financial pressures. For example, Multiplex had undertaken the reconstruction works on the ventilation system to reflect what NHSL wanted in the period from around May to October 2018. When it became evident that the negotiations to conclude SA1 were taking far longer than parties had first anticipated, IHSL proposed that a separate agreement around the completed ventilation works may have been capable of being carved out from the other issues to be addressed in SA1. Multiplex had undertaken and completed those ventilation works at its own risk. IHSL's suggestion for a separate settlement reflecting the value of the ventilation works undertaken by Multiplex was made in November 2018 but it was not taken up by NHSL (Mr Templeton's Witness Statement, Witness Statement Bundle Volume 3, page 244 at paragraph 129). Had NHSL wished to "bailout" the Project it could have taken earlier opportunities to alleviate any financial pressures, but it did not do so.

4.10 The reality was that NHSL had told IHSL in March 2018 that if handover of the Hospital had not been achieved by 31 October 2018, then the earliest that NHSL would accept handover of the Hospital would be February 2019 (Bundle 13, Volume 9, at page 10). NHSL had no contractual entitlement to dictate when it would accept handover of the Hospital: that was a matter for the Independent Tester to certify when the Hospital was considered complete. The certification of completion was, however, intrinsically linked to the execution of the SA1. That was because the agreed requirements to which the Hospital had been constructed were contained in SA1. The Independent Tester could not certify the Hospital as being complete until SA1 was executed. NHSL had clearly weighed up a number of relevant factors in deciding that SA1 was the best way forward for the Project. Crucially, NHSL executed SA1 at a time that most-suited it to accept handover of the Hospital.

5. EXECUTIVE SUMMARY

5.1 IHSL adopts the Executive Summary in Counsel's Closing Statement subject to the following comments.

Paragraph 7 - The "genesis" and the "root" of the problem

5.2 Counsel's Closing Submission states that the *genesis* of the problem that ultimately resulted in the RHCYP/DCN not opening as planned was an error in the Environmental Matrix. The Environmental Matrix was originally prepared by NHSL's design team through the reference design phase before being issued by NHSL to bidders during the procurement phase. Perhaps unsurprisingly, a significant feature of certain Core Participants' submissions to the Inquiry has revolved around which party was responsible for detecting the error or was responsible for the document which contained the error (although that it is not a matter for the Inquiry to determine).

5.3 The status of the Environmental Matrix in the Project Agreement is, therefore, controversial. There is disagreement on whether it represented NHSL's brief or whether it was a document on which no reliance could be placed. Counsel to the Inquiry notes that ambiguity in the terms of the Project Agreement contributed to a situation where there was a disconnect between "*what NHSL wanted*" the ventilation system to achieve and what the successful tenderer believed the ventilation system required to achieve.

5.4 Given NHSL (on the one hand) and IHSL and Multiplex (on the other) have firmly held opposing views of the interpretation of the Project Agreement, it might be said that there was "ambiguity" in terms of the Project Agreement that gave rise to a disconnect in the parties' positions.

5.5 To this IHSL would add that there was also ambiguity and inconsistency in the procurement documents provided by NHSL to tenderers which contributed to problems with the Project (again given parties take firmly held opposing views). These matters are addressed in Counsel's Closing Submission dated 2 June 2023 following the hearing in May 2023 and IHSL's Closing Submissions dated 30 June 2023. The status of the Environmental Matrix in the procurement documents is also controversial.

5.6 IHSL agrees with Counsel's Closing Statement (paragraph 22) that the issues on the Project arose more generally from a lack of clarity in the brief. This was a recurring theme throughout the Hearing. There was a lack of clarity (and therefore disagreement) on whether the Environmental Matrix was NHSL's brief or the design solution to that brief. Counsel's Closing Submission correctly states (paragraph 9) that "*the lack of a finalised document clearly setting out the technical requirements for the ventilation, at financial close, was at the root of the problems with the project."* (emphasis added)

5.7 Whilst the *genesis* of the problem may be said to be an error in a spreadsheet, the *root* of the problems with the Project was the lack of a finalised document clearly setting out the technical requirements for the ventilation at financial close.

Paragraph 7 – "What NHSL wanted…"

5.8 Counsel's Closing Statement refers (paragraph 7) to the disconnect between "*what NHSL wanted the ventilation system to achieve"* and *"what the successful tenderer believed the ventilation system required to achieve."*

5.9 The question of "*what NHSL wanted"* the ventilation to achieve is controversial. IHSL refers to its Summary in Section 2 of this Closing Statement. The Inquiry has heard from a number of witnesses from NHSL and MML describing what NHSL "wanted" the ventilation to achieve or what NHSL was "expecting" from the ventilation. The matter of "*what NHSL wanted*" is complex. The NHSL and MML witnesses described what "NHSL wanted" as a matter of subjective intention and with the benefit (or perhaps drawback) of hindsight. What NHSL wanted can only properly be assessed objectively. NHSL communicated what it wanted to bidders and to IHSL (as the successful bidder) through the procurement documents and the Project Agreement. Those documents of course require to be assessed objectively.

5.10 There was a disconnect between what NHSL absolutely required to deliver a compliant hospital (compliance with the summary recommendations in Table A1 of SHTM 03-01) and what it told IHSL it wanted. NHSL received the ventilation system it wanted because what NHSL wanted had been clarified and expressed in SA1.

5.11 Just as Counsel's Closing Statement invites the Chair to disregard the subjective views of witnesses in relation to the meaning of various contact documents, so too the Chair should bear in mind when assessing what it was that NHSL "*wanted*" or "*expected*" that those witnesses' subjective views are irrelevant. NHSL's subjective intention of what it wanted is at odds with what was communicated to IHSL in the following ways:

5.11.1 through terms of the Environmental Matrix issued by NHSL with the procurement documents which (i) described it as a document which set out NHSL's specific room requirements and (ii) which was issued specifically as part of the "Board's Construction Requirements";

5.11.2 through the terms of the Project Agreement which (adopting the SFT's standard form project agreement) stated compliance with all applicable NHS Requirements "*except to the extent expressly stated to the contrary in the Board's Construction Requirements"*;

5.11.3 in the expression of the clinicians' requirements for all multi-bed rooms to have a balanced or negative pressure;

5.11.4 in the expression of NHSL's ventilation requirements set out in the threatened legal proceedings in March 2018; and

5.11.5 through the clarification of NHSL's brief and the agreed terms of SA1 which was executed in February 2019.

5.12 In addition, even if it is accepted that what NHSL "wanted" was for the ventilation to comply with the guidance in SHTM 03-01, the very concept of "*compliance"* is ambiguous because of the nature of the guidance itself. These issues were addressed in more detail in IHSL's Closing Statement following the hearing in May 2023.

Paragraph 8 – reference to the Project Co's Proposals

5.13 At paragraph 8, Counsel's Closing Statement states that the Project Agreement reflected the unresolved status of the Environmental Matrix. Paragraph 8 also states that "*the schedule which gave the matrix status as reviewable design data suggested the matrix was part of Project Co's Proposals. By treating the matrix in part as if it were one of NHSL's requirements, and in part as if it were one of the contractor's proposals, the Project Agreement reflected the confusing presentation of the matrix in the tender documents."*

5.14 IHSL wishes to clarify that the Environmental Matrix was not contained in the Project Co's Proposals in the Project Agreement. The Project Co's Proposals are defined in the Project Agreement as the documents at Section 4 of Schedule 6. The Environmental Matrix was in fact found in Section 6 of the Schedule 6 (alongside the Room Data Sheets).

5.15 By treating the Environmental Matrix in part as one of NHSL's requirements (because the Board's Construction Requirements required compliance with it) and locating it in Section 6 and subjecting it to the reviewable design procedure, the status of the Environmental Matrix became open to disagreement.

Paragraph 14 - the letter of 31 January 2019

5.16 Counsel's Closing Statement (paragraph 14) refers to the letter of 31 January 2019 issued by IHSL to NHSL in response to a letter from NHSL seeking assurance on inspection and maintenance matters. Paragraph 14 notes that "*in those circumstances, and given the terms of the letter, it is not surprising that NHSL did not seek further assurance"*.

5.17 It is not clear to IHSL what circumstances Counsel to the Inquiry has in mind or what "*further assurance*" might be contemplated. In any event, NHSL issued a further letter to IHSL dated 12 February 2019 (prior to the execution of SA1) which specifically sought assurance on design and installation matters. IHSL's response was still pending as at the date of execution of SA1. No real assurance appears to have been taken by NHSL from the 31 January 2019 letter in so far as it referenced design and installation.

5.18 IHSL refers to its comments in Section 3 of this Closing Statement.

Paragraph 15 - IHSL's financial pressures

5.19 At paragraph 15, Counsel's Closing Statement states that SA1 was signed against a backdrop of financial pressure on IHSL.

5.20 IHSL refers to its comments in Section 4 of this Closing Statement.

References to "Settlement Agreement 2" should be to "Supplemental Agreement 2"

5.21 Counsel's Closing Statement (paragraph 20) refers to a further "settlement agreement" being concluded in the period following July 2019. Paragraph 20 and the remaining provisions of Counsel's Closing Statement proceeds to refer to that agreement as "*Settlement Agreement 2".*

5.22 IHSL wishes to remind the Inquiry that Counsel's Closing Statement is in fact referring to Supplemental Agreement 2 which was entered into between NHSL and IHSL. Supplemental Agreement 2 gave effect to HVC 107 which was instructed by NHSL pursuant to the terms of the Project Agreement. The distinction between "Settlement" and "Supplemental" is not merely one of semantics. Supplemental Agreement 2 did not "settle" any dispute between NHSL and IHSL. It gave effect to a Change that it had been instructed and paid for by NHSL through the relevant provisions of the Project Agreement. Supplemental Agreement 2 can be contrasted with Settlement and Supplemental Agreement 1 ("**SA1**"). SA1 was entered into between NHSL and IHSL in February 2019 and did settle a number of disputed matters between NHSL and IHSL at that time.

5.23 The references throughout Counsel's Closing Statement ought, therefore, to be to Supplemental Agreement 2.

6. THE TASK OF THE CHAIR AND THE APPROACH TO THE EVIDENCE

6.1 IHSL adopts Counsel's Closing Statement under this heading subject to the following comments.

6.2 Counsel's Closing Statement recognises (at paragraph 25) that Mr Currie (NHSL's project director) has provided a written statement to the Inquiry but was unable to give oral evidence. Counsel's Closing Statement notes that Mr Currie's evidence would likely have provided a counterpoint to the evidence of several other witnesses (notably those that worked for IHSL or Multiplex) and that, as a matter of fairness, the Chair should bear this in mind when assessing the evidence.

6.3 Equally, however, the Chair should bear in mind that neither Inquiry Counsel nor the Core Participants have had the opportunity to test or challenge Mr Currie's evidence or to raise specific issues or questions with him. Furthermore, Mr Currie's witness statement which was issued prior to the Hearing mainly addresses matters arising pre-Financial Close: these matters were dealt with at the earlier hearing in May 2023. IHSL would invite the Chair, similarly as a matter of fairness, to bear this lost opportunity in mind when assessing Mr Currie's evidence.

6.4 Counsel's Closing Statement recognises (at paragraph 26) that a number of witnesses gave evidence in relation to the meaning of the Project Agreement, SA1 and Supplemental Agreement 2. IHSL agrees that the Chair should disregard the subjective views of witnesses in relation to the meaning of various documents. These documents should be assessed objectively.

6.5 Counsel's Closing Statement suggests that witnesses did this to seek to be helpful to the Inquiry. Whilst that may be the case, it is IHSL's view that the work of the Inquiry has not been helped by factual witnesses advancing subjective views on the proper interpretation of contract documents which require to be interpreted objectively.

7. KEY THEMES

7.1 IHSL agrees with the Key Themes identified in Counsel's Closing Statement. IHSL adopts Counsel's Closing Statement under this heading subject to the following comments.

1.The lack of a clear brief set by NHSL

7.2 It was a common theme amongst many of the witnesses who gave evidence at the Hearing that a clear and finalised brief is required and the lack of such a brief was a problem on the Project.

7.3 IHSL agrees that the issues on the Project arose from a lack of clarity in the brief (Counsel's Closing Statement, paragraph 22).

7.4 IHSL also agrees with Counsel's Closing Statement that for a project procured using the NPD model to be successful, a very clear brief requires to be set before the Project Agreement is concluded. That is because at financial close on an NPD project, the construction costs for the project become fixed, as do the project company's borrowing costs. The balance of risks is concluded amongst the many different parties to the project. Changes that occur after financial close are subject to carefully drafted and detailed Change procedures. The Change procedures are intended to operate where there is a finalised set of BCRs. Neither the NPD model nor indeed any procurement model which anticipates a fixed price construction cost could accommodate attempts by a health board to complete its brief after a final contract had been signed without recourse to the contractual change provisions. The Project Agreement contained detailed Change provisions. The problem in relation to the Project was not the proper exercise of the Change procedures under the Project Agreement. The problem was an unclear and incomplete brief that NHSL sought to clarify so that it met its clinical requirements through the course of the construction period on the Project.

7.5 Counsel's Closing Statement further highlights (paragraph 427), that it is critical that the health board's brief for key building systems is clear, unambiguous and finalised before a contract is signed and financial close is achieved.

7.6 That did not occur on the Project.

7.7 During the procurement phase (i.e. prior to Financial Close) the content of the Environmental Matrix which had been prepared by NHSL's reference design team did not reflect NHSL's clinical requirements and did not reflect the summary recommendations in SHTM 03-01. That came to light when NHSL highlighted issues on the Environmental Matrix during the Preferred Bidder stage of the procurement phase.

7.8 The status of the Environmental Matrix by the end of the procurement phase is also controversial. The Inquiry heard evidence at the hearing in May 2023 that as late as August 2012 (shortly before the procurement phase commenced) it was NHSL's and MML's intention that the Environmental Matrix to be issued to bidders would set out specific parameters and criteria which bidders required to meet. MML's evidence was that this intention changed. Such a change to that intention was not translated into the procurement documents. Volume 1 of the bid documents informed bidders that the Environmental Matrix formed part of the "Room Information" which set out NHSL's specific room requirements. Furthermore, bidders were required to prepare Room Data Sheets using the Activity Database but to tailor those Room Data Sheets to reflect the Room Information. The Inquiry also heard evidence at the hearing in May 2023 that it was MML's understanding that the suite of documents which constituted the Room Information was to be used as an alternative to Room Data Sheets.

7.9 NHSL's position is that the Environmental Matrix did not constitute its brief for the environmental parameters. NHSL's closing submissions following the hearing in May 2023 was that there was no brief. NHSL's briefing tool (purportedly being of equivalent value to the Activity Database) was the BCRs themselves and, more particularly, the obligation to comply with the SHTM guidance contained therein. The identification of parameters was supposedly left entirely to the judgment of the designers so long as they complied with the guidance.

7.10 By the end of the procurement phase there was a lack of a clear brief.

7.11 A point associated with this key theme is the question of design risk and the transfer of risk to the private sector under an NPD model. It appears that both NHSL and MML confused the issue of setting a clear brief with accepting design risk for meeting that brief. That tension was a recurrent issue throughout the period post-Financial Close. It led to the unsatisfactory way in which the Environmental Matrix was progressed through the reviewable design procedure. The tension is evident, for example, in the negotiations around SA1. On MML's analysis, as NHSL's Lead Technical Adviser, MML gave no technical advice or assistance to NHSL on the solution set out in SA1 because MML could not agree to take on design responsibility.

7.12 As Counsel's Closing Statement suggests (at paragraph 194) the effectiveness of the design risk transfer relies on the clarity of the brief. The lack of clarity in NHSL's brief (or indeed the absence of

a brief at all) led to confusion amongst NHSL and MML around the transfer of design risk post Financial Close.

7.13 On the Project, ironically NHSL had provided more extensive and more detailed technical information through the procurement period because it adopted a reference design (rather than the more typically used exemplar design). But following Financial Close, NHSL's position is that IHSL was not entitled to rely upon any of it. If that was correct, IHSL would have had even less certainty than had NHSL adopted a simpler exemplar design (which IHSL would have been able to rely upon).

3. The interpretation of the published guidance

7.14 IHSL agrees with Counsel's Closing Statement at paragraph 32 regarding the difficulty of taking published guidance and requiring compliance with it in a contract. That is because it is open to interpretation and requires difficult judgements to be made on what guidance requires.

7.15 This difficulty is particularly acute in light of NHSL's position (in its Closing Submission to the hearing in March 2023) that the obligation to comply with guidance was in effect the briefing tool that it adopted in substitution to using the Activity Database.

7.16 NHSL was clearly best placed to identify which output parameters the ventilation system was required to meet based on the particular clinical uses it had in mind for the Hospital. NHSL say they left the identification of those parameters entirely to the judgement of IHSL and its designers.

4.Compliance with published guidance

7.17 At paragraph 40, Counsel's Closing Statement states, in the context of NHSL's failure to complete Stage 4 HAI-SCRIBE prior to handover of the Hospital, that NHSL's justification for non-compliance with HAI-Scribe was that the Hospital was already late, it was not sufficiently complete to allow the required checks to be carried out and IHSL was in financial distress. Furthermore, by accepting practical completion and handover of the Hospital in its incomplete state, NHSL triggered its obligation to pay IHSL, alleviating the risk of IHSL's insolvency.

7.18 That is not accurate. Ms Goldsmith's evidence was that she did not recall a discussion about the Stage 4 HAI-SCRIBE (Transcript, page 57). It did not appear to feature in NHSL's thinking prior to the execution of SA1.

7.19 The delay in concluding the terms of SA1 from around October 2018 (by which time Multiplex had completed the reconstruction of the ventilation in the multi-bed rooms) to February 2019 ironically provided a greater programme opportunity to undertake the Stage 4 HAI-SCRIBE prior to handover than the original contract programme would have done.

8. **LIST OF TOPICS**

8.1 IHSL adopts Counsel's Closing Statement under this heading subject to the following comments.

1.2 The development of the environmental matrix in relation to critical care and isolation rooms, including changes made to guidance note 15

Air change parameter for rooms in critical care left unchanged

8.2 At paragraph 89 Counsel's Closing Statement refers to an interpretation of the Project Agreement adopted by NHSL and MML which meant that any non-compliance with guidance which went undetected by NHSL or MML, in contractual terms, remained IHSL's problem to resolve.

8.3 At paragraph 90, Counsel's Closing Statement suggests that NHSL may well be correct in this interpretation of the Project Agreement (although recognising that it is not for the Inquiry to resolve that question). Nevertheless, NHSL's and MML's interpretation has an air of unreality about it given the origins of the environmental matrix in NHSL's and MML's reference design, the way in which it was used in the procurement process, and the fact that it was embedded in the Project Agreement.

8.4 IHSL does not accept Counsel's suggestion that NHS's interpretation may well be correct (the interpretation of the relevant provisions are controversial) but agrees that NHSL's position (regardless of the correct contractual interpretation) has an air of unreality about it given the Environmental Matrix was produced and developed by MML and its design team, it was provided to the bidders through the procurement phase as setting out NHSL's room specific requirements, it was embedded in the Project Agreement and the BCRs in the Project Agreement required compliance with it.

Single rooms

8.5 At paragraph 96, Counsel's Closing Statement refers to disagreement about whether or not the derogation in SA1 to 4 ac/hr applied to single rooms in the critical care department. As Counsel's Closing Statement notes, the fact that the purpose of the derogation was to confirm the basis on which 4 ac/hr had been selected for the single rooms may be seen as an indication that it was intended to apply to all single rooms for which 4 ac/hr had been specified (whether in the critical care department or elsewhere). The Environmental Matrix had specified 4 ac/hr for all single bedrooms (regardless of their location in the Hospital).

8.6 The position in relation to air changes in the single bedrooms appears to be the same as for the multi-bed rooms: that is, throughout the period after Financial Close, and until IOM's inspection, nobody considered the possibility that single rooms in the critical care department were by virtue of their location subject to particular ventilation parameter recommendations in SHTM 03-01.

8.7 The List of Topics includes (at 2.6) the question of whether NHSL agreed to a formal derogation from the requirements of SHTM 03-01: that question therefore requires to be addressed. However, the matter of the single bedrooms in Critical Care is one where hindsight now appears to be playing a significant part. Whether or not the single bedrooms in Critical Care were subject to the derogation in SA1 is a matter of objective interpretation. The fact is that there was no such disagreement in July 2019 onwards around the single bedrooms in Critical Care and whether or not they were captured by the derogation under SA1. The parties were alive to the issue at the time but arrived at no concluded view.

8.8 NHSL took legal advice on the matter. Tim Davidson (NHSL's Chief Executive at the relevant time) addressed the legal advice he obtained from NHSL's legal advisers at the time (Witness Bundle Volume 2, page 189, paragraph 72 at page 210). Mr Davison states:

> *"Later on in the day of 2 July, I asked our legal adviser to clarify the detail in SA1 of the rooms that had been included in the derogation to 4 ac/hr and learnt that arguably the rooms in critical care had been included in the SA1 technical schedule. I called a meeting of all key internal colleagues and our external legal adviser and technical adviser in the subsequent few days to begin to understand how the critical care rooms had arguably been included in the derogations. It was clear that multi-bed rooms had been included because the drawings referred to included 4 bedrooms located in critical care. As above, we had wanted multi-bed rooms to have balanced pressure but were unaware that was a derogation from Guidance in relation to multi-bed rooms in critical care. <u>It was not clear that the derogation for single bedrooms from 6 ACH to 4 ACH expressly applied to single rooms in critical care. However, given the error in the Environmental Matrix it was arguable that it did</u>."* (emphasis added)

8.9 This position was further reflected in the advice provided by NHSL's legal advisers dated 5 September 2019 (Bundle 7 Vol 3, page 372). This states:

"*The derogation for single bedrooms was accepted from 6 ac/hr to 4 ac/hr with mixed mode. In so doing, it is arguable that NHSL inadvertently agreed by implication to 4 ac/hr with mixed mode for single bedrooms in critical care as well as the single bedrooms in the rest of the Facility".*

8.10 Having obtained that legal advice, NHSL proceeded to instruct IHSL to carry out enhancement works to the ventilation in the single bedrooms in Critical Care pursuant to HVC 107. Those works were instructed and paid for pursuant to Supplemental Agreement 2.

8.11 The terms of HVC 107 and Supplemental Agreement 2 were subject to a huge degree of scrutiny and governance. Counsel's Closing Statement refers elsewhere to the level of governance that was exercised in relation to the formulation of the scope and terms of HVC 107 and subsequently the terms of Supplemental Agreement 2. Governance is also addressed in PPP9. That governance

included the creation of the Oversight Board (following NHSL's escalation to level 3 on the framework on 12 July 2019) and the appointment of a senior programme director (Mary Morgan) following NHSL's escalation to level 4 of the framework.

8.12 The governance over HVC 107 and Supplemental Agreement 2 took place at a national level.

8.13 The instruction to IHSL to carry out enhancement works to the ventilation systems in single bedrooms was given by NHSL as a Change pursuant to the Project Agreement.

8.14 Mr Henderson (NHSL) and Mr Greer (formerly MML, now NHSL) expressed a view in their witness statements that they did not think that single bedrooms in critical care had been included in SA1. Again, this is a matter of their subjective opinion whereas the documents require to be interpreted objectively. In any event, Mr Greer's and Mr Henderson's opinions are not consistent with the legal advice received by the NHSL board at the time.

8.15 The issue of the single bedrooms in Critical Care was raised by a Core Participant's Senior Counsel with Mr McKechnie at the Hearing (McKechnie, Transcript, page 147 onwards). One plank of those questions concerned whether or not there were openable windows in the single bedrooms in Critical Care. The purpose it appears of Senior Counsel's question was to draw out from Mr McKechnie that if the derogation from 6 ac/hr to 4 ac/hr was based on mixed mode ventilation, it would have excluded the single bedrooms in Critical Care because those rooms did not have openable windows.

8.16 The premise of Counsel's questions (i.e. that single bedrooms in Critical Care did not have openable windows) appears to have been misconceived. Multiplex addressed the issue of openable windows in its response to the Inquiry's PPP 8 (Bundle 12 Vol 1, page 123). That response indicates that the single bedrooms in the Hospital, including those in Critical Care, had in fact been constructed with openable windows but those windows were capable of being locked.

1.3 Issues that arose concerning the pressure regime….

8.17 At paragraph 103, Counsel's Closing Statement seeks to summarise in simple terms the nature of the dispute between NHSL and IHSL with regards to the pressure regime in the multi-bed rooms. Counsel's Closing Statement summarises NHSL's position as follows: "*NHSL considered IHSL to be obliged to deliver the balanced or negative pressure, regardless of any contrary requirement being set out in the environmental matrix, <u>because of the requirement in the Project Agreement to comply with SHTM guidance</u>."* (emphasis added)

8.18 IHSL wishes to clarify that NHSL's position in the dispute placed little or no reliance on any requirement in the Project Agreement to comply with STHM guidance. NHSL had taken advice from HFS about which entry in SHTM 03-01 might apply to multi-bed rooms in around mid-2016. That advice having been obtained, it is apparent from NHSL's subsequent correspondence and from the

draft summons that NHSL's position was predicated upon an obligation on IHSL to comply with the BCRs and Good Industry Practice.

8.19 NHSL's position was that the BCRs, Project Co Proposals and Good Industry Practice individually and collectively required the pressure regime to the four bedded rooms to be balanced or negative relative to the adjoining space to ensure that the clinical needs of the Hospital and, in particular, infection control were properly managed. NHSL's reliance on SHTM 03-01 was at best tangential: NHSL relied upon SHTM 03-01 because it referenced ADB Sheets (and untailored ADB sheets formed one plank of NHSL's argument for a balanced or negative pressure regime).

8.20 NSHL's position on the pressure regime in the multi-bed rooms was founded upon clinical need. It relied upon Good Industry Practice as described in the report which NHSL obtained from its expert, Rollason. NHSL and MML were focussed on delivering a ventilation system that met NHSL's clinical needs, not one that complied with the summary recommendations in Table A1 in SHTM 03-01.

8.21 The suggestion that NHSL's position in the dispute relied upon a requirement in the Project Agreement to comply with SHTM guidance is inaccurate.

8.22 At paragraph 125, Counsel to the Inquiry refers to the scope of Rollason's instruction, noting that it was dictated by what was understood by the parties to be the key aspect of their dispute i.e. what pressure regime was recommended by SHTM guidance for multi-bed rooms. This again appears to afford compliance with SHTM guidance greater significance in NHSL's position than in fact it had been given by NHSL at the time. The Rollason report emphasises the importance of infection control, and stated that Good Industry Practice to ensure infection control required the pressure in all 20 multi-bed rooms to be balanced or negative to the adjacent space. There is little or no consideration given to what the guidance in SHTM 03-01 said in respect of the pressure regime.

1.5 Correspondence sent by IHSL to NHSL on 31 January 2019 ……

8.23 IHSL's comments are set out in greater detail on this correspondence at section 3 of this Closing Statement.

8.24 At paragraph 144, Counsel's Closing Statement notes that on 12 February 2019 IHSL sought further written assurance from Multiplex that engineering systems (including ventilation) had been designed and commissioned to meet current guidance and statutory requirements. IHSL's correspondence to Multiplex was prompted by NHSL's letter dated 12 February 2019 to IHSL seeking written assurance on design and installation matters (Bundle 13. Vol.7 page 427).

2. The decision making and governance concerning the agreement reached between NHSL and IHSL on 22 February 2019 (Settlement Agreement No.1)

2.1 Why NHSL agreed to enter into the agreement

8.25 At paragraph 149, Counsel's Closing Statement states that "*a major commercial reason for the parties entering into SA1 when they did was to alleviate financial pressures which had built up on IHSL."* (emphasis added)

8.26 The reference to "*when they did"* is understood by IHSL to be a reference to SA1 being entered into on 22 February 2019.

8.27 The chronology of events towards the execution of SA1 on 22 February 2019 is significant. This is addressed in detail in Mr Templeton's witness statement (Witness Bundle Vol 3, page 208). NHSL had threatened legal proceedings against IHSL in mid-March 2018. On 22 March 2018, IHSL and Multiplex issued a proposal which averted the threat of those legal proceedings and formed the basis of the parties' commercial discussions. By the end of March 2018, NHSL had clarified that it wanted 14 numbered multi-bed rooms to have 4 air changes per hour at negative/balanced pressure. IHSL had understood that a commercial settlement would be concluded within weeks or just months of that clarification having been given and agreement in principle being reached.

8.28 IHSL's summary of the meeting held between NHSL and IHSL on 28 March 2018 (Bundle 13, Volume 9, page 110), recorded that NHSL's Jim Crombie had advised that NHSL were very keen on fixing an occupation date for first patients. The last realistic date that this could happen in 2018, NHSL stated, was 31 October, prior to winter pressures. Mr Crombie explained to IHSL that if this date was missed, the move would be postponed to late February 2019 (post-winter pressures). NHSL had no contractual entitlement to dictate when it would accept handover of the Hospital. Completion of the Hospital (which triggered handover) was a matter for the Independent Tester to certify under the relevant provisions of the Project Agreement. The execution of SA1 was necessary, however, for the Independent Tester to be able to certify completion. SA1 set out clearly what NHSL had agreed and documented what NHSL had agreed met its brief. SA1 clarified matters and resolved the parties earlier dispute but pending execution of SA1 that dispute was still formally unresolved. The Independent Tester was unable to certify Completion without SA1 being in place. As it happened, SA1 was executed by NSHL on 22 February 2019: the point at which NHSL had indicated (almost a year earlier) it would be prepared to accept handover.

8.29 NHSL's Finance and Resources Committee had approved the business case for SA1 on 25 July 2018.

8.30 NHSL obtained approval for its business case from the Scottish government to enter into SA1 on 8 August 2018.

8.31 It took a further 6 months from obtaining approval of the business case for SA1 to its eventual execution. Alan Morrison was surprised that it had taken NHSL a further 6 months to execute the proposed settlement agreement (Mr Morrison, Transcript, page 121). The Scottish government had approved SA1 in August 2018 and Mr Morrison thought that would lead to SA1 being signed in

August or immediately afterwards because he thought that both parties had reached a point where there was agreement.

8.32 In the period up to October 2018, Multiplex had completed the agreed ventilation works to the multi-bed rooms and the other disputed issues addressed by SA1.

8.33 IHSL and Multiplex had been working towards a targeted completion of 31 October 2018, that being the last date that NHSL would accept handover of the Hospital prior to winter pressures (Templeton, Witness Bundle Vol 3, page 208, paragraph 46). However, the Independent Tester could not certify completion until SA1 had been executed because the completion requirements were to be measured against the parties' agreed position in SA1. NHSL's latest date for occupation in 2018 (31 October) was therefore missed. NHSL had previously advised IHSL that in those circumstances the move would be postponed to February 2019.

8.34 The parties' commercial discussions drifted on through autumn/winter 2018 and into early 2019. That delay in executing SA1 similarly delayed the issue of the Certificate of Practical Completion. The Certificate of Practical Completion could only be issued upon the execution of SA1.

8.35 Counsel's Closing Statement fairly states (at paragraph 15) that SA1 was signed against a backdrop of financial pressure on IHSL. However, it would be wrong to conclude that NHSL entered into SA1 in February 2019 in order to alleviate the financial pressures on IHSL. In reality, the Hospital was completed with the exception of the agreed Post-Completion Works and Outstanding Works. The Independent Tester was ready to certify completion. NHSL entered into SA1 in February 2019 because it was a date that best-suited it due to winter pressures. NHSL had told IHSL as much almost 12 months earlier (on 28 March 2018).

8.36 Had NHSL wished to alleviate the financial pressures on IHSL, NHSL could have taken steps much earlier that would have alleviated those pressures. For example, Multiplex had undertaken the reconstruction works on the ventilation system to reflect what NHSL wanted at its own risk in the period from around May to October 2018. When it became evident that the negotiations to conclude SA1 were taking far longer than parties had first anticipated, IHSL proposed that a separate agreement addressing the completed ventilation works could be carved out from the other issues to be addressed in SA1. IHSL's suggestion for a separate settlement reflecting the value of the ventilation works undertaken by Multiplex was made in November 2018 but it was not taken up by NHSL (Mr Templeton's Witness Statement, Witness Statement Bundle Volume 3, page 244 at paragraph 129). If the primary reason NHSL entered into SA1 was to prevent an insolvency there were earlier opportunities that NHSL could have taken to alleviate the financial pressures, but they did not do so.

8.37 There were clearly a number of major commercial reasons for NHSL to enter into SA1. The major reason why NHSL agreed to enter into a settlement agreement in around March 2018 was because

it averted the threat of legal proceedings and resolved the dispute regarding the pressure regime in the multi-bed rooms. That dispute was a serious threat to the Project. NHSL has advised the Inquiry (NHSL's response to PPP10, Bundle 12 Vol 1) that Senior Counsel had given NHSL no more than a 60% chance of success in that dispute. Having been given little more than even odds of success, there were, in IHSL's submission, other major commercial reasons for NHSL to enter into SA1 than simply alleviating IHSL's financial pressures.

8.38 Paragraph 149 of Counsel's Closing Statement suggests that by early 2019 IHSL was at risk of defaulting on its loans. It is not clear what evidence Counsel to the Inquiry relies upon for this statement. It may be a reference to the further debt service payment that was due to Senior Lenders in March 2019. In any event, IHSL would be at risk of defaulting on its loans only if it failed to take steps to avoid that default. IHSL refers to its comments at Section 3.

8.39 At paragraph 150, Counsel's Closing Statement suggests that NHSL agreed to this (i.e. the execution of SA1) "*in the knowledge that the construction works had not been completed and would have to continue thereafter."* That is not, in IHSL's submission, a wholly accurate reflection of the position. The construction works had been completed by February 2019 subject to three specific areas of works that NHSL had accepted could be undertaken following completion. Following execution of SA1, IHSL (more accurately, Multiplex) returned to carry out those Post-Completion Works which ran in parallel with NHSL's post-completion works and commissioning.

8.40 At paragraph 151, Counsel's Closing Statement suggests that "*this arrangement meant it was not possible to carry out the Stage four HAI-SCRIBE process at the time of handover."* IHSL does not agree with this statement. Ms Goldsmith's evidence was that she did not recall a discussion about the Stage 4 HAI-SRCIBE. The timing of the Stage 4 HAI-SCRIBE does not appear to have been the subject of conscious consideration by NHSL, at least at the level of NHSL's board. The "arrangement" around SA1 did not prevent NHSL from carrying out the Stage 4 HAI-SCRIBE prior to handover had it intended to do so. Ironically, the delay to Completion from October 2018 to February 2019 would have allowed greater opportunity to carry out the Stage 4 HAI-SCRIBE than the original construction programme would have done.

8.41 At paragraph 154, Counsel's Closing Statement states that "*IHSL had by the date SA1 was executed (22 February 2019) confirmed compliance with SHTM 03-01 in the design, installation and commissioning of the ventilation systems, and in the maintenance of those systems such as to ensure compliance at handover."* IHSL refers to its comments in Section 3.

2.4.Whether the design parameters for the ventilation system set out in Settlement Agreement No.1 were appropriate for critical care rooms

8.42 Counsel's Closing Statement refers at paragraph 172 to the remaining uncertainty and disagreement about whether or not the derogation in SA1 applied to single bedrooms in the critical care department.

It is noted that the legal advice which NHSL received at the time was that the position was that arguably NHSL had agreed a derogation to the single bedrooms in Critical Care. IHSL refers to its comments at paragraphs 8.8 and 8.9 of this Closing Statement.

2.6 Whether NHSL agreed to a formal derogation from the requirements of STHM 03-01 and, if so, whether any prior risk assessment was conducted

8.43 Counsel's Closing Statement refers at paragraph 178 to the remaining uncertainty and disagreement about whether or not the derogation in SA1 applied to single bedrooms in the critical care department. It is noted that the legal advice which NHSL received at the time was that it was arguable that NHSL had agreed to a derogation to the single bedrooms. Having received that advice, NHSL proceeded to instruct the works to the single bedrooms in Critical Care as a Change.

2.8 What assurances (if any) were sought by…….

8.44 Counsel's Closing Statement refers at paragraph 183 to the Scottish Government's wish to avoid the risk of having to pay to acquire the Hospital if IHSL became insolvent. IHSL refers to its comments at Section 4 of this Closing Statement.

3.1Whether the financing arrangements for the project contributed to issues …..

8.45 IHSL agrees with paragraph 191 of Counsel's Closing Statement that the financial arrangements did not directly contribute to the issues and defects in the Hospital.

8.46 Paragraph 192 of Counsel's Closing Statement refers to NHSL's response to PPP10. IHSL disagrees with the position advanced by NHSL in its response to PPP10. If a clear brief had been set out at financial close, it is unlikely that the problems would have arisen on the Project. NHSL do not appear to accept that the problems on the Project were largely down to the absence of a clear, unambiguous and finalised brief for the ventilation systems. That failure was not due to the NPD model. Neither the NPD model nor any procurement model anticipating a fixed price construction cost could accommodate attempts by a health board to finesse, reinterpret and adapt its brief to clinicians' requirements after a final contract had been signed without recourse to the contractual change provisions. The Project Agreement did contain detailed and sophisticated change provisions (simpler provisions applied to lower value changes, more complex provisions applied to high value changes). But NHSL did not consider what it was doing amounted to the instruction of a Change. The NPD model did not directly contribute to the issues and defects in the Hospital: NHSL's behaviour implementing the NPD model on the Project did.

8.47 Paragraph 196 of Counsel's Closing Statement refers to the added risk factor in an NPD project being the solvency of the special purpose vehicle. It is important to recognise that the structures in an NPD model are directed at protecting the special purpose vehicle and ensuring that it is "kept

whole". That said, the unusual length and circumstances causing the delay (i.e. the on-going disputes) in reaching completion on the Project did present challenges for the NPD model.

8.48 Paragraph 197 of Counsel's Closing Statement refers to there being a real risk of insolvency by 2018. IHSL refers to its comments at Section 4 of this Closing Statement.

8.49 Paragraph 198 of Counsel's Closing refers to the Stage 4 HAI-SCRIBE not being completed before the Hospital was handed over due to the need for the payments to be made to service the debt. That is not wholly accurate. The evidence from NHSL was that they had given no specific consideration to undertaking the Stage 4 HAI-SCRIBE prior to handover.

9. THE QUESTIONS POSED IN TERMS OF REFERENCE 1-12

9.1 IHSL agrees with Counsel's Closing Statement under this heading subject to the following comments.

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9.2 Paragraph 352 of Counsel's Closing Statement states that "*NHSL departed from standard procedures, including completing HAI-SCRIBE stage 4 prior to handover, because of the need to accept the hospital and trigger the payments to IHSL."* That is not wholly accurate. NHSL had given no conscious consideration to undertaking the Stage 4 HAI-SCRIBE prior to handover.

9.3 Paragraph 353 of Counsel's Closing Statement states that NPD contracts aim to transfer full design risk to the project company, except in relation to operational functionality. It should be clarified that the project company's design obligation is typically to meet the procuring health board's output requirements, which in the case of the RHCYP/DCN were described as the BCRs.

10. POTENTIAL RECOMMENDATIONS

10.1 IHSL agrees with Counsel's Closing Statement under this heading.

28 May 2024

SCOTTISH HOSPITAL INQUIRY

Royal Hospital for Children and Young People/ Department of Clinical Neurosciences

CLOSING STATEMENT ON BEHALF OF NHS LOTHIAN (NHSL)

Hearings covering the period from financial close to the opening of the Hospital

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1. INTRODUCTION

1. NHSL thanks the Inquiry for this opportunity to make submissions covering the period from financial close until the opening of the RHCYP/DCN (the "**Hospital**").

2. Counsel to the Inquiry have made available their Closing Statement. There is much in the Closing Statement with which NHSL agrees. However, there are some elements on which NHSL wish to comment. This is not necessarily to contradict what is said, but rather to give additional context. There is a risk that by addressing issues in discrete silos, the connections between events are not clearly understood. By way of example, the commercial imperative of entering into Settlement Agreement 1 (SA1) and the timing of the Stage 4 HAI-SCRIBE cannot be seen in isolation.

3. Nor is it NHSL's intention to provide a commentary on all of the evidence that has been heard or otherwise provided to the Inquiry for the construction phase. Instead, NHSL would refer the Chair to the various documents in which NHSL has set out its position on specific issues. These are set out in Appendix A. Accordingly, for a full understanding of NHSL's position, it is necessary to read this response in conjunction with those documents.

4. In the main body of its closing submission, NHSL address certain themes that arose during the February 2024 hearing. These submissions will be made under the following headings:

    - Summary
    - Importance of context
    - IHSL, Multiplex and Wallace Whittle

- SHTM 03-01, Design Review and Mr McKechnie
- Contractual structure and funding
- Settlement Agreement 1
- Role of Mott MacDonald
- Role of Infection Prevention and Control
- Stage 4 HAI-SCRIBE
- Environmental Matrix revisited
- Conclusion

5. In Appendix B, NHSL will address the list of topics appended to Direction 6.

6. In Appendix C, NHSL will address the proposed answers to Terms of Reference 1 to 12 set out in the Closing Statement.

7. In Appendix D, NHSL will comment on proposed recommendations.

2. SUMMARY

8. NHSL wishes to acknowledge at the outset its role in the collective failure that resulted in the delayed opening of the Hospital. Regardless of where responsibility lies under the Project Agreement, there were missed opportunities to identify the error in the ventilation rates in critical care and some of those missed opportunities involved NHSL personnel.

9. The fact that the error remained undetected by everyone involved for so long is difficult to explain. One possible explanation relates to the fact that environmental parameters for ventilation systems are relevant to a range of different disciplines, such as engineering, architectural, clinical and infection control. This may have led to an ongoing assumption during the Project that someone else was responsible for ensuring that the parameters themselves were correct. If that is right, the establishment of the Ventilation Safety Group should mitigate this risk in the future, albeit the possibility of unintended derogations from SHTM 03-01 may still arise.

10. All that said, NHSL's position remains as set out in the summary section of its Closing Submission provided to the Inquiry after the hearings covering the period from commencement of the Project to financial close. NHSL intended the ventilation system at the new Hospital to fully comply with all relevant guidance, including SHTM 03-01. This should have been overwhelmingly obvious to IHSL, Multiplex and Wallace Whittle from the terms of the Board's Construction Requirements. It was also for IHSL to ensure that their Project Co's Proposals met the Board's Construction Requirements. Responsibility and risk for any errors in the environmental matrix incorporated into the Project Agreement (the "**IHSL Environmental Matrix**") and the Room Data Sheets lay with IHSL. That was a fundamental aspect of the risk allocation provisions in the Project Agreement.

11. It also remains NHSL's view that the proximate cause of the failure to construct critical care areas with the correct ventilation rates was not the terms of the draft environmental matrix provided to tenderers at the outset of the procurement process. In large projects, such errors are bound to occur. Rather, it was the fact that IHSL, through Multiplex and Wallace Whittle, considered the ventilation rates specified in the draft environmental matrix for critical care to be compliant with SHTM 03-01.

12. Stewart McKechnie's views on the proper interpretation of SHTM 03-01 were not shared by anyone else who gave evidence to the Inquiry. Nobody who was asked even suggested that Mr McKechnie's views were a possible interpretation. On this, Mr McKechnie stood entirely alone as an "*outlier*". Mr McKechnie constituted a single point of failure. Moreover, there has been no explanation why Mr McKechnie's outlier views on SHTM 03-01 were able to continue unchallenged by anyone within IHSL, Multiplex or Wallace Whittle for the duration of the Project. Indeed, the failure by Mr McKechnie to provide a proper justification for unilaterally making a change to guidance note 15 without drawing attention to the change was egregious. Had the change to guidance note 15 been disclosed to NHSL, or challenged internally within Wallace Whittle or Multiplex and escalated, the problems with the ventilation rates in critical care would have been identified. The change to guidance note 15 was by far the clearest of all missed opportunities.

13. It is not accepted that a "*misunderstanding*" as to whether the environmental matrix was a fixed brief or a document on which no reliance could be placed is "*at the heart of the matter*", as suggested at paragraph 7 of the Closing Statement. Ambiguities arise in

complex construction contracts all the time. In such circumstances, it is for the design and build contractor to identify any such issues and resolve them. It was therefore incumbent on IHSL and, through them, Multiplex and Wallace Whittle to flag up any derogations from guidance, even if such derogations were thought, incorrectly, to form part of a "fixed brief". This point was accepted by Mr McKechnie on each occasion he gave evidence and by Darren Pike of Multiplex (see below). Accordingly, had Mr McKechnie considered 4ac/hr in critical care to be a derogation from SHTM 03-01, he would have flagged it to the client, notwithstanding its inclusion in the environmental matrix.

14. It is the failure by IHSL, Multiplex and Wallace Whittle either to provide a compliant design or to flag up the non-compliances in the ventilation rates in critical care that is at the heart of the matter.

15. The evidence indicated that the NHSL Project Team were fully engaged throughout the Project. It is unfortunate that Brian Currie has been unable to provide further assistance to the Inquiry. NHSL agree with paragraph 25 of the Closing Statement by inviting the Chair to have regard to the absence of Mr Currie's evidence when assessing the evidence. NHSL also agree with the Closing Statement that the delay in the Hospital's opening was nothing to do with the Board's governance of the Project.

3. IMPORTANCE OF CONTEXT

16. In order to understand events properly, they must be put into both their contractual and factual context. After financial close, it was for IHSL under the Project Agreement to deliver a state-of-the-art hospital that complied with the Board's Construction Requirements, including relevant guidance, by the contractual completion date of 3 July 2017. By contrast, NHSL's role under the Project Agreement was limited: reviewing and, where appropriate, approving Reviewable Design Data (RDD) for operational functionality. To that end, NHSL had in place a team of professional advisers that was suitable for its limited role post financial close. This is an important point: there has been no evidence to suggest that, having regard to its role under an NPD contract, NHSL did not have in place appropriate professional support for the duration of the Project.

17. The Project itself did not proceed smoothly. From NHSL's perspective, IHSL and Multiplex performed extremely poorly. Settlement Agreement 1 (SA1), which coincided with practical completion, was signed on 22 February 2019. The extent of the delay in completion, and the fact that the technical schedule to SA1 comprised 80 items, gives some indication of just how unsatisfactory IHSL's and Multiplex's performance had been. [1]

18. After financial close, the NHSL Project Team found itself increasingly drawn into matters that went far beyond reviewing and approving RDD. This was not how the Project Agreement was meant to operate. Had the NPD contract intended or required the employment by NHSL of enhanced professional support, such as a shadow design team, then such a team would have been put in place. As it was, extensive NHSL resource was diverted from normal operations in order to address the numerous problems that arose on the contractor's side during the Project.

19. At times, the Closing Statement appears to suggest that the NHSL Project Team should have identified errors in Multiplex's design. This is to fundamentally misunderstand how the Project Agreement operated. While it is accepted that, during the construction phase, the NHSL Project Team became increasingly involved in construction matters, that was out of necessity. The fact that NHSL and its personnel were being drawn into construction matters in a way that was not envisaged by the Project Agreement is a key part of the context to which the Chair is invited to have regard.

4. IHSL, MULTIPLEX AND WALLACE WHITTLE

20. In circumstances where it was for IHSL and Multiplex to design and build a facility that complied with guidance, it is striking that the Closing Statement does not undertake any meaningful analysis of the role of IHSL, Multiplex and Wallace Whittle in creating the circumstances that gave rise to the delay in opening the Hospital. Putting aside issues of contractual interpretation, it will be recalled that:

[1] See NHSL's Narrative for Item 6.4 of Annex 1 dated 16 July 2021 in relation to the contractual programme of works and various revised completion dates.

20.1. IHSL/Multiplex, having been appointed preferred bidder, refused to continue to develop detailed design prior to financial close with the result that far more design was put into the RDD process than was intended. In this context, the reference at paragraph 350 of the Closing Statement to NHSL's "*decision to depart from the original project requirements (including the requirement for a full set of room data sheets at financial close)*" is unfair and overlooks the fact that NHSL did not, in reality, have a choice. However, NHSL broadly agrees with the Closing Statement in concluding that the quantity of design that was left over to be developed after financial close was excessive. But that was not a choice that NHSL wanted to make; it was forced on them.

20.2. IHSL, Multiplex and Wallace Whittle did not flag up the fact that the design for critical care derogated from SHTM 03-01. Any derogations from guidance or any ambiguities in the Board's Construction Requirements should have been brought to NHSL's attention, regardless of what was perceived to be the client's brief. This point was acknowledged by Mr McKechnie (see below).

20.3. A fundamental change was made to guidance note 15 of the IHSL Environmental Matrix without that change being brought to the attention of NHSL, MML or, it would appear, Multiplex. It was the only such change not to be highlighted. Mr McKechnie's justification for not highlighting the change was incoherent. Had the change been brought to NHSL's and MML's attention, the issues caused by Mr McKechnie's outlier interpretation of SHTM 03-01 would have come to light at an early stage.

20.4. Mr McKechnie's outlier views on the proper interpretation of SHTM 03-01 were not, apparently, reviewed internally. His decision to change guidance note 15 was not challenged. Multiplex's and Wallace Whittle's internal processes apparently allowed Mr McKechnie to constitute a single point of failure.

20.5. IHSL and Multiplex failed to deliver the Hospital by the contractual completion date. Multiplex stopped paying liquidated damages at some point during the period of delay. That gave rise to a potential for IHSL's insolvency. If that happened, the Project would have failed, giving rise to uncertain consequences in terms of delay and

costs. The result was that NHSL had no real choice except to bail out IHSL by agreeing to practical completion, notwithstanding construction work was not complete.

21. It is submitted that the Closing Statement, by focussing predominantly on NHSL's role in certain decisions, underplays the causative potency of the conduct of those involved on the contractor's side of the Project Agreement. While NHSL has acknowledged its role in the collective failure, there has been a complete absence of any such acknowledgement on the contractor's side. This is hardly reflective of the "partnership model" that was often referred to by Counsel to the Inquiry during the most recent hearings. It is submitted that lessons can only be properly learned if the consequences of the actions of IHSL, Multiplex and Wallace Whittle are fully understood. In particular, the Chair is invited to have particular regard to the role of the common denominator between the new Glasgow and Edinburgh hospitals: Multiplex.

22. It is a matter of note that the NHSL Project Team dealing with the remedial works, both ventilation and non-ventilation issues, was largely the same as the Project Team during the design and construction of the Project. The remedial works progressed efficiently and collaboratively. NHSL considers one of the key differences in terms of the scope for collaborative working is that (i) the managed services firm for IHSL changed from HCP to George Street Asset Management, and (ii) the contractor was changed from Multiplex to IMTECH under IHSL's new managed services firm. The result was that IHSL were being pro-actively managed and were working with a fully engaged contractor (IMTECH), enabling significant progress to be made over a short period of time. This was markedly different and a welcome improvement to the approach of IHSL's team during construction.

5. SHTM 03-01, DESIGN REVIEW AND MR McKECHNIE

23. Mr McKechnie's interpretation of SHTM 03-01 was an outlier. No other witness who was asked about the proper interpretation of SHTM 03-01 even suggested that Mr McKechnie's interpretation was tenable. The importance of Mr McKechnie's role cannot be overstated. However, it is equally significant that Mr McKechnie's interpretation of SHTM 03-01 appears not to have been challenged or subject to design review at any level within IHSL, Multiplex or Wallace Whittle. It might strike the Chair as extraordinary that a single engineer's unique view on the proper interpretation of SHTM 03-01 should be allowed to

go unchallenged by IHSL, Multiplex and Wallace Whittle for the entire duration of the Project. This is not commented upon in the Closing Statement.

24. Mr McKechnie gave evidence to the effect that, where clinicians suggest something that he knows to be contrary to guidance, he would raise it, regardless of what a particular contract might say.[2] Mr Pike also confirmed that any non-compliances in the environmental matrix should have been flagged to NHSL, regardless of its contractual significance.[3] Derogations from guidance, deliberate or inadvertent, should therefore have been flagged to the client. The only reason this did not happen during the Project was due to Mr McKechnie's very particular view of the meaning of SHTM 03-01.

25. Mr McKechnie's view on the need to flag non-compliances with guidance reflects IHSL's obligations under the Project Agreement. In terms of the paragraph 2.3(k) of section 3 of Schedule Part 6 to the Project Agreement (the BCRs), IHSL was required to take into account the guidance and advice within *inter alia* SHFN 30 and HAI-SCRIBE. SHFN 30 (Part B: HAI-SCRIBE) sets out the responsibilities on various entities, including at paragraph 2.12 those of the "Lead Contractor/Contractors". This includes the obligation of "*coordinating and advising the Infection Prevention & Control Team to assist in identifying potential risks and control measures prior to and during construction*". IHSL and its subcontractors should, therefore, have identified potential risks, including derogations from SHTM 03-01. This point is not addressed in the Closing Statement.

26. Instead, the Closing Statement identifies situations where individuals from the Project Team and MML had, between them, enough information to identify that critical care spaces were not being treated differently to other areas in terms of pressure regimes and air changes. But it should be recalled that these individuals were reviewing the materials from the perspective of their own particular roles; they were not the designers tasked with the responsibility to design and build a hospital that complied with guidance. Ronnie Henderson's comment that "*the dots weren't joined*" (paragraph 123 of the Closing Statement) is no doubt borne out of a regret that, in hindsight, something that was hiding

[2] Transcript for hearing (Stewart McKechnie) on 4 May 2023, p60; and transcript for hearing (Stewart McKechnie) on 29 February 2024, pp52 to 55.
[3] Transcript for 28 February 2024 (Darren Pike) at p30.

in plain sight was not spotted. Even so, Mr Henderson was not the designer and was not considering it from that perspective.

27. But "*the dots*" to which Mr Henderson refers were in documents produced, revised and promulgated by Multiplex and its subcontractors. The Closing Statement, for instance at paragraph 93, appears to suggest that IHSL, Multiplex and Wallace Whittle were somehow tied into Mr McKechnie's untenable interpretation of SHTM03-01 and therefore exempt from further criticism. The suggestion appears to be that NHSL or MML should have insisted on a line-by-line review of the IHSL Environmental Matrix, notwithstanding NHSL was, as the client, reliant on advice and MML had a restricted role which did not include acting as a shadow designer or undertaking a "*technical audit*". Indeed, Mr McKechnie had given evidence that a line-by-line review had already been undertaken.[4]

28. It is submitted that IHSL, Multiplex and Wallace Whittle should have had in place their own processes for design review and audit; they were, after all, the designers. Had Multiplex or Wallace Whittle undertaken a full design review that was independent of Mr McKechnie, it would surely have identified the non-compliance with SHTM 03-01 in relation air changes in critical care. Such a non-compliance would then have been flagged to NHSL, regardless of the terms of any "*fixed brief*".

29. It would have been prudent for Multiplex to do so in advance of procuring the air handling units required to deliver their / Wallace Whittle's design. The air handling units were being installed on site from October 2016 at the latest. The ventilation capacity for the Hospital had therefore been fixed at a very early stage and indeed prior to discussions with NHSL around the ventilation requirements for multi-bed rooms, which were ultimately resolved in SA1.[5] It later transpired that the air handling units installed by Multiplex did not have the capacity to deliver the required number of air changes to meet guidance. This sequence of events may explain why, from October 2016 onwards, IHSL, Multiplex and IHSL were focused on retaining 4ac/hr without any distinction being drawn between critical care and non-critical care areas. If that is correct, it explains why, during discussions leading to SA1, no distinction was made between critical care areas and other areas.

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[4] Transcript for 29 February 2024 (Stewart McKechnie) at p79. See also email dated 21 February 2017 from Wallace Whittle to Multiplex confirming compliance with SHTM: Bundle 13, volume 2, p635 and pp678/679; Bundle 13, volume 2, p1048.

[5] See Graeme Greer's witness statement at paragraph 50 which states that AHUs were being installed on site from at least October 2016 and that, accordingly, the ventilation capacity had been fixed at a very early stage.

6. CONTRACTUAL STRUCTURE AND FUNDING[6]

30. TOR 2 is broadly stated and includes a requirement to inquire into a range of contractual issues, including "*the procurement, … contractual structure adopted for the financing and construction of the buildings, to determine whether any aspect of these arrangements has contributed to such issues and defects*".

31. The Closing Statement concludes that the NPD contract did not play a meaningful part in the delay. However, the Closing Statement also questions the "*revenue funded model*" on the basis that the transfer of risk from the public sector was "*more theoretical than real*" (Closing Statement at paragraph 199). Those positions appear to be contradictory. In any event, NHSL invites the Chair to conclude that the procurement method and the contractual structure for the Project contributed to the delay in opening the Hospital.

32. This was the first acute hospital project to utilise the new NPD model. Scottish Futures Trust (SFT) provided standard generic procurement documentation, including a *pro forma* project agreement, and prescribed an overall procurement approach to be taken, using the competitive dialogue process. Once IHSL were awarded preferred bidder status, a period of development was entered into to agree the final details of the contract and specification. A considerable amount of design development was also required to ensure the Project Co's Proposals met the Board's Construction Requirements. However, as discussed above, during the preferred bidder stage Multiplex decided to freeze design development until the contract had been awarded. As a result, the design was not as developed as it should have been at financial close. This was addressed by placing any outstanding design into the RDD process. Such an approach gives rise to significant risk for NHSL and IHSL. By way of example, ventilation parameters need to be known early on since they will dictate *inter alia* the size of pipes, which in turn will dictate the size of roof voids. Leaving ventilation design open at financial close increases the risk of delay, for instance, if architectural and engineering design turn out to be incompatible.

[6] A detailed analysis of the material impact that the contractual funding structure had on the delivery of the Project can be found in NHSL's Response to PPP10 (Contractual Funding and Funding Structure).

33. Another example, noted above, relates to the installation by Multiplex of air handling units that were not capable of delivering a ventilation system that complied with guidance before their ventilation design had been completed. Any discussions thereafter were necessarily predicated on what the installed air handling units could actually achieve. Multiplex could not offer to achieve compliance with guidance for critical care with the air handling units they had installed. Indeed, all witnesses who were asked indicated that there was no specific discussion around the ventilation requirements for critical care during the construction period. The installation of air handling units before design was fixed should have been at IHSL's and Multiplex's risk; however, for reasons discussed below, IHSL and Multiplex ultimately did not bear the responsibility of that risk.

34. Risk arose under the contractual structure in other ways. IHSL was liable to commence debt repayments to senior lenders after the contractual completion date in July 2017, even if it was missed. However, IHSL would not begin to receive payment for the new facility until it was available to the Board, although under the terms of IHSL's contract with Multiplex, IHSL could seek damages from Multiplex to replace lost income which could be used to service its debt obligations to senior lenders. In January 2017, IHSL formally notified the Board that it would be unable to complete the facility by the contracted date of July 2017. Prior to this date, there had been no acknowledgment by IHSL that the facility was unlikely to be completed by the contracted date. [7]

35. At some point Multiplex stopped paying damages to IHSL. As a consequence, IHSL faced financial distress and insolvency. If IHSL became insolvent, they would be in default of the contract, which may have led to its termination, leaving the Board to then complete the facility or find another party willing to take over the contract. However, prior to the Board being in a position to exercise any termination rights under the Project Agreement, the Board was obliged under the terms of a direct agreement with IHSL's senior lenders to give them prior notice of an intention to exercise the termination rights. Following the service of such a notice, senior lenders would have had extensive rights to step-in and seek to resolve the default. This scenario, or any alternative approach such as Court action, would have resulted in a timescale for completion of the facility that would have been completely

[7] See NHSL's Narrative for Item 6.4 of Annex 1 dated 16 July 2021 in relation to the contractual programme of works and various revised completion dates.

unknown. Further, even if the Board was in a position to pursue termination under the terms of the Project documents, the facility would only revert to NHSL following agreement or determination of the applicable compensation payable to IHSL / senior lenders. The compensation would likely to have been in excess of £150 million, a sum that would have had to be funded from the Scottish Government's capital programme. Avoiding this scenario became a key driver of SA1 and the quantification of the settlement sum that it entailed.

36. In these circumstances NHSL agrees that, ultimately, the transfer of risk was theoretical. In circumstances where the existing estate was not fit for purpose (i.e. the Sick Kids at Sciennes and the DCN at the Western General), neither NHSL nor the Scottish Government would stand by and watch the Project fail while IHSL went into insolvency, leaving protracted disputes to be litigated. Multiplex, by refusing to pay liquidated damages to IHSL for the delay in completion, brought about IHSL's financial distress, thereby necessitating NHSL to "bail out" IHSL by entering into SA1. Accordingly, the entering into SA1 was a direct result of the NPD form of contract and the funding structures associated with it.

37. In summary, the NPD procurement and contractual structure: (i) allowed Multiplex, at the preferred bidder stage, to put an unforeseen amount of design into the RDD process, thereby increasing risk; (ii) allowed Multiplex to put considerable pressure on IHSL and, in turn, NHSL by refusing to pay liquidated damages once the Project was in delay; (iii) gave Multiplex, with whom NHSL did not have any contractual leverage, an unwarranted position of strength in negotiations; and (iv) complicated negotiations and settlement due to the multiplicity of interested parties. These points are addressed in detail in the oral evidence that Susan Goldsmith gave to the Inquiry.[8] Ms Goldsmith reflected, "*We didn't really have any levers at all, or any leverage with Multiplex*" who had adopted "*a very tough commercial position*". Ms Goldsmith also observed, "*at our end we had Scottish Futures Trust who were really the guardians of the NPD contract and had an authority from Government about what we could and couldn't do with this contract*." Ultimately, Ms Goldsmith considered healthcare infrastructure projects require flexibility and that simply is not available within an NPD structure.

[8] Transcript for 6 March 2024 (Susan Goldsmith) at p19 to p29.

38. There is a further point. The switch from a capital-funded project to a revenue-funded project meant that the reference design, as prepared by Hulley & Kirkwood, was not used in the contractual context for which it was prepared. Although the Project, as initially envisaged, would have been a design and build project, the chain of events which resulted in an error in a reference design document being built out would probably have been picked up early on, if the Board had not been required to go down an alternative procurement route.

7. SETTLEMENT AGREEMENT 1 (SA1)

39. SA1 was a commercial agreement and some of the commercial drivers that gave rise to SA1 are discussed in the previous section. The effect of SA1 was to formalise agreement on a wide range of disputes that had arisen and been resolved in the course of the Project. Although SA1 coincided with practical completion under the Project Agreement, there were still outstanding works. A Stage 4 HAI-SCRIBE was not undertaken prior to SA1 for the simple reason that there would have been no point. The Hospital was still a construction site. However, as discussed more fully below, there was never any intention to start receiving patients prior to the completion of a Stage 4 HAI-SCRIBE.

40. The works relating to items 7 and 13 of the technical schedule had been agreed and completed well in advance of the SA1 being executed. The agreement of item 7 resulted in an inadvertent derogation by NHSL in terms of air change rates for the multi-bedrooms in critical care. The circumstances that gave rise to that situation are set out in the Closing Statement. As discussed below, infection control was involved in resolving the dispute around pressure regimes in multi-bed rooms, albeit the consequential derogation in terms of air change rates in critical care was not identified. The agreement of item 13, however, did not, in NHSL's view, result in a similar derogation in relation to single rooms in critical care for the reasons set out in the Closing Statement.

41. At paragraph 161 of the Closing Statement, reference is made to the "*air of unreality*" that applied to the manner in which ventilation solutions were dealt with in SA1. This is not understood. SA1 simply recorded the ventilation solutions that had been agreed between the parties, the agreed technical solutions having been approved in terms of Schedule Part

8 (Review Procedure). SA1 was a product of how the parties chose to settle the dispute but always under the auspices of the Project Agreement.

8. ROLE OF MOTT MACDONALD (MML)

42. MML was appointed by NHSL as Technical Advisors and Project Managers for the Project. They were not appointed to perform a shadow design function or to undertake a technical audit. This was not required due to the transfer of risk under the Project Agreement.

43. A Contract Control Order (CCO) dated 26 February 2015 specified MML's services for the construction phase of the Project.[9]This CCO refers to the benefits of "*continuity of service from pre- to post FC services*". It also refers to the MML team being "*the continual presence we believe is required to support NHSL*". The core MML team was to be "*substantially collocated*" with the NHSL Project Team in order to "*continue to be part of an integrated delivery team with NHSL*". Appendix A to the CCO sets out a detailed scope of the activities to be undertaken by the core team and the support team. These services include wide ranging support and advisory functions and, potentially, "*Design Reviews*" comprising (i) reviews of RDD items, (ii) technical reviews, and (iii) ad hoc design support. The services to be provided under the CCO also include, "*Assistance with assessment and negotiation of any claims from SPV*".

44. Reference is made to the CCO, which was extended through the lifetime of the Project by further CCOs, for three reasons. Firstly, it clearly establishes the services to be provided by MML during the construction phase in an entirely orthodox manner. It is not accepted, as is suggested at paragraph 51 of the Closing Statement, that there was "*lack of clarity in relation to the role of technical advisors*". The role of MML was comprehensively set out in the CCO and understood by NHSL.

45. Secondly, the CCO supports the evidence of the witnesses to the effect that MML personnel were "embedded" within the NHSL Project Team. They were sitting in the same room and so could discuss matters as and when they arose. For that reason, it cannot be assumed that an absence of written documentation means that advice was not being sought and given.

[9] See document A34607079 submitted by MML to the Inquiry

The point made at paragraph 450 of the Closing Statement under reference to the advice NHSL received from solicitors is not comparing like with like. Solicitors were not embedded with the Project Team and so any advice would require to be formally instructed. A similar point can be made about the advice sought by NHSL from David Rollason Associates. One of the effects of embedding professional advisers is that there may be a degree of informality in communications. Even so, it is also acknowledged that advice on material matters should be formally recorded.

46. The third reason for referring to the CCO is to highlight the broad range of services MML were supplying. While MML correctly identify they were not undertaking a design assurance function, MML were providing technical advice in relation to proposed designs, which included "*reviewing the design outputs*" (Bundle 13, volume 5, p1272). There is no inconsistency in NHSL relying on MML's input as technical advisors and MML not becoming responsible for a design that it has reviewed. For instance, an adviser would not assume responsibility for a particular engineering design by reviewing whether or not the proposed outputs of the design complied with guidance.

47. MML were deeply involved in drafting and negotiating the technical elements of what came to be included in the technical schedule to SA1.[10] To the extent that the Closing Statement or MML suggest that, because MML were not providing a design assurance function, they are not implicated in the ventilation errors that formed part of the technical schedule, then NHSL strongly disagrees any such suggestion. NHSL were aware that MML were not providing a design assurance function, but that does not mean NHSL did not or should not have relied on technical advice from MML, including on compliance with guidance. Any such suggestion is not accepted. What else are technical advisors for? As Graeme Greer confirmed in evidence, MML were involved in advising NHSL in terms of compliance with published guidance.[11] In this regard, it is of note that Colin McRaedid not give evidence in relation to his involvement during the construction phase. Mr McRae was MML's lead M&E advisor on ventilation.

[10] An indication of MML's involvement in SA1 can be seen from the SA Timeline and Stakeholder Engagement document at Bundle 10, p111ff.
[11] Transcript of 27 February 2024 (Graeme Greer) at p103 and p105, albeit Mr Greer is not consistent in his evidence: see p107.

9. ROLE OF INFECTION PREVENTION AND CONTROL

48. At paragraph 13 of the Closing Statement, it is acknowledged that NHSL's infection prevention and control team ("IPCT") were heavily involved at the early stages of the Project. However, in the same paragraph it is suggested that "*the extent of their involvement post-financial close, the advice they gave on aspects of the project (if any), and the information basis on which they did so is unclear and not formally recorded*"; and, in particular, it is suggested that "*IPC do not appear to have been consulted on the final technical solution agreed for the multi-bed rooms, or on the other ventilation technical solutions recorded in SA1*". It is then commented that there was a failure to fully implement the "partnership" model of working, set out in SHFN 30.

49. NHSL refute any suggestion that there was a lack of involvement of IPC in the Project post financial close. As set out, for example, in Dr Inverarity's witness statement at paragraphs 24-37, the main IPCT representation on the Project was the lead HAI-SCRIBE Nurse, Janette Richards (now Rae) with additional input from Dr Pota Kalima (Consultant Medical Microbiologist). Regrettably, neither of those two individuals gave evidence to the Inquiry, but it is clear that Janette Rae, in particular, was intimately involved in the Project during the period after financial close until her retirement in December 2018. After retirement, Ms Rae's role was taken over by Sarah Jane Sutherland with additional assistance from Lindsay Guthrie and Dr Inverarity.

50. Janette Rae was an experienced IPC Nurse who had developed a particular understanding of the infection control nursing issues encountered during new building and refurbishment projects[12]. It was above and beyond the usual arrangements for health boards at that time to create a dedicated post for an IPC Nurse to work specifically on construction projects but that is what NHS Lothian did for this, and other, projects. Ms Rae was appointed to this dedicated post from 2014 until her retirement in 2018.[13] Like other advisers, she was "embedded" in the Project Team and was often physically based in the same offices throughout the Project, allowing her to attend relevant meetings and be on hand to give advice. Again, the co-location within the Project Team was seen by most as a positive development but may also go some way to explaining why there is less recorded input than

[12] Paragraph 33 of Dr Inverarity's witness statement.
[13] Paragraph 9 of Lindsay Guthrie's witness statement.

the Inquiry might have expected. It is however clear that she was in attendance at many meetings and therefore available to give IPC input.[14] It is also clear from Dr Inverarity and Ms Guthrie's statements that, when appropriate, she sought second opinions on IPC issues from them, Dr Kalima, HFS or HPS as required – including, for example, in relation to the ventilation strategy in the Lochranza unit (Dr Inverarity's witness statement paragraph 74 *et seq*).

51. The Project Clinical Director's evidence is that the Project Team had a collaborative and positive working relationship with IPC; that the IPC Nurse was the main conduit between the Project Team and the wider IPCT; and that the IPC Nurse attended the majority of the design meetings and if unable to attend would submit comments. The Project Clinical Director's evidence clearly indicates that IPC were involved in technical aspects of the project, where appropriate, including the ventilation issues pertaining to single bed, multi-bed and haematology, which eventually formed part of SA1.[15]

52. In that regard, there is a specific criticism that the IPCT were not consulted in relation to the negotiation of SA1. That is incorrect. The technical solutions agreed in relation to the ventilation systems had been discussed with Ms Rae, the broader Clinical Management Team and the Project Clinical Director, who signed off on the risk assessment in July 2017 and re-visited the same risk assessment in January 2018. The technical solutions did not change from January 2018 so there was no apparent need for further re-assessment.

53. It is important to put the timing of the negotiations of SA1 into context. SA1 was signed in February 2019 but, as above, the technical solutions to the issues in dispute in relation to the ventilation system were in fact agreed between NHSL and IHSL in 2018 and had been constructed before the finalisation of SA1. As noted, there was IPCT involvement in those discussions[16] and a risk assessment produced and reviewed by IPC representatives, although it is accepted that, as with other parties to those negotiations, the IPC representative was asked to focus on pressure issues. The implication of the compromise

[14] Reference is made to the NHSL Narrative for Clinical Design Review (6.10) and, in particular the IPCT timeline submitted as part of that Narrative (6.10_0038) provided to the Inquiry in November 2021. See alsothe internal exchange of emails in March 2019 reviewing IPC involvement Bundle 5: pp27-39 and the witness statements of Lindsay Guthrie, Dr Inverarity and Sarah Jane Sutherland.
[15] See paragraphs 11, 20, 30, 31 and 33 of Jancie MacKenzie's witness statement.
[16] *Ibid.*

solution in terms of compliance with guidance was not understood. If it had been understood, or made explicit by the designers proposing them, then the IPCT would have had the opportunity to fully consider the proposed derogation from the standards in SHTM 03-01 at a far earlier stage.

54. However, when it came to the final agreement of SA1, it was essentially a commercial negotiation to try to ensure that the Project could be completed. The agreed technical solutions for the ventilation system were not revisited in detail and it would not be expected that the IPCT would be involved in framing the commercial agreement. SA1 resulted in the "handover" of the incomplete building in commercial terms, but it did not mean that NHSL accepted that it was ready for patient occupation. It was known at the time that the building was not finished and further testing would be required once construction activities were complete. That was not a situation which NHSL would have wished for, but, given the circumstances at the time, it was viewed as the least bad alternative. In practical terms it meant that NHSL accepted that it would start making payments before it could carry out the Stage 4 HAI-SCRIBE procedure that it would ordinarily insist on completing before "handover". Again, the reason that situation arose was in part due to the difficulty in fully transferring risk to the private sector through the NPD funding model where normal commercial realities can be distorted by the overriding imperative of securing important healthcare infrastructure. It is not a choice that NHSL wanted to make, especially as it meant it was impossible for the IPCT to complete the Stage 4 HAI-SCRIBE in advance.

10. STAGE 4 HAI-SCRIBE

55. At paragraph 22 of the Closing Statement, it is correctly recognised that the problems with the ventilation system were identified before patients were admitted to the Hospital as a result of NHSL's implementation of the HAI-SCRIBE procedure. However, within that paragraph and the preceding paragraphs (16 and 18) it is described as a "belated" implementation of the procedure as "*the standard HAI-SCRIBE procedures were not followed before handover"* and that *"NHSL failed to follow the HAI-SCRIBE procedures"* and *"had the HAI-SCRIBE procedure been completed before SA1 was signed, there is the possibility that the issues with the ventilation system would have been detected sooner than they were (in February 2019 instead of June 2019). Therefore, the failure to follow the*

standard procedure can be viewed as a missed opportunity."[17] On the other hand, it is also acknowledged in paragraph 18 that, by that point in time, the system had already been built (in late 2018), so while earlier detection might have mitigated the disruption to some extent, it would still have been necessary to carry out remedial works.

56. There appears to be criticism of NHSL for not carrying out the Stage 4 HAI-SCRIBE procedure before SA1 was signed, but that fails to take account of the commercial nature of the "handover" in SA1 as opposed to the intended date of patient occupation some five months later. Although, SHFN 30 Part B (October 2014) refers at paragraph 3.35 to the Stage 4 HAI-SCRIBE review as being a "Pre-handover check", the guidance makes it clear elsewhere that the review is to be undertaken before operation, i.e. before patient occupation. [18] That criticism would be fully justified if NHSL had decided not to undertake a Stage 4 HAI-SCRIBE at all, as that could have meant that patients were moved into the Hospital without the requisite checks having taken place, but that is not what happened. It was always the intention of NHSL to undertake the necessary validation checks before patient occupation. Any suggestion that this was not the case is not accepted.[19]

57. The criticism, in places, fails to appreciate the full context of the situation NHSL found itself in and what it was possible to do[20]. In his evidence, Ronnie Henderson explains that the ongoing post completion works at this time meant that the building fabric and the various engineering systems, including ventilation air handling units, were being altered such that it would have been impossible to undertake either a HAI-SCRIBE or validation because there was no complete and clean built environment. This was explained to IPCT during a walk around with the Project Team in March 2019. Dr Inverarity's evidence is that, following this walk around, he concluded from an IPCT perspective that the building was not yet sufficiently complete to undertake a Stage 4 HAI-SCRIBE.[21]

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[17] Similar criticisms are also made elsewhere, for example at paragraphs 38-43, 52-53,

[18] Paragraph 3.35 of SHFN 30 Part B: HAI-SCRIBE (October 2014) identifies the time for undertaking the Stage 4 HAI-SCRIBE as "once a Project (new build or refurbishment) is **ready for operation**". Paragraph 3.1 says: "The assessment process has been developed into a series of question sets for each of the four stages of development. It will be noted that, although the framework and process for each stage is broadly similar, the construction and refurbishment stage poses particular problems arising from dust and other pollutants which could potentially impact on nearby facilities for ongoing patient care. Much of the content of the question sets for the post-construction stage will refer to decisions already taken but should be revisited to allow responses to verify that they were correctly implemented and maintained in optimum condition."

[19] See for example email correspondence in Bundle 5: pp32, 33 & 44.

[20] Reference is made to paragraphs 51 – 54 of Ronnie Henderson's witness statement.

[21] Reference is made to paragraph 113 of Dr Inverarity's statement.

58. In his witness statement at paragraph 124 Dr Inverarity disagreed that SA1 represented an important missed opportunity to spot and address further issues with non-compliant ventilation before the end of the construction phase. He explained it would represent a missed opportunity to detect non-compliant aspects of ventilation design but by then the ventilation system had already been installed. Other aspects of construction work for instance in the theatres were not complete by the time of signing SA1 so it would not be possible to fully assess how their ventilation systems performed. Non-compliant and unsuitable ventilation performance can only properly be determined once the room being ventilated is completely built, cleaned and the ventilation system is installed and running.

59. At paragraphs 125 and 126 of his statement and in his oral evidence Dr Inverarity stressed the distinction between and the timing of "commissioning" and "validation". The applicable guidance at the time was SHTM 03-01 (2014) Part A and section 8 of the guidance deals with the commissioning and validation of specialised ventilation systems. *"Commissioning - Commissioning is the process of advancing a system from physical completion to an operating condition. It will normally be carried out by specialist commissioning contractors working in conjunction with equipment suppliers. Commissioning will normally be the responsibility of the main or mechanical services contractor.*" Validation is defined on page 114 as "*A process of proving that the system is fit for purpose and achieves the operating performance originally specified. It will normally be a condition of contract that "The system will be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.*"

60. In terms of SHTM 03-01, independent validation should take place before a Stage 4 HAI-SCRIBE as it informs how the question about ventilation being fit for purpose can be answered. As noted, it is necessary to do Stage 4 HAI-SCRIBE prior to patient occupation, when the environment is clean, and it is highly desirable that this is before "handover" of the building. Dr Inverarity, Lindsay Guthrie and Sarah Jane Sutherland all said in oral evidence in response to a hypothetical question from Counsel to the Inquiry that they would never agree to allow patient occupation without a Stage 4 HAI-SCRIBE having been completed. That was never suggested by NHSL. It was always going to happen, just at the appropriate point when all construction works were complete.

61. In the event IPCT involvement in the Stage 4 HAI-SCRIBE ensured that the Hospital would not be approved for patient occupation before a validation exercise had been undertaken by an independent tester against the requirements of SHTM 03-01.. It would have been impossible to instruct IOM (or another independent tester) to validate ventilation systems and provide reports in relation to compliance with guidance as at February 2019[22], because the building was not complete and it would not be completed unless and until a compromise such as SA1 was entered into. If it had been possible to do the Stage 4 HAI-SCRIBE before handover, it would have been done. As above, IPCT view was that it was impossible to undertake the Stage 4 HAI-SCRIBE at March 2019, which was post SA1[23]. The building was only completed because SA1 was agreed.

62. The real risk and lesson to be learnt from this aspect of the Project is that prior to entering SA1, the independent tester appointed under the Project Agreement, Arcadis, should have, in relation to its testing of the ventilation system, confirmed compliance with Guidance, or otherwise. However, Arcadis was originally testing to what IHSL regarded as the contractual requirements and not the SHTM 03-01 requirements. Its findings or interpretation of the raw data gave a false assurance to NHSL before SA1 was signed. Going forward, an independent expert tester should always commission and validate a ventilation system against the requirements of SHTM 03-01 rather than any interpretation of the contractual requirements that might contain agreed derogations from the guidance. In that way the tester will identify any non-compliance and the parties can assess whether it is an expected divergence from the guidance, as a derogation that has been agreed in the contract, or an unexpected divergence that requires to be remedied.

11. ENVIRONMENTAL MATRIX REVISITED

63. NHSL has addressed in some detail the contractual status of the draft environmental matrix produced by Hulley & Kirkwood and then the IHSL Environmental Matrix that was produced by IHSL during the preferred bidder phase: see NHSL's response to the Inquiry's PPP2 and to NHSL's Closing Submission from June 2023 covering the period from the commencement of the Project to financial close at paragraphs 25 to 54.

[22] Reference is made to paragraphs 18, 51 – 54 of Ronnie Henderson's witness statement.
[23] Paragraph 113 of Dr Inverarity's statement.

64. The evidence has clearly demonstrated that, during the construction phase of the Project, the IHSL Environmental Matrix was not treated as a "fixed brief". This is contrary to the mantra that has been adopted by IHSL, Multiplex and Wallace Whittle. Had it been a fixed brief, then any proposed changes to it by NHSL would have constituted a Board Change and would have required a Board Change Notice. Other than in relation to the multi-bed room issue, this is not how either party approached changes that were made to the IHSL Environmental Matrix. A fixed brief would not go through the RDD process. Mr McKechnie found it "*extremely confusing*" that the IHSL Environmental Matrix was being returned with so many comments from NHSL and MML[24], even though it had been adopted by Wallace Whittle. That Wallace Whittle did not consider the IHSL Environmental Matrix to be a client brief is clearly demonstrated by the fact that Mr McKechnie made the change to guidance note 15 without drawing it to the attention of NHSL or MML. It is also demonstrated by the fact that Mr McKechnie confirmed that he had reviewed the design solutions for single bedrooms and multi-bed rooms against SHTM 03-01 rather than against the IHSL Environmental Matrix. In any event, Mr McKechnie also accepted that Wallace Whittle would have checked the parameters in the IHSL Environmental Matrix against guidance and "*if there was any clarification required on a particular aspect, we would have raised that through Multiplex*".[25]

65. Ken Hall of Multiplex discussed this at the end of his evidence.[26] He was asked why he had drafted a derogation to change the air change rates from 6ac/hr to 4ac/hr for single rooms when the IHSL Environmental Matrix already referred to 4ac/hr. The requested derogation was from "Compliance with SHTM". Mr Hall's response made little sense. See Bundle 13, Volume 2, pp538, 545ff. Whatever corporate position IHSL and Multiplex may have adopted, it is clear that, in the course of the Project, the IHSL Environmental Matrix was not treated as a fixed client brief.

66. There were also several examples referred to in the evidence of IHSL/Multiplex being expressly reminded of the need to comply with Board's Construction Requirements and not with the reference design: see Bundle 13, volume 5, p1097/1098, Bundle 13, volume 1, p7/8, Bundle 13, volume 1, p12, and Bundle 13, volume 2, p649. The Closing Statement

[24] Transcript 29 February 2024 (Stewart McKechnie) at pp15 to 20.
[25] Transcript 29 February 2024 (Stewart McKechnie) at p23.
[26] Transcript 28 February 2024 (Ken Hall), at p190ff.

refers to an "air of unreality" in relation to NHSL's and MML's attitude to the IHSL Environmental Matrix. This is not understood. In the context of a complex building contract, the parties' relationships must be dictated by the terms of the contract. This is what the parties expect, and this is what interested third parties expect, such as funders. And that is what happened in this case. NHSL, correctly it is submitted, viewed the IHSL Environmental Matrix as part of the Project Co's Proposals. There would be an "air of unreality" were NHSL to treat the IHSL Environmental Matrix as having, like Schrodinger's cat, two statuses simultaneously: a fixed brief and part of the Project Co's Proposals.

13. CONCLUSION

67. NHSL acknowledges its involvement in the collective failure that gave rise to the circumstances which meant that the Hospital could not open in July 2019. NHSL were focussed throughout on delivering a state-of-the-art hospital to serve the public which, after a difficult Project, was due to be delivered in July 2019. It is a matter of regret that, as a result of failures which could and should have been avoided, this did not happen, causing distress and inconvenience to members of the public. For this, NHSL apologise.

APPENDIX A: NHSL KEY DOCUMENTS

The key documents in which NHSL sets out its position on various issue include:

1. NHSL's Closing Submission from June 2023 covering the period from the commencement of the Project to financial close (June 2023)
2. NHSL's General Response Paper to the Inquiry's Provision Position Papers
3. NHSL's response to the Inquiry's Provision Position Paper 1: "The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences"
4. NHSL's response to the Inquiry's Provision Position Paper 2: "The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences"
5. NHSL's response to the Inquiry's Provision Position Paper 3 (Volumes 1 and 2): "The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences"
6. NHSL's response to the Inquiry's Provision Position Paper 4 on the Project Agreement
7. NHSL's response to the Inquiry's Provisional Position 6 on Commissioning and Validation
8. NHSL's response to the Inquiry's Provision Position Paper 7 on Non-ventilation Issues
9. NHSL's response to the Inquiry's Provisional Position Paper 8 on How the potential issue in the critical care department of the Royal Hospital for Children and Young People and the Department of Clinical Neurosciences could have been detected during the Construction phase.
10. NHSL's response to the Inquiry's Provisional Position Paper 9 on Governance Structures
11. NHSL's response to the Inquiry's Provisional Paper 10 on the Contractual and Funding Structure.
12. NHL's Overview of the Settlement Agreement (SA1) Narrative
13. NHSL's Paper Apart: Mott MacDonald Ltd Appointment as Technical Advisors to NHS Lothian (19 August 2022)
14. NHSL's narrative on the ADB and RDS

15. NHSL's narrative on Operational Functionality
16. NHSL's Chronological Table of Clinical Input into the Design
17. NHSL's Changes to Procurement Timetable Timeline
18. NHSL's Narrative for Item 6.4 of Annex 1 dated 16 July 2021 in relation to the contractual programme of works and various revised completion dates.

APPENDIX B: LIST OF TOPICS

1. In Appendix B, NHSL will address the list of topics set out in Practice Direction 6, predominantly under reference to the commentary provided on the topics in Counsel to the Inquiry's Closing Statement.

1. The development of the design of the ventilation system for critical care rooms and isolation rooms in the period after financial close (February 2015)

2. No additional comment. Reference is made to NHSL's response to PPP8.

1.1 The input (if any), provided by Clinicians, Infection Prevention and Control (IPC), Estates, and Technical Advisors, in relation to the design of the ventilation system for critical care and isolation rooms, in the period after financial close.

3. There was suitable input by clinicians, IPC, Estates and MML in relation to the design of the ventilation for critical care and isolation rooms in the period after financial close. Reference is made to the relevant sections in the main body of NHSL's submission.

4. Under the Project Agreement, NHSL only had a limited role in reviewing Project Co's design through the RDD process. NHSL had put in place an appropriate team for that role. Any input from the client side in relation to technical solutions being offered by the contractor must be viewed in that context. When issues arose, clinicians, IPC and MML provided input, as appropriate, from their own particular perspectives. What they did not do, and were not required to do, was to review the contractor's design to ensure it complied in all respects with the applicable guidance. As noted above, it was clearly the contractor's responsibility to flag up any non-compliances with guidance, whether deliberate or inadvertent.

5. Topic 1.1, as framed, focuses on input from the client side. NHSL respectfully submit that the conduct of the contractor should also be examined and, in particular, why it was that Mr McKechnie was allowed to become a single point of failure.

1.2 The development of the Environmental Matrix in relation to critical care and isolation rooms, including changes made to guidance note 15.

6. The IHSL Environmental Matrix was not treated by any party as a fixed brief. Reference is made to the section 11 headed "Environmental Matrix Revisited" in the main submission above.

7. The IHSL Environment Matrix at financial close did include an inherent ambiguity. It was incumbent on IHSL, Multiplex and Wallace Whittle to bring that ambiguity to NHSL's attention. They did not do so. Instead, Mr McKechnie changed guidance note 15 without flagging that change to NHSL. Nor, in making that change, was he challenged by anyone on the contractor's side. The change does not appear to have been subject of any review. It is unclear if anyone in Multiplex was aware of it: Darren Pike was not. Reference is made to the section 5 headed "SHTM 03-01, Design Review and Mr McKechnie" in the main submission above.

8. It is a matter for the Chair whether Mr McKechnie's explanation as to why the change to guidance note 15, unlike any other change made to the IHSL Environmental Matrix, was not highlighted in red. His explanation, that he was tidying up the guidance notes, does not explain why it was not highlighted in red. The Chair is invited to have regard to the timing of the change (November 2015) and whether or not the extent to which the contractor had developed and started to implement the design may be of relevance.

9. In relation to the continued presence in the IHSL Environmental Matrix of air change rates for critical care areas that were not compliant with SHTM 03-01, this was not known to NHSL. At no time did NHSL intend to derogate from 10ac/hr for critical care areas.

10. The Closing Statement refers to "the scrutiny applied by NHSL and MML to the contents of the environmental matrix" (paragraph 87). It should be recalled that neither NHSL nor MML were required to assess Project Co's design for compliance. Any scrutiny undertaken was on a specific issue for a specific reason; it was not about design compliance.

11. Fixing NHSL with some form of duty to identify non-compliances with guidance is not supported by the Project Agreement. This is particularly so when both during the procurement phase and the construction phase NHSL had received specific assurance, first from MML and then from IHSL, that the design complied with SHTM 03-01. NHSL were resourced to fulfil their functions under the Project Agreement. That did not include a shadow design function or some sort of "technical audit". In this context, the "wider point" made in the Closing Statement at paragraph 91 and at the end of paragraph 93 itself has an "air of unreality" about it: NHSL appears to be criticised for not designing a compliant hospital.

12. It is submitted that Counsel to the Inquiry are too willing to look beyond the terms of the Project Agreement in order to fix responsibility on NHSL and others involved on the client side where no such responsibility lies. It is submitted that the Closing Statement, by focusing on the client side, fails to place sufficient weight on the obligations incumbent on IHSL and Multiplex to design and build a compliant Hospital and to draw non-compliances with guidance to NHSL's attention, particularly where the environmental matrix was internally inconsistent and therefore ambiguous. It is of note that the Closing Statement is devoid of any recommendations for changes that might be made to processes on the contractor's side. The "partnership model" includes all parties, not just those on the client side.

1.3 Issues that arose concerning the pressure regime. In particular, risk assessments relating to the pressure cascades in four-bedded rooms in various different departments of the hospital and whether implications for critical care rooms were considered.

13. NHSL broadly accepts the approach set out in Closing Statement to this topic. NHSL would, however, emphasise the requirement for IHSL, Multiplex and Wallace Whittle to identify any non-conformity with guidance, however that non-conformity arose or was understood on the client side. In that regard, the Chair is invited to have particular regard to paragraphs 118 to 119 of the Closing Statement and to consider why it was that the ventilation non-compliance was not picked up by Multiplex, notwithstanding Mr McKechnie's view of SHTM 03-01. To his credit, Ronnie Henderson from NHSL Estates was prepared to accept that he had the requisite knowledge to have spotted the non-compliance and expressed regret that it was not. His willingness to express regret

for the fact that the "*dots weren't joined*" stands in marked contrast to the evidence given on this issue by the witnesses, all professionals, from Multiplex, Wallace Whittle and MML.

14. It is accepted that the risk assessments that were produced in relation to pressure cascades in four-bedded rooms did not consider ventilation rates in critical care. This goes back to the point that input from the client side was restricted to particular issues and did not extend to overall design compliance.

15. It is not correct, per paragraph 110 of the Closing Statement, to say that there was no distinction drawn in the environmental matrix between multi-bed rooms in critical care and multi-bed rooms elsewhere in the hospital. The key point is that guidance note 15 applied to critical care areas. However, once guidance note 15 had been altered by Mr McKechnie, the point made in the Closing Statement is correct. That is precisely why the change made to guidance note 15 was so important.

1.4 Correspondence, including an email chain on 18 April 2018, where NHSL indicated that 4 air changes per hour were required for areas in the hospital. In particular, whether this requirement included the multi-bed wards in critical care and, if so, the basis for including those rooms

16. NHSL accepts the analysis set out in the Closing Statement around the email chain on 18 April 2018.

17. It is agreed that the discussions around the multi-bed rooms was a missed opportunity on both the client side and the contractor side. However, it is not accepted, per paragraph 139, that there was an understanding that all multi-bed rooms were to be treated in the same way with no special requirements for those in the critical care department. The evidence indicated that, at least from the client side, it had not been appreciated either that some of the rooms under discussion were in critical care or, if that had been appreciated, what the implications of that was for ventilation rates. There was no "understanding" that all multi-bed rooms were to be treated in the same way. Those involved from the client side had simply not been given cause to address their minds to the issue.

1.5 Correspondence sent by IHSL to NHSL on 31 January 2019 confirming that that the ventilation systems had been designed, installed and commissioned in line with SHTM 03-01 together with further correspondence on this issue in February and March 2019.

18. No additional comment beyond emphasising the importance of the confirmation by IHSL that there was compliance with SHTM 03-01.

2. The decision making and governance concerning the agreement reached between NHSL and IHSL on 22 February 2019 (Settlement Agreement No 1)

2.1 Why NHSL agreed to enter into the agreement.

19. This is covered in the main body of the submission under the heading "Settlement Agreement 1 (SA1)". Reference is also made to NHSL's response to PPP10.

20. NHSL accepts the point at paragraph 151 of the Closing Statement: the existence of ongoing construction works meant that it was not possible to undertake a Stage 4 HAI-SCRIBE prior to SA1. NHSL always intended to have the Stage 4 HAI-SCRIBE completed prior to patient occupation.

21. There is a lack of clarity in the guidance as to when the Stage 4 HAI-SCRIBE should occur, given that commissioning and validation can be distinct phases taking place some months apart. Validation can only occur when all construction works are complete and the hospital is as clean an environment as possible. The final clean tends to be just prior to, and indeed in readiness for, patient occupation. The Chair is invited to consider whether the relevant guidance requires to be re-visited to clarify (a) that commissioning and validation are, or at least can be, distinct phases and (b) when the Stage 4 HAI-SCRIBE should be undertaken and, in particular, whether this should be post-commissioning or post-validation and as close to patient occupation as possible. It was and remains NHSL's understanding that the Stage 4 HAI-SCRIBE could not take place prior to the signing of SA1 because there were ongoing construction works which meant that the ventilation system could not be validated and the hospital was not "clean" or ready for patient occupation.

2.2 Why the ventilation parameters set out in the agreement were deemed adequate and appropriate by NHSL and IHSL, with particular regard to their application to critical care rooms.

22. NHSL did not intend to derogate from the ventilation parameters stipulated in SHTM 03-01 for any critical care areas. By agreeing item 7 of the technical schedule to SA1, NHSL accepts that it inadvertently agreed to such a derogation in relation to those multi-bed rooms in critical care.

23. In relation to item 13 of the technical schedule, it is NHSL's position that this does not apply to single rooms in critical care. If it does, then that derogation was also inadvertent.

2.3 The input (if any) obtained by NHSL from Clinicians, IPC, Estates and Technical Advisors on the ventilation requirements to be included in Settlement Agreement No 1, for critical care rooms, in advance of the agreement being concluded.

24. Reference is made to the response to topic 1.1 above.

25. Under reference to paragraph 158 of the Closing Statement, the nature of Mr Greer's email to Brian Currie dated 4 June 2018 (Bundle 13, volume 5, p1272) is misstated. Mr Greer was expressing concern that the Board should not comply with IHSL's request that "*the Board [..] confirm that all BCR clauses have been met*". Indeed, any such confirmation would have been an innovation on the Project Agreement. NHSL understood the nature of MML's appointment and that MML were not offering design assurance. NHSL chose not to extend the scope of MML's appointment to provide design assurance.

26. Under reference to paragraph 159 of the Closing Statement, there is nothing inconsistent in NHSL relying on MML's technical advice in relation to designs proffered by IHSL and Multiplex. Reference is made to the section in the main submission headed "Role of Mott Macdonald (MML)".

2.4 Whether the design parameters for the ventilation system set out in Settlement Agreement No 1 were appropriate for critical care rooms.

27. No additional comment other than: (i) under reference to paragraph 167, NHSL did not chose 4ac/hr for rooms in critical care, and (ii) it is NHSL's position that item 13 of the technical schedule to SA1 does not apply to single rooms in critical care.

2.5 Whether the design parameters for the ventilation system in critical care and isolation rooms conformed to statutory regulation and other applicable recommendations, guidance and good practice.

28. No additional comment.

2.6 Whether NHSL agreed to a formal derogation from the requirements of SHTM 03-01 and, if so, whether any prior risk assessment was conducted.

29. No additional comment.

2.7 The procedure followed by NHSL for the approval of Settlement Agreement No 1. In particular, the consideration of the issue by the Finance and Resources Committee and the Board of NHSL.

30. In relation to MML's involvement in SA1, reference is made to the section headed "Role of Mott Macdonald (MML)" in the main submission.

31. Under reference to paragraph 181 of the Closing Statement, it is important to understand that there were no "limitations" on the advice being given by MML, if that is intended to suggest that MML were not providing advice in conformity with their appointment. Negotiations on the terms of SA1 had been supported by the Board's legal and technical advisers.

2.8 What assurances (if any) were sought by and/ or provided to the Scottish Government that: (i) it was appropriate for NHSL to enter into Settlement Agreement No 1; and (ii) that the specification complied with published guidance and best practice.

32. No additional comment.

2.9 Why NHSL agreed that the certificate of practical completion could be issued at the point Settlement Agreement No 1 was concluded.

33. No additional comment.

34. For context, reference is also made to the comments in the main submission relating to the requirement to "bail" IHSL out. This topic is also addressed extensively in NHSL's response to PPP10.

2.10 Whether the organisational culture within NHSL allowed individuals to raise concerns and issues in relation to the proposed agreement.

35. No additional comment.

36. For context, reference is also made to NHSL's response to PPP9.

3. The financing of the RHCYP/DCN

3.1 Whether the financing arrangements for the project contributed to issues and defects in the hospital. In particular, whether there was a perceived need for the building to be certified as practically complete as soon as possible to ensure the solvency of the project company.

37. This issue is addressed in the main body of the submission under the heading "Contractual Structure and Funding" and in NHSL's response to PPP10.

38. Under reference to paragraph 198 of the Closing Statement, this was not a standard situation and so "standard procedures" required to be adapted. The Stage 4 HAI-SCRIBE was not completed because the Hospital had not been completed at the time SA1 was signed. The Hospital was not fit for occupation by patients at that time. NHSL intended to complete the Stage 4 HAI-SCRIBE before the Hospital received patients. It would not have been possible to complete a Stage 4 HAI-SCRIBE before SA1 was

signed. Reference is made to paragraph 21 of this Appendix B in relation to further clarity that is required in the guidance in this regard.

4. The decision-making and governance structure for the project in the period after financial close

Particular emphasis will be placed on the decision making and governance concerning SA1, the instruction of IOM Limited, the consideration of the reports produced by IOM Limited and the escalation to Scottish Government

4.1 The decision making and governance processes NHSL had in place to oversee the project and whether they were adequately and effectively implemented.

39. No additional comment.

40. For context, reference is made NHSL's response to PPP9 on governance structures.

4.2 Whether the operational management and governance provided by NHSL was adequate and effective for the scale of the project.

41. The narrative provided in the Closing Statement on this topic is accepted.

4.3 The extent to which decision makers sought and facilitated input from clinical leadership teams, IPC, Estates, technical experts and other relevant parties when making key decisions to ensure that the built environment made proper provision for the delivery of clinical care.

42. This has been covered above at topic 1.1.

43. Evidence was not taken from the IPC nurse and the consultant microbiologist involved in the Project for most of its duration. In reference to paragraph 203 of the Closing Statement, it is accepted that Dr Donald Inverarity and Ms Lindsay Guthrie were not aware of SA1. But there is no basis for saying that IPC was not aware of the resolutions that were agreed during the construction phase to the ventilation issues that arose, which

were then formally recorded in the technical schedule. Nor is there any basis to suggest that the Stage 4 HAI-SCRIBE could be completed before SA1 was signed. The document at Bundle 5, pages 30-31 at paragraph 203 of the Closing Statement do not support the proposition advanced here.

44. It is not accepted that there were some "*key failings in decision making that arose from not ensuring all relevant disciplines were consulted in advance of decisions being made*". The only example given is SA1. SA1 was a commercial decision. It required technical and legal input, which NHSL duly received. IPC would not have been able to assist in relation to SA1, given its commercial nature. The ventilation system had already been constructed. Input from IPC, and Janette Rae in particular, had already been received.

4.4 The steps taken by NHSL's IPC team, in particular the lead infection control doctor for NHSL, to ensure that a validation report that complied with SHTM 03-01 was obtained.

45. Validation could not be undertaken until shortly before patient occupation of the Hospital. It is not accepted that there was a "*degree of confusion*" on the part of NHSL as to the level of inspection and testing that required to be conducted. There was a potential issue as to where responsibility lay for the validation testing as between NHSL and IHSL as owners of the building. NHSL were seeking clarity as RHCYP/DCN was the first acute healthcare project using an NPD model.

46. Brian Currie explained in correspondence dated 14 March 2019 that, "*patients will not occupy the facility until 9th July, 2019. It is our intention to carry out a pre handover check when all construction activity by IHSL/MPX completes in June*" (Bundle 5, p32). Mr Currie was clearly referring to a Stage 4 HAI-SCRIBE. It is accepted that, initially, there was a divergence of views as to the form of documentation that should be provided. However, when IPC made clear what documentation they were looking for, steps were taken to make sure that what they required was provided. This resulted in the instruction of IOM.

47. NHSL refers to its response to PPP6 which sets out its position on commissioning and validation more generally. See also paragraph 21 of this Appendix B in relation to further clarity that is required in the Guidance in this regard.

4.5 Contact between NHSL and individuals involved in the Queen Elizabeth University Hospital and whether this had any role in the key decisions made in the period after financial close, including the decision to instruct IOM Limited.

48. It is not accepted that the importance of an independent validation report was not appreciated by key decision makers in the Project Team. Independent testing was provided by Arcadis. NHSL always intended to undertake the necessary Stage 4 HAI-SCRIBE before patient occupation.

4.6 The reasons for the instruction of IOM Limited by NHSL to conduct testing of the ventilation system.

49. No additional comment.

4.7 The commissioning and testing carried out by IOM Limited and the consideration of the results by decision makers, and governance bodies, within NHSL.

50. No additional comment.

4.8 When concerns regarding the ventilation system at the RHCYP/DCN were escalated by NHSL to Scottish Government.

51. The issue was escalated to the Scottish Government on 2 July 2019.

4.9 Whether there was any deliberate suppression of concerns regarding the ventilation system by any party involved in the project.

52. NHSL was not involved in any deliberate suppression of concerns regarding the ventilation system.

4.10 The escalation of NHSL to Level 3 and subsequently to level 4 of the NHS Board Performance Escalation Framework.

53. No additional comment.

4.11 Changes made to the decision making and governance structure including: (i) the appointment of a Senior Programme Director; and (ii) the creation of the Oversight Board.

54. No additional comment.

4.12 Whether the organisational culture within NHSL encouraged staff to raise concerns and highlight issues in relation to the projects at appropriate times.

55. NHSL had appropriate policies in place which would allow concerns to be highlighted. There is no evidence indicating that any issue regarding organisational culture prevented relevant issues being raised.

4.13 Whether there were failures in the operation of systems and, if so, whether that was a result of failures on the part of individuals or organisations tasked with specific functions.

56. HAI-SCRIBE is about patient safety. Commercial arrangements under construction contracts are not relevant. SHFN 30 assumes that handover and patient occupation occur at the same time. That was not the case with the Project. There was no "*failure*" to comply with SHFN 30. A HAI-SCRIBE was completed prior to patient occupation. See also paragraph 21 of this Appendix B in relation to further clarity that is required in the Guidance in this regard.

4.14 Whether national oversight and support was adequate and effective.

57. No additional comment.

4.15 Whether there was effective communication between relevant organisations (including NHSL, Scottish Government, and NHS NSS).

58. No additional comment.

5. The decision making, and governance, around the decision not to open the hospital in 2019

59. No additional comment to the narrative provided for topic 5 and its related sub-topics (topics 5.1 to 5.4).

6. The changes to the ventilation system required by HVC Notice 107 and made prior to the opening of the hospital

60. No additional comment.

6.1 Why the brief, and agreed strategy, for the ventilation system for critical care rooms and isolation rooms (as at the point of SA1) was deemed no longer to be adequate or appropriate.

61. NHSL had always intended the ventilation system to fully comply with SHTM 03-01 unless it agreed to a formal derogation. This is made clear in the Board's Construction Requirements. NHSL did not knowingly agree to any such derogation for critical care rooms. Therefore, changes were made to ensure that the ventilation system in critical care rooms fully complied with SHTM 03-01.

62. It is not accepted, as is suggested at paragraph 258 of the Closing Statement, that the "*brief and strategy*" changed "*significantly*" during the Project to allow cohorting of patients. One of the issues that arose was whether or not multi-bed rooms should be treated as general wards (no pressure regime specified) or single rooms (balanced or negative specified) for the purposes of SHTM 03-01. Some cohorting was anticipated in some critical care multi-bed rooms. The fact that this would require a derogation from SHTM 03-01 in terms of the pressure regime was not raised by IHSL, Multiplex or Wallace Whittle. As noted earlier, there was a failure on the contractor's side to identify that, in terms of SHTM 03-01, critical care areas were subject to different environmental parameters to other areas.

63. In terms of IPC involvement, reference is made to the main submission. IPC, like others on the client side, either did not appreciate that some of the rooms intended for cohorting were in critical care or did not appreciate the fact that rooms in critical care were subject to a different environmental regime in terms of SHTM 03-01.

6.2 Whether lessons were learned from QEUH in relation to the ventilation system.

64. This issue is viewed from the perspective of NHSL. Of course, Multiplex is the common denominator between RHCYP/DCN and QEUH. Multiplex were therefore in a unique position to provide information and assistance in relation to the situation that was unfolding at the QEUH. No doubt, the Inquiry will wish to consider this point when examining the QEUH.

65. At paragraph 273 of the Closing Statement, it is suggested that the learnings from the Grant Thornton report have not been shared more widely within the NHS. The Grant Thornton report was made available on the NHSL website and at the SG Oversight Board.

6.3 The input (if any) from clinical leadership teams, IPC teams, estates teams, technical experts and other relevant parties prior to HVC Notice 107 being issued and Settlement Agreement No 2 being concluded.

66. No additional comment.

6.4 The reasons for NHSL issuing HVC Notice 107 and entering into Settlement Agreement No 2.

67. No additional comment.

6.5 The changes made to the design for the ventilation system for critical care rooms and isolation rooms.

68. No additional comment.

6.6 Remedial works undertaken to the ventilation system in relation to critical care and isolation rooms.

69. No additional comment.

6.7 Whether the remedial works have been adequate and effective. In particular, whether the ventilation system in critical care and isolation rooms is designed, and commissioned, in compliance with published guidance and best practice.

70. The opportunity was taken during the remedial works to enhance the design beyond what was contractually due under the Project Agreement. Thinking around infection control was developing as a result of the pandemic.

7. The decision making, and governance, around the decision to open the hospital

7.1 The basis for the Cabinet Secretary determining that the hospital should open.

71. No additional comment.

8. Whether the hospital provides a suitable environment for the delivery of safe, effective person-centred care

8.1 The material demonstrating that the ventilation system in critical care and isolation rooms provides a suitable environment for the delivery of safe, effective person-centred care.

72. No additional comment.

9. Changes in Policies, Procedures, Protocols and Governance Arrangements after the project

9.1 Whether NHSL, and the wider NHS, have implemented recommendations from previous reports (including the Grant Thornton report) and whether these are now embedded in the wider NHS.

73. No additional comment.

9.2 Whether there are systemic knowledge transfer arrangements in place to learn lessons from healthcare construction projects and whether they are adequate and effective

74. No additional comment.

9.3 Whether NHSL and the Scottish Government had an opportunity to learn lessons from the experience of issues relating to ventilation at the QEUH and whether they took advantage of that opportunity.

75. The statement at paragraph 303 of the Closing Statement that NHSL as an institution failed to act upon learning from QEUH is not accepted.

76. As is acknowledged by Counsel to the Inquiry, the Glasgow and Edinburgh hospitals were procured using entirely different routes: one was capital funded and the other was revenue funded. The implications of this difference are discussed in the main body of this submission. It is unfair and inaccurate to suggest that there was an institutional failure when (i) the nature of the lesson that should have been learned is far from clear, and (ii) the context for applying the lesson is entirely different. Presumably QEUH underwent a Stage 4 HAI-SCRIBE prior to handover. What, then, was the lesson that NHSL should have taken from the experience at QEUH? Especially in relation to information of which Dr Inverarity was made aware in March 2019 (i.e. after SA1)?

77. The fact is that it was the testing that was undertaken as part of the Stage 4 HAI-SCRIBE that brought the inadvertent derogation to light, as well as the non-compliance in relation to single rooms in critical care. The Stage 4 HAI-SCRIBE therefore worked. The Stage 4 HAI-SCRIBE could not have been completed earlier than it was due to the ongoing construction works.

9.4 The changes in relation to new hospital projects arising from the creation of Assure.

78. NHSL note the creation of Assure and shall observe progress with interest. NHSL's response to PPP9 details NHSL's position on Assure and any review should be reflective of any added value Assure adds to health boards.

9.5 Changes introduced by the most recent version of SHTM 03-01, including the creation of the Ventilation Safety Group.

79. No additional comment beyond following observation. In circumstances where the designer of a ventilation system has an incorrect understanding of what guidance actually means, it is not clear that, even under the revised version of SHTM 03-01, the problem with the ventilation rates in critical areas in the Hospital would have been identified, given that Mr McKechnie did not think a derogation was required. If the problem that arose with the Hospital was to have been identified, it required proper and robust review procedures on the contractor's side. The alternative -- requiring the client to retain a shadow design team -- is neither proportionate nor envisaged by design and build contracts (particularly in the NPD context).

9.6 Lessons learned to ensure past mistakes are not repeated

80. No additional comment.

APPENDIX C: TERMS OF REFERENCE

NHSL's response to the proposed findings set out in Closing Statement from paragraphs 332 to 418 is set out below.

Remit

NHSL are generally in agreement with the factual matters set out in paragraphs 332 to 340 of the Closing Statement other than at paragraph 336. For the reasons given in the main body of this submission, NHSL does not agree that the clarity of the brief before financial close was the reason for the ventilation issue arising. Similarly, NHSL has set out above its position that, while the HAI-SCRIBE Stage 4 process would have, and did, identify the shortcomings of the ventilation system when it was undertaken and it would have been preferable that that took place before handover, in the circumstances it was not possible to complete the HAI-SCRIBE Stage 4 before handover.

TOR 1

NHSL agree to the extent that part of the key building system at the hospital was "defective" insofar that it did not conform with the guidance contained in SHTM 03-01 as NHS Lothian intended that it should.

TOR 2

NHSL does not agree with the proposed findings. The change in the funding and contractual structure did directly contribute to the issues as detailed in NHSL's response to PPP10 and elsewhere in this submission at section 6.

NHSL's position in relation to the role of IPC and HAI-SCRIBE stage 4 is set out in sections 9 and 10 in the main submission.

TOR 3

NHSL agree with paragraphs 354, 359 and 360. NHSL does not agree with the proposed findings in paragraphs 356, and 358. In relation to paragraph 357, any "*independent technical review*" would have to be an "*independent design review*", otherwise it is difficult to see how the problems with the Project could have been avoided. MML was heavily involved in drafting

the SA1 technical solutions. NHSL fully appreciated that MML were not shadow designers and accordingly could not take on any design responsibility.

As detailed in sections 9 and 10 of the main submission, IPCT were involved in the Project throughout the construction period, including in relation to ventilation issues found in SA1.A Stage 4 HAI-SCRIBE could not have been undertaken at the time of signing of SA1.

TOR 4

NHSL agree there was no deliberate concealment or failure to disclose wrongdoing and NHSL had appropriate policies and procedures in place.

TOR 5

NHSL agree with paragraphs 369 – 379. In relation to the full audit of the proposed technical solution as detailed in paragraph 374, NHSL's view is that it would be disproportionate for an NPD style contract.

In relation to SFT's role at paragraph 378, the standard SFT style contract utilised was for the appointment of a joint independent tester, which it is submitted served to facilitate the private sector funding rather than looking out for the healthcare interests.

TOR 6

NHSL agree with paragraphs 380 – 391, subject to the following comments.

In relation to paragraph 382, there was not a degree of confusion on the part of NHSL as to the level of inspection and testing required, but rather who had responsibility for the validation testing as between NHSL and IHSL as owners of the building. NHSL were seeking clarity as RHCYP/DCN was the first acute healthcare project using an NPD model.

In relation to paragraph 383, Mr Henderson of NHSL was content with the documentation provided in relation to the commissioning of the ventilation systems, but validation was still to occur.

TOR 7

NHSL agree with paragraphs 392 – 403. It is of note that IHSL were unable to instruct their subcontractors to rectify the works on a satisfactory commercial basis. IHSL introduced Imtech and Hoare Lea to resolve the issue.

TOR 8

NHSL agree with paragraphs 404 – 408. In relation to paragraph 407 of the closing statement, it is of note that the strategy was put in place not only to seek to ensure that patient and families knew where to attend for scheduled appointments but also for urgent care in an emergency. Evidence has been provided to demonstrate the effectiveness of this strategy.

TOR 9

Not applicable to RHCYP/DCN project

TOR 10

NHSL responded previously in its closing submission submitted on 16 June 2023.

TOR 11

NHSL agree with paragraphs 411 – 413. It is of note that there is still no formal knowledge transfer arrangements in place to learn lessons from other healthcare construction projects.

TOR 12

NHSL agree with paragraphs 414 – 416 that there should be better sharing amongst health boards. But as separate legal entities Health Boards have their own legal risks and confidentialities to manage.

It is worth noting that while the health boards are separate entities, the entity that had a direct involvement in the construction of both the Glasgow and Edinburgh hospitals, and therefore the ability to transfer knowledge in relation to the problems with ventilation, water and drainage systems there, was the contractor, Multiplex.

In relation to paragraph 417, as noted above, there was no standard procedure in relation to the commercial handover of a building where there are ongoing building works. It was always

NHSL's intention to complete the Stage 4 HAI-SCRIBE at the appropriate point, prior to patient occupation, as indeed occurred.

APPENDIX D: RECOMMENDATIONS

NHSL are broadly supportive of the recommendations made by Counsel to the Inquiry and continue to agree with the suggestion that prior to the Inquiry making any recommendations it would be helpful to hold a round table meeting or meetings to discuss the possible proposed recommendations. It would be helpful to have a broad spectrum of attendees at such meetings including representatives from industry.

NHSL's response to CTI's potential recommendations for Lord Brodie to consider:

- **Risk assessment if funding route changes**
  NHSL agree with this recommendation, but it would also be for Scottish Government to undertake a risk assessment of what the consequences of changing the funding arrangements might be for a health board, as they are the decision makers in relation to funding.

- **Clarity in brief**
  NHSL agree with this recommendation but there needs to an awareness of the commercial position and the NPD programme position. It was the private partners, namely Multiplex, who 'downed tools' and stopped developing the design leaving NHSL no choice (and under increasing pressure) to include RDD within the contract in order for work to start on site to build the new hospital.

  NHSL identified output parameters by way of the Clinical Output Specifications, departmental adjacencies, room adjacencies and room layouts which were reviewed in detail by clinical and IPC teams and comprised the brief. NHSL retained responsibility for these operational functionality aspects of the Project only, see NHSL's Narrative on Operational Functionality.

- **Derogations – Requirement for Standard Form**
  NHSL agree with this recommendation and has already started implementing a more structured derogation process internally at a corporate level including the relevant safety groups. Such processes require all parties involved in the specification, design, construction and assurance to understand and agree when a

derogation from guidance is required. It is vital that the ability to interpret guidance is minimised through appropriate drafting of such technical guidance.

- **Duplication of Procedures**
  NHSL agree with this recommendation.

- **Information about common errors**
  NHSL agree with this recommendation.

- **Commissioning and validation for Revenue funded Projects**
  NHSL agrees the responsibility for commissioning and validation needs to be clarified in revenue funded projects. It should be acknowledged that (i) RHCYP/DCN was the first acute NPD project and clarity was sought on this point; and (ii) commissioning and validation are two distinct phases, that the latter should be undertaken in a "clean" environment as close to patient occupation as possible; and (iii) there is a lack of clarity in the guidance as to when the Stage 4 HAI-SCRIBE should occur given that commissioning and validation can be distinct phases some months apart.

  The Inquiry Chair should consider whether guidance requires to be re-visited to clarify (a) that commissioning and validation are distinct phases and (b) when the Stage 4 HAI-SCRIBE should be undertaken and, in particular, whether this should be either post commissioning but pre-validation and patient occupation or as proximate to validation and patient occupation as possible.

  NHSL agrees that, regardless of who bears the responsibility, a short report should be generated confirming whether there is full compliance with published guidance, as opposed to contract requirements, and suggests that should be done at both commissioning and validation stages. Any non-compliance flagged in the short reports can then be cross-checked against what exactly has been agreed in terms of any structured derogation process (should that be in place).

- **Role Specification**

  NHSL agree that a partnership approach should be adopted and suggests that it should be remembered that that should include the private sector representatives, but careful consideration also requires to be given to the specification of roles for different personnel to allow for appropriate resources to be available whilst also trying to avoid wasting scarce resources such as the IPC professionals.

  NHSL disagree that there was a lack of clarity of MML's role. This is covered in part 8 of the main submission above.

- **Training**

  NHSL agree with this recommendation but is mindful that this should apply to appropriate levels of professionals in both private and public sector. In order to build up experience in both public and private sector it is important to have a pipeline of healthcare projects.

- **Risk Assessment of the implications of non-compliance with guidance**

  NHSL agree with this recommendation.

NHSL are supportive that the following recommendations will be considered after the evidence is heard on QEUH, in the meantime NHSL's provisional views are set out below:

- **A review of hospital ventilation**

  NHSL agree with this recommendation and fully supports research into Hospital ventilation. It may also be helpful for NHSS Assure to widely update health boards and industry on the subjects and progress of research recently instigated.

- **Legislative intervention**

  NHSL agree with the recommendation but suggest that there should be a wider discussion/review on the relationship between the Building (Scotland) Regulations 2004 and the Scottish Health Technical Memorandums which should involve health boards, Scottish Government and industry. If any change is proposed it should be supported by a Code of Practice and an SHTM detailing a formalised derogation process.

- **The role of NHS Assure**

  NHSL notes the establishment of NHS Assure and observes its progress with interest. NHSL suggest that the role of NHS Assure should be part of the wider review suggested below including an assessment of added value within its role. It is suggested that in order to add value NHS Assure requires to do more than provide a check that health boards are following appropriate procedures.

- **A review of NHS Scotland Assure**

  NHSL agree with this recommendation. NHSL's position is set out in its response to PPP9.

- **The briefing of Projects**

  NHSL agree with this recommendation. It should be noted that NHS Assure promote the use of Environmental Matrices on projects. Direction as to the exclusive use (or otherwise) of the ADB database, Room Data Sheets and / or an Environmental Matrix, and who bears responsibility for the content of these documents, would be welcome. It should be recognised that even with an element of automated data transfers between databases, it is important that the design engineers understand the implications of said data and take ownership for the contents for the specific project under development, especially when proprietary systems are utilised.

- **Standardisation**

  NHSL agree with this recommendation. It should be noted that there is currently a Building, Design and Constructions Group looking at increasing the number of standardised rooms. This group is supported by NHS Assure and health board experts.

- **Procurement**

  NHSL note that the Inquiry has considered "procurement", but in effect it is exploring the funding and contract model, rather than the competitive dialogue model that was employed in the procurement stage of the Project. NHSL awaits to hear further evidence on this point.

- **Funding of Projects**

  NHSL agree with this recommendation. NHSL's views on NPD funding detailed in the main submission at section 6 and NHSL's response to PPP10.

- **Alternative Models**

  NHSL agree with this recommendation and would fully support further investigation on proposed alternative models.

CLOSING STATEMENT BY MOTT MACDONALD LIMITED

in relation to

SCOTTISH HOSPITALS INQUIRY

Introduction

1. In the following statement, Mott MacDonald Limited ("MML") sets out its position in relation to those issues covered in the evidence available to the Inquiry. The statement does not cover all of the issues addressed in the evidence, only those issues that are directly relevant to MML and upon which MML believes it is in a position to assist the Inquiry in fulfilling the Terms of Reference. Much of the content of this closing statement has been taken from MML's closing statement following the evidential hearing in April 2023 and from MML's responses to PPPs. This closing statement is intended to be a comprehensive set of submissions on behalf of MML. In general, it attempts to proceed chronologically.

Summary of MML's Position

2. The evidence suggests that four main factors may have contributed to the ventilation issue in Critical Care that led to the delayed opening of the hospital:

    2.1. Errors were made by Hulley & Kirkwood ("H&K") in the preparation of the reference design Environmental Matrix ("EM"). It is questionable whether these initial errors were causally significant in relation to the delay in the opening of the hospital given that (i) IHSL took ownership of the EM and was responsible for developing and checking the design; and (ii) Wallace Whittle ("WW") was apparently aware of the erroneous entries and made a conscious decision not to change them because (according to Stewart McKechnie), it considered the entries to be consistent with SHTM 03-01.

    2.2. WW took ownership of the EM but did not correct the errors because (according to Stewart McKechnie) it did not think they were errors. It is submitted that this is the main causal factor leading to the delayed opening of the hospital. In his

evidence at the February 2024 hearing[1] Mr McKechnie's own position was that the cause of the delayed opening was a "difference of opinion" regarding the interpretation of SHTM 03-01. This difference of opinion was between an untenable interpretation advanced by Mr McKechnie and the consensus interpretation spoken to by every other witness with appropriate expertise. But for Mr McKechnie's claimed interpretation of SHTM 03-01, the issue would have been rectified and the delay in the opening of the hospital would not have occurred.

2.3. WW changed the EM by altering Guidance Note 15, but did not highlight the change. WW has not provided a satisfactory explanation for failing to highlight this change. Had the change been highlighted, it is likely that the issue with Critical Care ventilation would have been identified and the delay in the opening of the hospital would not have occurred.

2.4. None of the other parties involved in the project, including NHSL and MML, identified the errors. For the reasons examined in detail in this closing statement, the failure to identify the errors on the part of these parties was not unreasonable. Design responsibility lay initially with the reference design team and then with IHSL and its sub-contractors. MML was not appointed to confirm that IHSL's design complied with SHTM 03-01. MML was not a shadow design team and did not provide design assurance. NHSL sought and received confirmation from those with design responsibility for the EM (initially H&K and then IHSL) that the design complied with SHTM 03-01. The tender review process was not conducive to picking up this type of error. After IHSL was appointed, any reviews conducted by NHSL and MML were for the limited purposes of the Reviewable Design Data ("RDD") process and were focused on Operational Functionality. The difficulty in noticing the issue was compounded by WW making a material change to Guidance Note 15, without highlighting that change. The issue might also have been obscured by the fact that the clinical activities in the RDS for relevant rooms had been altered from the template Activity Database ("ADB") sheet so that the listed activities were those of a

[1] Page 131 of transcript

normal bedroom, not those of a Critical Care Area. Although the error may be readily apparent to those reviewing the project now with the benefit of hindsight and in full knowledge of the issue that arose, given the complexity of the project and the volume of design material, it would have been unreasonable to expect any party, other than the designer, to have identified the issue during the currency of the project. MML accepts that it had potential opportunities to pick up the issue, however its failure to do so was not unreasonable in these circumstances.

3. A number of other issues affecting MML were explored in evidence before the Inquiry, however none of these had any causal relationship to the delay in the opening of the hospital. For example, although consideration was given to whether the Invitation to Participate in Dialogue ("ITPD") and contractual documentation was ambiguous, including the status of the EM, it became apparent that the parties proceeded on the basis of a clear common understanding that WW required to ensure that the design of the ventilation system complied with SHTM 03-01. Notwithstanding the overwhelming evidence to that effect, the Closing Statement by Counsel to the Inquiry ("CTI") dated 7 May 2024 ("CTI 2024") suggests (at paragraphs 7 and 22) that a lack of clarity in the contractual documentation was a causal factor in the issues that subsequently emerged. This conclusion is not supported by the available evidence. The clear evidence that all parties proceeded on the basis that compliance with SHTM 03-01 was required demonstrates that there was no lack of clarity about what was required. In any event, any lack of clarity regarding the status of the EM did not have any causal relationship with the issues that arose: whether the requirement was to comply with the EM or to comply with SHTM 03-01, that would have led to the same result because the designer, WW, considered that the EM did comply with SHTM 03-01.

4. Similarly, although CTI 2024 states (at paragraph 9) that the lack of a finalised document clearly setting out the technical requirements for the ventilation at Financial Close was at the root of the problems with the project, this conclusion is not supported by the available evidence. The ventilation parameters would have been no different had they been finalised prior to Financial Close.

5. CTI 2024 (at paragraph 12) suggests that a wider theme is that it was not exactly clear what precise role MML was playing; and (at paragraph 11) that NHSL considered it was getting technical advice and assurance from MML. This is not a fair reflection of the totality of the evidence before the Inquiry. The full extent of MML's role was not explored in evidence: the focus was on one very narrow aspect of the project (albeit one which ultimately had significant adverse consequences). There is no doubt that the precise terms of MML's instructions were not always set out in writing by NHSL. As Graeme Greer explained[2], some of the assistance was provided on an "ad hoc" basis. This is perhaps understandable given that the project did not always follow a conventional course. It is also consistent with the fact that some of MML's staff were located in the same office as NHSL's project team[3] and worked together with them on a collaborative basis. This was a productive method of working that was consistent with NHSL's requirements. The available evidence did not disclose any lack of clarity on the part of MML regarding the role it thought it was performing in relation to the particular areas under consideration by this Inquiry. MML's position is that Brian Currie, who was primarily responsible for instructing MML, had a clear understanding of MML's role. In his evidence at the February 2024 hearing[4], Graeme Greer explained that the extent of MML's role had been discussed extensively with Brian Currie. Any lack of clarity seems to have been on the part of members of NHSL's senior management who were not so closely involved in instructing MML and who appear to be proceeding on the basis of a misunderstanding regarding MML's role. So far as the suggestion that MML was providing "assurance" is concerned, this evidence came only from Susan Goldsmith. Those with a closer understanding of MML's role in the project, namely Brian Currie, Ronnie Henderson and Janice MacKenzie, gave no such evidence. Such an understanding would, in any event, be inconsistent with the terms of correspondence sent by MML to NHSL in June 2018.

6. The Chair is invited to make findings in keeping with this summary.

7. These points are developed, by reference to the evidence before the Inquiry, in this closing statement.

[2] Paragraph 9 of his Statement for the February 2024 hearing
[3] Paragraph 6 of Graeme Greer's Statement for the April 2023 hearing
[4] Page 97 of transcript

Ventilation requirements in hospitals

8. MML's position is as set out in its position paper dated April 2022 that was produced in advance of the May 2022 hearing[5]. MML does not take issue with the summary provided in section 2 of CTI's submission following the hearing in April 2023 ("CTI 2023").

The Activity Database System, Room Data Sheets and Environmental Matrices

9. MML was not involved in the decision to use an EM. MML understands that the decision to use an EM had been taken during the capital funded stage of the project. Michael O'Donnell of H&K spoke[6] to a design team meeting on 14 December 2009 at which H&K was instructed to develop an EM to take over from ADB sheets.

10. There is no evidence that MML provided any advice to NHSL regarding its compliance with CEL 19 (2010). It was not, and would not have been, apparent to MML from the fact that an EM was being used that the guidance in CEL 19 (2010) regarding the use of the ADB had not been complied with. Richard Cantlay noted[7] that the existence of an EM is not inconsistent with ADB having been used as a briefing/design tool as the ADB could have been used to generate data in the EM: it is just a different way of presenting the same information. Graeme Greer also stated[8] that the use of an EM and the use of ADB are not mutually exclusive: ADB could be used to populate the services in the EM. This view was shared by Susan Grant of Health Facilities Scotland ("HFS") who stated[9] that the use of an EM would not necessarily be incompatible with CEL 19 (2010): the EM would typically be a logical export following production of initial data from ADB.

[5] Bundle 8 for the May 2022 hearing at page 3
[6] Paragraph 6 of his Statement for the April 2023 hearing
[7] Paragraph 35 of his Statement for the April 2023 hearing
[8] Paragraph 44 of his Statement for the April 2023 hearing
[9] Paragraph 66 of her Statement for the April 2023 hearing as subsequently clarified in email correspondence with the Inquiry

11. In any event, the use of an EM ought not to have affected the quality of the design. There are potential benefits in using EMs instead of Room Data Sheet ("RDS") produced using ADB. Although there may be scope for errors to be made when using an EM, the use of RDS produced using ADB does not remove the risk of errors.

12. In MML's experience, EMs are commonly used in NPD healthcare projects. In his evidence in May 2022[10], Richard Cantlay explained that he has seen them being used on "numerous projects." In his statement[11] he described them as a "commonly used tool". Graeme Greer stated[12] that EMs had been used on every NPD project he had worked on. Willie Stevenson confirmed[13] that the use of EMs was not unusual on healthcare projects and that they had been used in most healthcare projects in which he had been involved. In his evidence[14], Colin Macrae stated that every PFI project that he had worked on had used an EM, which he described as the "standard way".

13. MML's view regarding the ubiquity of EMs seems to be shared by other parties with experience of designing M&E for similar projects. Michael O'Donnell of H&K described[15] an EM as a standard reference briefing document in most healthcare projects H&K had been involved in. Indeed, he noted[16] that SHTN 02-01 from October 2021 now requires the use of an EM. The common use of an EM also seems to have been the experience of Ken Hall[17] and John Ballantyne[18] of Multiplex ("MPX").

14. Those witnesses with experience of using EMs in practice generally seemed to view them as offering significant benefits when compared to RDS produced using ADB. Willie Stevenson noted[19] EMs to be more user-friendly than working with thousands of pages of RDS. In his evidence[20], Colin Macrae stated that an EM allowed M&E designers to start work quicker and in a more efficient manner. Michael O'Donnell

[10] Page 87 of transcript
[11] Paragraph 53 of his Statement for the April 2023 hearing
[12] Paragraph 44 of his Statement for the April 2023 hearing
[13] Paragraph 9 of his Statement for the April 2023 hearing
[14] Page 8 of transcript
[15] Paragraph 11 of his Statement for the April 2023 hearing
[16] Paragraph 12 of his Statement for the April 2023 hearing
[17] Paragraph 8 of his Statement for the April 2023 hearing
[18] Paragraph 8 of his Statement for the April 2023 hearing
[19] Paragraph 9 of his Statement for the April 2023 hearing
[20] Page 9 of transcript

considered an EM to be a more manageable tool[21]; more consolidated and easier to control and review[22]. He considered[23] that lots of different parties reviewing ADB RDS sheets in a coordinated fashion would be very difficult and impractical as it could involve thousands of pages. In his evidence[24], he described the process of reviewing thousands of pages of RDS as being very difficult. John Ballantyne described[25] EMs as very useful for capturing all data in one place rather than a library of RDS. Stewart McKechnie considered[26] that the idea of all building services engineering information being in one document made sense from a practical point of view. HFS do not appear to have been opposed to the use of EMs, with Susan Grant suggesting[27] that an EM would better enable stakeholder communication. Although in his evidence at the May 2022 hearing[28] Stephen Maddocks expressed concerns regarding the use of an EM, this must be viewed in the context of the fact that, at that stage, Mr Maddocks could not recall having used an EM in practice. He was therefore not speaking from experience of encountering any difficulties in practice. In any event, by the time he gave evidence at the February 2024 hearing, his views regarding EMs had perhaps changed. He considered[29] them to be helpful to engineers.

15. CEL 19 (2010) states that "Spaces designed using ADB data automatically comply with English planning guidance". However, the evidence suggests that it is an oversimplification to conclude that spaces designed using ADB automatically comply with applicable guidance and legislation. Graeme Greer set out his understanding[30] that ADB cannot always be relied on for accuracy. He noted that it could be out of date. He provided a specific example, related to multi-bed rooms in Critical Care, in which there are apparently contradictory sheets in ADB. Stewart McKechnie stated[31] that ADB was not necessarily up to date. Michael O'Donnell noted[32] H&K's experience that outputs from ADB sheets regarding environmental criteria were often inaccurate

[21] Paragraph 13 of his Statement for the April 2023 hearing
[22] Paragraph 24 of his Statement for the April 2023 hearing
[23] Paragraphs 21 and 24 of his Statement for the April 2023 hearing
[24] Page 52 of transcript: MML noted him as saying "difficult" rather than "different"
[25] Paragraph 8 of his Statement for the April 2023 hearing
[26] Paragraph 4 of his Statement for the April 2023 hearing
[27] Paragraph 66 of her Statement for the April 2023 hearing
[28] Page 88 of transcript
[29] Pages 30 to 31 of transcript
[30] Paragraph 60 of his Statement for the April 2023 hearing
[31] Paragraph 13 of his Statement for the April 2023 hearing
[32] Paragraph 24 of his Statement for the April 2023 hearing

or incomplete. In his evidence[33], he stated that, if the ADB sheets that had originally been produced by NHSL for this project had been used to populate the EM, much of the information in the EM would have been missing or incorrect. He gave a particular example[34] of the ADB sheets for treatment rooms which had 6ac/hr for ventilation, rather the 10ac/hr that was required by the guidance. In his experience, where RDS were used instead of an EM, the environmental data would either not be populated or would need to go through a process of review. In his opinion[35], the EM produced by H&K was "far superior" to ADB sheets as it was "almost 100% correct", which was "an excellent starting point". Indeed, he considered[36] that the error in Critical Care ventilation would have been harder to spot had it been in a RDS than it was in the EM. In his view[37], the EM was of higher value than ADB sheets. David Stillie's evidence[38] was that the documents used in the present case, including the EM, were of equal quality and value to ADB as those documents contained all of the information that would have been in ADB sheets. Peter Henderson of HFS noted[39] that ADB being moved to the private sector could have caused designers to question its reliability and perhaps use other equivalent tools. Susan Grant stated[40] that ADB has "many limitations". In any event, the ADB incorporates data from HTMs, not from SHTMs, which may be different. A design engineer using the ADB in Scotland would therefore use the initial template document from the ADB but then manually enter project-specific environmental requirements with reference to the SHTMs. As Stephen Maddocks noted in his report[41], ADB sheets are a "starter for ten". There remains scope for error while using them.

16. In light of the foregoing considerations, it would be reasonable to conclude that the approach taken in the present project was of "equal quality and value" to the use of ADB as a tool for briefing and design, and therefore potentially in compliance with CEL 19 (2010).

[33] Page 18 of transcript
[34] Page 53 of transcript
[35] Page 54 of transcript
[36] Page 55 of transcript
[37] Page 65 of transcript
[38] Page 22 of transcript
[39] Paragraph 58 of his Statement for the April 2023 hearing
[40] Paragraph 34 of her Statement for the April 2023 hearing
[41] Bundle 6 for the May 2022 hearing at page 15

17. In any event, the use of an EM on this project did not mean that RDS would not ultimately be produced. The original intention was that a full suite of RDS would be produced by IHSL prior to Financial Close. Although IHSL failed to produce all of the RDS prior to Financial Close, it nevertheless remained under an obligation to produce a full suite of RDS before constructing the hospital[42]. As Michael O'Donnell noted[43], once the EM had been concluded, ADB RDS could be produced to align with it.

The Reference Design

18. MML's involvement in the decision to use a reference design is described in the statement provided by Richard Cantlay for the hearing in May 2022 and in the evidence given by Mr Cantlay at that hearing. The reference design approach was new in Scotland. The use of a reference design was a requirement of SFT as part of the NPD funding model, however the ultimate decision to utilise a reference design for the project was made by NHSL. As Mr Cantlay explained, the main driving factor behind the decision to adopt a reference design approach was to shorten the procurement process and reduce the amount of money spent on having three bidders developing a different design.

19. Following NHSL's decision to use a reference design, MML provided technical advice regarding the use of the reference design. This included MML's Approach to Reference Design paper which evolved through several iterations. The aims of this paper included setting out the reasons for preparing a reference design; outlining the level of detail required for a reference design; outlining the distinctions between mandatory and non-mandatory elements of the reference design; outlining the application of the reference design during competitive dialogue; and outlining the development of the reference design. MML worked collaboratively with NHSL in identifying how to use the reference design as a procurement tool and present it in a way that would not cut across the NPD procurement processes and risk profile.

20. Paragraph 126 of CTI 2023 questioned whether, by the conclusion of the Project Agreement, NHSL had provided adequate briefing of the requirements for

[42] See Richard Cantlay at paragraph 56 of his Statement for the April 2023 hearing
[43] Paragraph 13 of his Statement for the April 2023 hearing

environmental parameters. MML understands this observation to have been made on the basis that (i) there was no full suite of RDS; and (ii) NHSL contends that the EM could not be taken as a brief. CTI's position appeared to be that, in the absence of fully developed RDSs or a fixed EM, IHSL had not been provided with an adequate brief in relation to environmental parameters. However, this position seems to conflate the concept of a design brief with that of a fully developed design. The design brief was provided through, amongst other things, the mandatory elements of the reference design (which are discussed further, below), the schedule of accommodation, the Clinical Output Based Specification and the list of guidance documents and standards with which the design required to comply. This ought to have been a sufficient design brief to have allowed IHSL to prepare its design, including producing RDS and developing the draft EM. The provision of a full suite of RDS or a fixed EM by NHSL would go beyond simply providing a design brief.

Errors in the Environmental Matrix

21. It was the consensus view of almost all of the witnesses with appropriate expertise that the EM contained errors concerning air change rates in certain rooms in Critical Care. These errors in the EM were introduced by H&K at the reference design stage. In his evidence[44], Michael O'Donnell confirmed that the entries in the H&K EM[45] stipulating 4ac/hr for single bedrooms and four bed rooms in Critical Care were human errors. They were not picked up by Mr O'Donnell when he signed off on the EM[46].

22. One witness alone considered that these entries were not errors. Stewart McKechnie's position is that the EM did comply with the guidance. His rationale is that the guidance for Critical Care Areas in Table A1 of SHTM 03-01 related only to isolation rooms. His position is set out in a report dated 15 July 2019[47] and a further report dated 8 April 2022[48]. This interpretation is said to be based on the "Comments" in Table A1 of SHTM 03-01 regarding "Critical Care Areas" which state "Isolation Rooms may be -ve press". This rationale is not convincing: if the entry for "Critical Care Areas" in the

[44] Pages 79 and 80 of transcript
[45] Bundle 4 for the April 2023 hearing at page 131
[46] Paragraph 29 of his Statement for the April 2023 hearing
[47] Bundle 2 for the February 2024 hearing at page 1577
[48] Bundle 1 for the February 2024 hearing at page 757

table was supposed to relate only to isolation rooms, it is surprising that it was not headed "Isolation Rooms in Critical Care" or words to similar effect. The use of the plural "Areas" suggests that the entry relates to all areas in which Critical Care is being provided, not simply isolation rooms. If the entry related only to isolation rooms, the comment specific to pressure in isolation rooms could have been made in the "Pressure" column as it would apply to the entire entry: it would be strange to include it as a separate comment. If the entry related only to isolation rooms, there would be a gap in the guidance in relation to Critical Care Areas other than isolation rooms. Paragraph 163 of CTI 2023 identified a number of other provisions within SHTM 03-01 which cast considerable doubt on Mr McKechnie's claimed interpretation. As CTI state at paragraph 35 of CTI 2024, Mr McKechnie's claimed interpretation "is difficult to reconcile with the natural meaning of the words used in the guidance".

23. None of the other witnesses who expressed a view on the matter agreed with Mr McKechnie's claimed interpretation. In his evidence at the February 2024 hearing[49], Stephen Maddocks expressly disagreed with it.

24. In his evidence at the April 2023 hearing, Mr McKechnie sought to justify his interpretation by placing emphasis on the importance of the pressure regime when compared to air change rates. He suggested[50] that the purpose of the provisions in Table A1 in SHTM 03-01 was to prevent contaminated air from coming into a space: and that pressurisation was more important in achieving that than the air change rate. He seemed to dispute the suggestion that air change rates could help dilute contaminants in a room but conceded that he was not an expert on that. He also sought[51] to justify his interpretation by stating that he did not see 10ac/hr and 10 Pascals of pressure as being a practical solution for all rooms in Critical Care. Although these matters could support an argument that the guidance in SHTM 03-01 is incorrect, they do not undermine the clear terms of Table A1 in SHTM 03-01.

[49] Page 39 of transcript
[50] Pages 27 and 28 of transcript
[51] Page 31 of transcript

25. Mr McKechnie also sought[52] to justify his claimed interpretation by relying on the changes that were subsequently made to the Table A1 of SHTM 03-01 in its latest revision[53]. However, the changes made to Table A1 offer no support for his claimed interpretation. Although these changes provided greater clarity on which areas require the enhanced ventilation parameters applicable to Critical Care Areas, the fact that such a change was made suggests no more than a recognition that the provisions in the 2014 version of SHTM 03-01 were ambiguous in relation to the meaning of Critical Care Areas. It offers no support whatsoever to the suggestion that Critical Care Areas were limited to isolation rooms.

26. In his evidence at the February 2024 hearing, Mr McKechnie's position appeared to be (at least initially) that NHSL and MML had been made aware of his interpretation during the project. This matter is addressed later on in this closing statement in the context of the change that Mr McKechnie made to Guidance Note 15.

27. This issue is not the only aspect of Mr McKechnie's claimed interpretation of SHTM 03-01 that is questionable. At the hearing in February 2024[54], he was asked about a proposal made by WW to lower the air change rate to 3ac/hr in relation to four bed rooms. In support of this air change rate, he claimed that SHTM 03-01 has a "default minimum rate of 10 litres per second", which he said would still be compliant with the guidance. He was not taken to SHTM 03-01 to confirm whether this view was accurate. So far as MML has been able to determine, the only reference to 10 litres per second in SHTM 03-01 is to be found at paragraph 3.7[55]. This recommends 10 litres per second as a minimum rate "where odour dilution is the overriding factor". There is no suggestion that this air change rate should be taken as superseding the recommended air change rates contained in Table A1. In any event, it is not apparent that, so far as the relevant rooms were concerned, odour dilution was the overriding factor. On the contrary the overriding factor was infection prevention and control: that was the reason that Mr McKechnie was being asked to reconsider the ventilation for four bed rooms.

[52] Paragraph 76 of his Statement for the February 2024 hearing
[53] Bundle 1 for the February 2024 hearing at page 2628
[54] Page 47 of transcript
[55] Bundle 1 for the February 2024 hearing at page 1064

Indeed, Mr McKechnie appeared[56] to recognise this. Accordingly, Mr McKechnie's claimed interpretation of SHTM 03-01 on this matter also seems to have been incorrect.

The Procurement Exercise

The Role of Advisers

28. MML's role in the project up to procurement is described in the statement provided by Richard Cantlay for the hearing in May 2022 and in the evidence given by Mr Cantlay at that hearing. In summary, MML's involvement during this phase was as follows:

29. The project was initially approved as a capital funded project. On 4 February 2010, MML was appointed as NEC Supervisor. Capital funding was withdrawn in 2011 and the project migrated to an NPD procurement model.

30. MML entered into a contract with Lothian Health Board dated 22 March 2011 which appointed MML as Technical Advisor (TA). MML entered into a sub-contract with Davis Langdon (DL) in terms of which DL became Project Managers. DL was also responsible for the reference design management and coordination. DL entered into sub-contracts with the reference design team. The reference design team included H&K as Services Engineer. The reference design team was appointed by means of Contract Control Order 2 dated 11 July 2011.

31. During the pre-procurement phase, MML's role involved facilitating production of the reference design by the reference design team; developing technical components of the OJEU Notice and Pre-Qualification Questionnaire Evaluation; developing the technical components of the ITPD; and participating in the competitive dialogue process. MML's role did not involve undertaking any design or assuming any design responsibility.

32. MML did at times carry out a limited review of elements of the design as and when required. However, MML was not the project designer, nor did MML provide any

[56] Page 51 of transcript

design audit service. MML did not undertake a shadow design or validate or approve the design by others. Such a level of review is not a feature of the PPP/NPD model as the whole point of this model is the transfer of design responsibility and risk to the private sector through the Project Agreement. MML's role in reviewing the design is considered in more detail later in this closing statement.

33. MML provided technical advice regarding the use of the reference design. This is described earlier in this closing statement.

34. MML did not draft or review the business cases, but in the course of fulfilling its contractual obligations, MML provided technical input which might ultimately have been used in the Outline Business Case (OBC) and Final Business Case (FBC).

The clarity of the procurement documentation including the mandatory requirements

35. The evidence and submissions before the Inquiry suggest that there is a dispute between NHSL/MML on the one side and IHSL/MPX/WW on the other regarding the correct interpretation of the procurement documentation and the subsequent Project Agreement, particularly in relation to the status of the EM. IHSL/MPX/WW claim that the EM supplied by NHSL as part of the procurement process was a "fixed brief" reflecting NHSL's requirements. This interpretation was advanced by several witnesses from MPX and WW, including Ken Hall and Stewart McKechnie. Various issues with the evidence given by these individuals are discussed elsewhere in this closing statement. In any event, it was readily apparent that neither Mr Hall nor Mr McKechnie had a clear understanding of the terms of the relevant contractual documentation. Insofar as both men claimed that the EM was a "fixed brief", this belief seems to be due to the failure of both men to familiarise themselves properly with the contractual documentation rather than by any genuine ambiguity in the ITPD and contractual documentation regarding the status of the EM.

36. MML submits that, when the provisions are viewed as a whole, it is clear that the EM was not intended to be mandatory and that compliance with SHTM 03-01 was mandatory. With respect to the invitation made to the Chair at paragraphs 172 and 223 of CTI 2023, MML accepts that the procurement documentation did contain some

potential ambiguities if certain entries are viewed in isolation. However, this does not detract from the overall position that the procurement documents, viewed as a whole, made the status of the EM, and the requirement to comply with SHTM 03-01, clear. In any event, the subsequent actions of the parties (as discussed later in this closing statement) make it clear that there was no real confusion.

37. The following section considers the status of the reference design EM that was provided to bidders at ITPD stage. The status of the EM at Financial Close will be considered below in the context of the Project Agreement.

38. During the period leading up to the procurement exercise, internal consideration was given by NHSL and MML to the reference design EM being mandatory for bidders. This is evidenced by Revision J of the "Approach to Reference Design" paper[57]. However, the "Approach to Reference Design" paper was an internal document that was not issued to bidders. There were a number of iterations of the document, reflecting the evolution of the plan for the procurement process. Making the EM mandatory for bidders was not the final position, nor was it the position that was communicated to bidders. That position is to be found in the ITPD documentation itself.

39. Richard Cantlay explained[58] the status of Volume 1 and Volume 3 of the ITPD. As he stated, Volume 1 of the ITPD[59] was a procurement document which explained the procurement process (e.g. what bidders are required to do in terms of submitting a bid, arrangements during the bid period, how bids will be evaluated, etc) and became redundant at Financial Close. Volume 3[60] was the Board's Construction Requirements ("BCRs") (the output specification for the design and build of the project) and would form part of the Project Agreement at Financial Close. This is apparent from the fact that it is headed "Schedule to the Project Agreement…" As Richard Cantlay went on to explain, at the start of the procurement process, Volume 3 was drafted (as much as it could be at that stage) in the form it was intended to be when included in the Project Agreement at Financial Close, with the appreciation that it would have clauses amended

[57] Bundle 2 for the April 2023 hearing, page 605 at page 622
[58] Paragraph 8 of his Statement for the April 2023 hearing and in his oral evidence
[59] Bundle 2 for the April 2023 hearing at page 942
[60] Bundle 2 for the April 2023 hearing at page 773

and sections added to it (such as the final agreed EM) as developed and agreed through the procurement process to reflect the agreement reached between NHSL and the preferred bidder.

40. The difference in status between Volume 1 and Volume 3 did not seem to be recognised in CTI 2023: although it is fundamental to a proper understanding of the procurement documents, it is not mentioned at all. Provisions in Volume 1 and Volume 3 are referred to interchangeably as if they were of equal status. For example, at paragraph 185 of CTI 2023, when construing clause 2.6 of ITPD Volume 1, reference is made to the definition of EM in the draft BCRs at Volume 3. Given that Volume 1 and Volume 3 serve different purposes, provisions in Volume 3 do not assist in interpreting the provisions in Volume 1. Similarly, paragraph 214 of CTI 2023 refers to paragraph 8 of the draft BCRs at Volume 3 as being "a direct instruction to tenderers". This is plainly incorrect. The instructions to tenderers are to be found at Volume 1, not Volume 3. Accordingly, the following submissions will focus primarily on the provisions in Volume 1. The finalised BCRs, as found in the Project Agreement, are considered in the section on the Contract, later in this Closing Statement.

41. Clause 2.5 of ITPD Volume 1[61] clearly sets out the mandatory elements of the reference design under reference to Appendix E[62]: the EM was not included in the mandatory elements in either clause 2.5 or Appendix E. As Richard Cantlay stated[63], this was entirely intentional and reflected the fact that, with the exception of matters related to Operational Functionality, the design risk was to sit with Project Co. Further provisions in ITPD Volume 1 are to the same effect. Clause 2.6[64] expressly stated that "Building services engineering solutions" were included as part of the "Indicative Elements of the Reference Design". "Building services engineering solutions" would include the EM. Clause 2.6 continued "Such information is issued to the Bidders for "information only" so that they may understand the intent of the Reference Design."

[61] Bundle 2 for the April 2023 hearing at page 963
[62] Bundle 2 for the April 2023 hearing at page 1156
[63] Paragraph 9 of his Statement for the April 2023 hearing
[64] Bundle 2 for the April 2023 hearing at page 965

42. Section C8.2x of the Submission Requirements at Appendix A(ii) of ITPD Volume 1[65] required bidders to provide "An environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities…" This clearly placed the onus on bidders to provide their own EM. Such a requirement is impossible to reconcile with the notion that the draft EM provided by NHSL was a mandatory part of the brief.

43. Section C8.3 of the Submission Requirements at Appendix A(ii) of ITPD Volume 1[66] stated "Whilst Bidders are required to undertake their own design, the Board has provided a draft Environmental Matrix as part of the ITPD documentation. Bidders must confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis." It was therefore made clear, under specific reference to the EM, that (i) bidders were to undertake their own design; (ii) the EM provided in the ITPD documentation was a "draft"; and (iii) it was anticipated that bidders could propose changes to the draft EM. In his evidence at the April 2023 hearing[67], Richard Cantlay explained the rationale for requiring bidders to highlight proposed changes on the Board's EM. He stated that it was a very detailed document containing a huge amount of data and that marking changes on this draft would give a good indication of where a bidder's proposals varied from the baseline. This provision was accordingly not about restricting a bidder's ability to make changes, but rather requiring those changes to be highlighted so that there was clarity about what was being proposed in comparison with the EM produced at reference design stage.

44. In this context it is worth noting that, in its Closing Submission following the hearing in April 2023, MPX suggested a choice between (i) the reference design EM being mandatory; or (ii) the reference design EM being a document that tenderers should ignore because they had to prepare their own EM from scratch. This is a false dichotomy. This false dichotomy is also reflected at paragraph 7 of CTI 2024 which suggests that the EM was either "a fixed brief (intended to form the basis for the design of the ventilation system) or a document upon which no reliance could be placed by IHSL, MPX and WW." A similar flaw is apparent in the document entitled

[65] Bundle 2 for the April 2023 hearing at page 1052
[66] Bundle 2 for the April 2023 hearing at page 1054
[67] Pages 39 and 40 of transcript

RHCYP/DCN Critical Care Ventilation Systems Review by Stephen Maddocks dated 13 December 2023 at paragraph 2.1.5[68] where it is stated that there "would be no point in a client issuing a "draft" EM that could not be relied on by the engineer." Mr Maddocks does not appear to have had access to the evidence that has been led before the Inquiry concerning the decision to issue the draft EM to bidders and the actions of the parties thereafter, which made it readily apparent that all parties recognised that the EM was to be developed by the successful bidder. He has not analysed the ITPD documentation and the Project Agreement in order to understand the status of the EM. His comments are at odds with the available evidence. MML's position is not that the reference design EM should be ignored by tenderers, nor that tenderers were required to prepare their own EM from scratch. It was envisaged that tenderers would use the reference design EM as a starting point to develop their own designs, as is clear from section C8.3. A tenderer could choose to ignore the reference design EM and start from scratch if that was their preference, but they need not do so. Should they choose to do so, they had been provided with a suite of other documentation to assist in that task, including the schedule of accommodation, the Clinical Output Based Specification and the list of guidance documents and standards with which the design required to comply. This understanding of the status of the EM is reflected at paragraph 92 of CTI 2024: it is noted that the provision by NHSL of an EM "was apt to lead to its adoption as a starting point for the design and to the understanding that it reflected NHSL's wishes about the way the hospital would be used." However, the possibility that the EM would be used in this way does not support the suggestion made earlier in paragraph 92 of CTI 2024 that the provision of the EM caused "ambiguity and confusion". For the reasons set out at length below, it is clear that there was no genuine confusion regarding the status of the EM.

45. The status of the EM provided to bidders at ITPD stage is also apparent from the document itself which stated, at Guidance Note 1[69], "This workbook is prepared for the Reference Design Stage…" It continued, at Guidance Note 5, "Ventilation air change rates… in Patient Areas shall be reviewed throughout the detail design process…" This wording is inconsistent with the notion that the provisions in the EM were mandatory: on the contrary they were to be subject to ongoing review. In particular, the onus was

[68] Witness Bundle volume 1 for the February 2024 hearing at page 13
[69] Bundle 4 for the April 2023 hearing at page 132

placed squarely on the designer to review air change rates in patient areas (which would of course include single bedrooms and four bed rooms in Critical Care) throughout the design process. This is a far cry from the notion that the air change rates for these rooms in the reference design EM were a fixed brief.

46. Providing the EM to bidders on the basis that it was not mandatory was consistent with the overall decision to make use of the design work that had already been undertaken. The EM would provide information which the bidders could use but which they were not bound to follow. It would also assist in providing clarity about the extent to which the tenderer's proposals varied from the "baseline" EM produced by H&K.

47. Clause 2.5 of Volume 1 of the ITPD[70] also stated "Bidders will be fully responsible for all elements of the design and construction of the facilities including being responsible for verifying and satisfying themselves that the Mandatory Reference Design Requirements can be designed, built and operated to meet the Board's Construction Requirements". The draft BCRs were included in ITPD Volume 3. The key relevant provisions in the final BCRs are considered in more detail, below, in the context of the Project Agreement.

48. Paragraph 8 of the draft BCRs contained in ITPD Volume 3[71] stated that "Project Co shall provide the Works to comply with the Environmental Matrix." Volume 3 defined the "Environmental Matrix" as "the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area. The title is Reference Design Envisaged Solution – RHSC / DCN Environmental Matrix version third issue as set out in Appendix C of this Section 3 *(Board's Construction Requirements)* of Schedule Part 6 *(Construction Matters)* (as varied, amended or supplemented from time to time in accordance with the Project Agreement)". As Richard Cantlay explained[72], given that this version of the EM is described at Section C8.3 of Volume 1 as being a "draft", it was anticipated that the final version of the BCRs for inclusion in the Project Agreement at Financial Close would have the EM reflecting the preferred bidder's design included in it and that this

[70] Bundle 2 for the April 2023 hearing at page 963
[71] Bundle 2 for the April 2023 hearing at page 873
[72] Paragraph 13 of his Statement for the April 2023 hearing

definition would be amended accordingly. The definition of the "Environmental Matrix" did indeed change between the ITPD documentation and the Project Agreement. The EM itself appeared as an appendix to the draft BCRs in ITPD Volume 3: however, in the Project Agreement it was moved to schedule part 6 together with the RDS, reflecting its status as one of IHSL's documents.

49. MML would invite the Chair to conclude that it is was made clear to bidders that the EM provided to bidders at ITPD stage was not mandatory. Such a conclusion would be consistent with the provisions in the ITPD documentation set out above and with the key principle described by Richard Cantlay[73] that the design risk on a PPP contract sits with the private sector (with the exception of Operational Functionality).

50. This view is shared by NHSL. Susan Goldsmith confirmed[74] that the EM was provided for information as disclosed data. Its provision did not mean that bidders need not refer to SHTMs or use the ADB[75]. She considered[76] that the provision of the EM to bidders ought not to have contributed to the delay in opening the hospital because IHSL required to comply with SHTM 03-01. In her evidence, she noted her sense that MPX did not fully understand the contractual responsibilities under an NPD contract. Brian Currie stated[77] that it was always clear that the reference design would be replaced by the preferred bidder's full design solution and[78] that this was a fundamental point that was communicated to bidders. He noted[79] that the only element of design retained by the Board was Operational Functionality, which did not encompass matters such as ventilation. He stated that the EM was a non-mandatory element that had been developed to verify the feasibility of the reference design. Bidders were to develop their design in compliance with mandatory guidance such as SHTM 03-01[80]. Although the information in the EM was not warranted by the Board and should not be relied on

[73] Paragraph 8 of his Statement for the April 2023 hearing
[74] Paragraph 10 of her Statement for the April 2023 hearing
[75] Paragraph 19 of her Statement for the April 2023 hearing
[76] Paragraph 20 of her Statement for the April 2023 hearing
[77] Paragraph 24 of his Statement for the May 2022 hearing
[78] Paragraph 48 of his Statement for the May 2022 hearing
[79] Paragraph 35 of his Statement for the May 2022 hearing
[80] Paragraph 41 of his Statement for the May 2022 hearing

for accuracy (clause 7.2), it was thought that it may prove useful to engineers[81]. This understanding of the documentation was also expressed by Iain Graham[82].

51. This understanding of the status of the EM is also supported by the fact that both IHSL and Bidder C made changes to the EM. The significance of these changes is discussed further below.

52. This understanding of the status of the EM appeared to be disputed by witnesses from MPX and WW. The approach taken by these witnesses is perhaps best exemplified by the evidence of John Ballantyne when challenged on his interpretation of one of the provisions in the ITPD documentation (paragraph 5.2(f) of the BCRs[83]). When it was put to him[84] that his interpretation was not what the provision said, he referred to "the unwritten word" and "implied compliance". The approach taken by these witnesses relied on erroneous assumptions about the terms of the documentation and wishful thinking. It perhaps reflected Susan Goldsmith's sense, as expressed in her evidence at the April 2023 hearing[85], that MPX did not fully understand the contractual responsibilities under an NPD contract. The witness statements provided by these witnesses are lacking in explanation for the basis of their interpretation of the status of the EM. They largely proceed by way of assertions that the EM was "encapsulating the Board's requirements" (Ken Hall[86]); that the EM was "what the Board wanted" (Paul Serkis[87]); that the EM was a "line in the sand" regarding the technical requirements IHSL was expected to deliver (John Ballantyne[88]); that "it was seen as the Bible" and "Validation and certification were to be done against the Environmental Matrix" (John Ballantyne[89]); that it was mandated conditions the client was providing and formed part of their brief (Stewart McKechnie[90]); that it was assumed to be "the key document" (Paul Cooper[91]); and that it was a mandatory document to follow (Darren Pike[92]).

[81] Paragraph 45 of his Statement for the May 2022 hearing
[82] Paragraph 15 of his Statement for the April 2023 hearing
[83] Bundle 2 for the April 2023 hearing at page 839
[84] Page 52 of transcript
[85] Page 60 of transcript
[86] Paragraph 13 of his Statement for the April 2023 hearing
[87] Paragraph 28 of his Statement for the April 2023 hearing
[88] Paragraph 10 of his Statement for the April 2023 hearing
[89] Paragraph 12 of his Statement for the April 2023 hearing
[90] Paragraph 4 of his Statement for the April 2023 hearing
[91] Paragraph 6 of his Statement for the April 2023 hearing
[92] Page 17 of transcript

53. Ken Hall went so far as to say that NHSL was "responsible for interpreting the guidance and then producing their requirements" and seemed to say[93] that there was accordingly no need for MPX/WW to check the EM for compliance with SHTMs. He continued[94] that, in the event of a conflict between the EM and the guidance "the matrix would prevail because the interpretation of the guidance had already been done which then produced the matrix". His attitude when giving evidence at the hearing in April 2023[95] and asked about other parts of the BCRs that he had not considered was that "we had the EM" that "effectively gave the MEP answers that we needed". He considered that the existence of the EM meant that the process of going through other documents in more detail had already been done. He claimed[96] that "because it all tied up, then it seemed straightforward" that the EM was what they were to use.

54. Ken Hall's stated interpretation was that the provision for 4ac/hr for Critical Care bedrooms was a conscious and deliberate choice made by the Board. He claimed that this was supported by H&K's Thermal Comfort Analysis, the output from which was 4 mechanical air changes per hour. However, when taken to this document[97] during his evidence at the April 2023 hearing[98], he immediately conceded that he had not looked at it in any great detail and that he "skimmed through" it. In fact, the document offers no support for his interpretation: at section 2.6[99], it states "As such critical care and high dependency type ward rooms which receive air change rates in the region of 10ACH, have not been analysed in this study." Had Mr Hall read the document properly, it would have been apparent to him that the document offers strong support for the requirement of 10ac/hr in Critical Care. In his evidence, he was unable to provide any satisfactory explanation for his attempt to rely on this document as supporting his interpretation. Mr Hall also sought to rely on inputs that had apparently been used for energy calculations but was not able to identify any particular document that supported this claim. In his evidence at the April 2023 hearing[100], Stewart McKechnie recalled

[93] Paragraph 23 of his Statement for the April 2023 hearing
[94] Paragraph 33 of his Statement for the April 2023 hearing
[95] Page 39 of transcript
[96] Page 43 of transcript
[97] Bundle 4 for the April 2023 hearing at page 184
[98] Page 65 of transcript
[99] Bundle 4 for the April 2023 hearing at page 194
[100] Page 158 of transcript

that the energy calculations were not based on an assumption of 4ac/hr for single bedrooms. There is accordingly no compelling evidence before the Inquiry supporting Mr Hall's suggestion that the provision of 4ac/hr for Critical Care bedrooms (in direct contradiction to the clear provisions in SHTM 03-01) was a conscious and deliberate choice.

55. Ken Hall[101], Stewart McKechnie[102] and Darren Pike[103] sought to justify their interpretation by reference to the inclusion of the EM in the BCRs. In his evidence at the April 2023 hearing[104], Mr Hall stated that the BCRs were "our key document" that he used throughout the Preferred Bidder stage. He claimed to have a good insight and understanding of the BCRs and stated that he had read the BCRs. He continued[105] that section 8 of the BCRs was the "key document for me". However, as his evidence developed, it became apparent that he was not familiar with the totality of the BCRs, at one stage stating[106] that he did not go through the BCRs line by line. He claimed that he was aware of the Clinical Output Based Specifications and had a copy of them, but when asked specific questions about them he stated[107] that he had not read them and that it was "more a secondary type document" for him: despite the fact that it formed part of the BCRs and contained elements concerning the services provision for each department. In any event the reliance placed by witnesses on the opening sentence of paragraph 8 of the BCRs involves taking one sentence of the ITPD documentation out of context and ignoring the other provisions, discussed elsewhere in this closing statement, which clearly demonstrate that the EM was not a mandatory document. It also involves ignoring the totality of paragraph 8 of the BCRs which state, not just that the Works ought to comply with the EM, but also that the works comply with mechanical requirements including SHTM 03-01 and, for the avoidance of doubt, that the hierarchy of standards provision applies. These provisions are considered in more detail, below, in the context of the Project Agreement. In any event, it ought to have been plain from a complete reading of the BCRs, particularly the very paragraph in

[101] Paragraph 34 of his Statement for the April 2023 hearing
[102] Paragraph 28 of his Statement for the April 2023 hearing
[103] Page 18 of transcript
[104] Page 17 of transcript
[105] Page 18 of transcript
[106] Page 42 of transcript
[107] Page 36 of transcript

which compliance with the EM is mentioned, that this did not mean that IHSL/MPX/WW could simply ignore SHTM 03-01.

56. MPX's approach to the ITPD documentation is perhaps illustrated by its attitude to the requirement to produce RDS. Paul Serkis[108] considered that it was not normal for a client to seek to have 100% RDS in place at Financial Close: however, that is exactly what the ITPD documentation required (see para 2.5.3 of ITPD Volume 1[109]). Similarly, in her evidence[110] Liane Edwards stated that preparation of the RDS was a time-consuming activity and that it "didn't seem reasonable" to prepare 100% of the RDS, notwithstanding the requirement in the ITPD. As CTI 2023 noted (at paragraph 245), despite complaints by IHSL about NHSL changing what was required, no witness was able to provide any example of a radical change by NHSL to the stated requirements that increased the requirements placed on IHSL. As with the issue regarding the EM, any claimed misunderstanding could have been avoided had the key personnel within IHSL, MPX and WW read all of the applicable documentation rather than focusing on those isolated passages that supported their preconceived assumptions about what might be required.

57. Ken Hall also sought[111] to place reliance on the wording of paragraph 2.3 of the BCRs (which stipulates compliance with standards including SHTMs) as supporting his interpretation. In particular, he placed reliance on the words "unless the Board has expressed elsewhere in the Board's Construction Requirements, a specific and different requirement", claiming that the EM was such a "specific and different requirement" such that compliance with SHTMs was not required. The merits of this argument are considered further, below, in the context of the Project Agreement.

58. Ken Hall also sought to place reliance on section C8.3 of the evaluation criteria. However, when asked about this in evidence at the hearing in April 2023[112], his position seemed to be that he did not pay any attention to what the full provision meant and appeared to accept that the wording was at least ambiguous.

[108] Paragraph 35 of his Statement for the April 2023 hearing
[109] Bundle 2 for the April 2023 hearing at page 965
[110] Page 27 of transcript
[111] Paragraph 34 of his Statement for the April 2023 hearing
[112] Pages 75 and 76 of transcript

59. In addition to some of the MPX and WW witnesses placing reliance on an incomplete reading of the BCRs, others placed reliance on their recollections of what they claim to have been told by NHSL and/or MML. Paul Serkis claimed[113] that MPX were told by NHSL and MML that there was a reference design and "Don't change any of it… just deliver what we want." However, when asked during his evidence[114] who had told him this, he could not remember exactly, but that it was a "feeling" he had from the various meetings. In any event, he did not recall any specific conversations regarding the EM. It therefore seemed that his "feeling" that IHSL were not to make changes related to the project more generally, not to the specifics of the EM. Taking his recollection as a whole, there was no compelling evidence that IHSL had ever been told that the EM was a mandatory document that could not be changed.

60. John Ballantyne claimed[115] that MPX was told "at the competitive dialogue meetings that the Environmental Matrix was mandatory and that there was to be no deviation. It was absolute." However, his position in evidence was not so definitive. When asked what he was told during competitive dialogue about the EM he said that it was just another document of the reference design, all of which were to be read in conjunction with one another. When specifically asked[116] who had told him that the EM was mandatory, he gave a vague response and could not "single out" an individual. More generally, he described[117] it as being his "understanding" that the EM represented the expectations of the Board. When expressly asked if there was any discussion about the status of the EM at the bidder's day, he did not recall there being any. Although he then went on to state[118] that he was surprised during the process to understand the "elevated importance" of the EM as it was not a document that "jumps off the page" as being one of "great debate and gnashing of teeth" it is not at all clear what he meant by this. He then suggested[119] that the EM was "effectively the board's expectations" that would then be developed by the three bidding entities. Any such development would tend to suggest that the EM could not have been a fixed, mandatory document. In any

[113] Paragraph 28 of his Statement for the April 2023 hearing
[114] Page 30 of transcript
[115] Paragraph 13 of his Statement for the April 2023 hearing
[116] Pages 27 and 28 of transcript
[117] Page 12 of transcript
[118] Pages 12 and 13 of transcript
[119] Page 16 of transcript

event, his evidence fell a long way short of a clear articulation of having been told directly by NHSL or MML at any stage that the EM was a mandatory document. The impression left by his evidence was that he was recalling general statements by NHSL regarding the reference design as a whole, rather than specific comments related to the EM.

61. Neither of these witnesses referred to any documentation supporting their recollections, nor did they identify any particular person who is said to have made these statements. Their recollection is refuted by witnesses from MML and NHSL. Richard Cantlay stated[120] that he did not recall any statements from the Board or any of their advisors to the effect that bidders were not to innovate in developing the EM. Although he did not participate in all of the competitive dialogue meetings, he considered it to be unlikely that such a statement would have been made given the terms of the ITPD documentation. Graeme Greer stated[121] that he was confident that IHSL was reminded at a number of points that it had responsibility for design, including the EM; and that the EM had to be compliant with the BCRs. Brian Currie explained[122] that he had numerous conversations with IHSL about compliance with guidance and that IHSL was very much aware that the NHSL brief was to deliver a building that complied with guidance. He continued[123] that bidders were "very aware" that the reference design was to fall away, which was communicated at the outset of the open day for bidders and continuously during competitive dialogue. He did not recall[124] ever saying that the EM was mandatory or a "fixed brief": he would not have used that language as it was not his understanding of the status of the EM. Iain Graham noted[125] that the intention that the reference design EM would be redundant at Financial Close as the preferred bidder's proposals would contain all the necessary information was "extensively communicated" to bidders in the ITPD and throughout the competitive dialogue process. In his evidence he stated[126] that, during competitive dialogue, NHSL was asking for updates of the EM in line with bidders' design development on the

[120] Paragraph 15 of his Statement for the April 2023 hearing
[121] Paragraph 75 of his Statement for the April 2023 hearing
[122] Paragraph 16 of his Statement for the February 2024 hearing
[123] Paragraph 28 of his Statement for the February 2024 hearing
[124] Paragraphs 41, 63 and 106 of his Statement for the February 2024 hearing
[125] Paragraph 20 of his Statement for the April 2023 hearing
[126] Page 41 of transcript

architectural side of things and engineering developments. He had no recollection[127] of bidders being told that they must comply with the EM as a mandatory requirement. Stewart McKechnie's evidence at the April 2023 hearing[128], was that he was present at the competitive dialogue meetings where engineering matters were discussed. He did not suggest that anything was said by NHSL at these meetings to the effect that the EM was mandatory. When he was specifically asked[129] if the EM was discussed at competitive dialogue meetings, his answer was that there was discussion between MPX and WW: there was no suggestion of any comments being made by NHSL or MML about the status of the EM. Insofar as he claims[130] that he was asked not to "revamp" the EM, he explained in his evidence[131] that this instruction had come from MPX, not NHSL or MML. When he was asked to explain how he came to the view that the EM was mandatory, he relied entirely on what was stated in documents (such as the BCRs) not on anything that was said at competitive dialogue meetings. If something had indeed been said at those meetings to the effect that the EM was mandatory, it is surprising that this did not form part of the basis for Mr McKechnie's understanding of the status of the EM.

62. Given the clear intention on the part of NHSL and MML that the EM was not to be a mandatory document, it is inherently implausible that any representative of either organisation would have told IHSL during competitive dialogue that the EM was mandatory.

63. Regardless of what was said at any meetings between the parties, the status of the EM is clearly set out in the documentation. Even if MPX's understanding from competitive dialogue meetings was that the EM was a mandatory document, that is not reflected in the documentation that it was bound to comply with.

64. In any event, MPX's claim that the EM was a mandatory document, and that it did not require to comply with SHTM 03-01 insofar as it was inconsistent with the EM, is in direct contradiction to the actions of the parties before and after IHSL was appointed as

[127] Page 44 of transcript
[128] Pages 77 and 78 of transcript
[129] Pages 79 and 80 of transcript
[130] Paragraph 9 of his Statement for the April 2023 hearing
[131] Page 127 of transcript

preferred bidder. It is apparent from these actions that there was no real confusion about the status of the EM and, in particular, about the requirement that IHSL's design comply with SHTM 03-01:

64.1. IHSL's Specification for Ventilation System dated 13 January 2014[132] was signed off by Stewart McKechnie and submitted as part of its final tender. John Ballantyne's evidence[133] was that Ken Hall sat on top of a triangle of organisations (including WW and Mercury) with responsibility for this document. However, Mr Hall's evidence[134] was that he had not read the parts of IHSL's tender related to M&E "in any great detail to be honest". Mr Hall's lack of familiarity with these documents perhaps explains his erroneous understanding regarding the status of the EM. The Specification clearly demonstrates IHSL's understanding of the applicable standards at the relevant time. At para 5.0 it states "All elements of the works shall be in accordance with the requirements of current legislation, regulations and industry standards unless otherwise stated. The Ventilation System shall accord with all appropriate Hospital Technical Memoranda, Codes of Practices and relevant British and European Standards and Appendix A." John Ballantyne attempted[135] to explain this statement by focusing on the words "unless otherwise stated" as meaning that the bid need not comply with all guidance. However, this does not provide a convincing explanation. The words relied on by Mr Ballantyne appear in the paragraph before the reference to HTMs: the reference to the ventilation system according with HTMs is completely unqualified. In any event, there is no statement anywhere else in the tender submitted by IHSL that qualifies its stated intention to comply with all applicable guidance. The document continues (at section U10) "The hospital ventilation systems shall be in accordance with SHTM 03-01…" The document does not make any reference to the EM. In his evidence at the April 2023 hearing[136], Stewart McKechnie explained that this document appeared to be the specification that was part of the package to be passed to sub-contractors and

[132] Bundle 6 for the April 2023 hearing at page 3
[133] Page 35 of transcript
[134] Pages 21 and 22 of transcript
[135] Page 33 of transcript
[136] Pages 89 and 90 of transcript

related to no more than the build quality, rather than the design itself. However, the general statements concerning compliance with SHTM 03-01 are not framed as being limited in this way. It is accordingly quite clear that, when IHSL submitted its final tender, its position was that the ventilation system required to comply with industry standards and relevant guidance. If IHSL considered the EM to be a mandatory document specifying the ventilation parameters, it is surprising that this is not mentioned in IHSL's Specification for Ventilation System.

64.2. IHSL's document entitled Tender Package Deliverables – Building Services Deliverables Appendix 1.1.5/FT – Mechanical and Electrical Services dated 13 January 2014[137], submitted as part of its final tender, stated (at para 5.9.7) "The ventilation systems to the Hospital are designed in accordance with Scottish Health Technical Memorandum SHTM 03-01. Ventilation shall be provided to suit both the operational and statutory requirements of the development." Again, this confirms that IHSL's tender proceeded on the basis that the design of the ventilation system required to comply with SHTM 03-01, without any suggestion that parameters in the EM were considered to be mandatory. John Ballantyne conceded in evidence that this provision could be understood as meaning definitively that the ventilation system complied with all aspects of SHTM 03-01. Tellingly, he then continued[138] that if the word "generally" had been inserted before the word "designed", "it might have read better from IHSL's point of view". He then went on to say that, elsewhere in the documents, there may be a specific pointer that SHTM had not been complied with, but he did not identify any such reference.

64.3. IHSL's final tender in relation to C8 "Clarity, Robustness and Quality of M&E Engineering Design Proposals"[139] also made it clear that it did not consider the EM to be mandatory. At section C8.1 (page 264) it stated that "These outline designs have been reviewed for compliance with SHTM's etc…" At C8.2(x) (page 303) IHSL noted that it "shall provide an addendum matrix for any rooms

[137] Bundle 6 for the April 2023 hearing at page 323
[138] Pages 40 and 41 of transcript
[139] Bundle 3 for the April 2023 hearing at page 252

on an exception basis highlighting any changes at preferred bid stage". The document then went on to note (at page 304) that "The room temperature set points, air change rate and ands [sic] shall be in accordance with SHTM-03 [sic]." This passage was followed by a table which included an entry for "HDU" with a supply ventilation of 10ac/hr. IHSL's tender accordingly made it clear that it understood that the ventilation required to comply with SHTM03-01, that IHSL was responsible for reviewing the design to ensure compliance with SHTMs and that IHSL envisaged making changes to the EM at preferred bidder stage. Although CTI 2023 made reference to some passages from IHSL's tender documents (from paragraphs 225 to 228) it does not refer to these passages from the final tender in relation to C8. It is submitted that these passages are important when considering IHSL's understanding of what was required of it by the ITPD documentation.

64.4. The terms of WW's appointment by MPX[140] are inconsistent with the claim that the EM was a fixed brief that superseded SHTM 03-01. Paragraph 2.12.7[141] required WW to "carry out the Services in accordance with" the BCRs. Paragraph 2.12.16[142] required WW to "diligently and regularly review the various documents which are relevant to the performance of the Services… to ascertain whether any ambiguities, discrepancies, inconsistencies, divergences, design or construction impracticalities or omissions exist from, within or between any such documents so as to identify conflicts in the design". Paragraph 4.2[143] stated that MPX gave no warranty or undertaking in respect of the Disclosed Data. Most significantly, paragraph 4.3.1[144] stated that WW "acknowledges and confirms that … it has conducted its own analysis and review of the Disclosed Data and has, before execution of this Agreement, satisfied itself as to the accuracy, completeness and fitness for purpose of any such Disclosed Data upon which it places reliance". The definition of Disclosed Data[145] clearly included the EM.

[140] Bundle 1 for the February 2024 hearing at page 1381
[141] Bundle 1 for the February 2024 hearing at page 1395
[142] Bundle 1 for the February 2024 hearing at page 1396
[143] Bundle 1 for the February 2024 hearing at page 1398
[144] Bundle 1 for the February 2024 hearing at page 1399
[145] Bundle 1 for the February 2024 hearing at page 1386

64.5. On 3 July 2014, Ken Hall of IHSL emailed MML[146] seeking an Excel (rather than pdf) version of the EM "to allow to populate [sic] the schedule with any changes." The Excel version was sent to IHSL on 11 July 2014. This followed on from discussions spoken to by Graeme Greer[147]. Stewart McKechnie confirmed in evidence at the April 2023 hearing[148] that, although he was uncomfortable about taking ownership of the EM as his own document, and had told MPX this, he reluctantly did so[149]. He confirmed[150] that after Financial Close, WW embarked on preparing the detailed design of all elements of the MEP installations and finalisation of the EM. The EM was then reformatted and rebadged as an IHSL document. In his evidence at the April 2023 hearing[151], Mr McKechnie agreed that this involved taking something that he saw as a client brief and converting it into a contractor proposal, and that this meant that the contractor took responsibility for the contents of it. Paul Cooper also conceded[152] that, once ownership had been taken of the EM by WW, it did form part of the contractor's proposals.

64.6. Having taken ownership of the EM, IHSL produced at least 11 different iterations of the EM. The changes made by IHSL were not simply to augment the EM as rooms were added (as suggested by some MPX witnesses), nor were all the changes prompted by comments from NHSL: they included substantive changes to existing provisions. The changes made by IHSL included:

64.6.1. Removing the H&K logo[153] and eventually giving the document a WW reference number.

64.6.2. In the EM prepared by IHSL for Financial Close[154], removing the entry for HDU from the Room Function Reference Sheet ("RFRS"). In his

[146] Bundle 10, volume 2 for the April 2023 hearing at page 1300
[147] Paragraph 79 of his Statement for the April 2023 hearing
[148] Page 80 of transcript
[149] Page 81 of transcript
[150] Paragraph 10 of his Statement for the February 2024 hearing
[151] Page 82 of transcript
[152] Page 10 of transcript
[153] Bundle 4 for the April 2023 hearing at page 220
[154] Bundle 4 for the April 2023 hearing at page 222

evidence at the April 2023 hearing[155], Stewart McKechnie described this as tidying up as WW was "taking ownership" of the EM. This change was not in response to a comment from NHSL, nor was it highlighted to NHSL.

64.6.3. According to Mr McKechnie's evidence at the April 2023 hearing[156], correcting "some obvious issues" (although he did not explain what those issues were). He continued "we might have tidied up a wee bit".

64.6.4. Adding Guidance Note 26[157].

64.6.5. Changing all single bedrooms, including those in Critical Care, from positive pressure to balanced[158], despite this being in response to a comment made[159] concerning standard bedrooms, not those in the Critical Care. The comment referred specifically to bedrooms with ensuites: none of the bedrooms in Critical Care had ensuites.

64.6.6. Changing the humidification provisions in Guidance Note 15[160]. Stewart McKechnie explained in his evidence at the April 2023 hearing[161] that this change was prompted by one of WW's engineers reviewing the requirements in the EM, particularly guidance note 15[162] and seeking clarification[163].

64.6.7. Altering guidance note 15 so that it related only to isolation rooms in Critical Care. This matter is considered in more detail later on in this closing statement.

In his evidence at the February 2024 hearing[164], Stephen Maddocks confirmed that, if the document was a "fixed brief", he would not have made changes without client approval.

[155] Page 140 of transcript
[156] Page 113 of transcript
[157] Bundle 4 for the April 2023 hearing at page 221
[158] Bundle 4 for the April 2023 hearing at page 226
[159] Bundle 4 for the April 2023 hearing at page 219
[160] Bundle 4 for the April 2023 hearing at page 221
[161] Page 103 of transcript
[162] Bundle 4 for the April 2023 hearing at page 132
[163] Bundle 10, volume 2 for the April 2023 hearing at page 1302
[164] Page 46 of transcript

64.7. In around August 2014, IHSL (or one of its contractors) conducted a review of the EM[165] which uncovered "a number of discrepancies". It was minuted that IHSL was going to raise a Request for Information (RFI) with NHSL. Liane Edwards' position in evidence[166] was that this was not a review for compliance but rather a review for consistency. Regardless of whether the review related to compliance or consistency, the conduct of such a review is inconsistent with the claim that the EM was a fixed, mandatory document with which IHSL was required to comply. MML has conducted a check of the RFI register and has been unable to locate any RFI raised by IHSL concerning this issue. Accordingly, it would seem that IHSL was content to address the discrepancies it had identified in the EM without any recourse to NHSL. That again suggests that IHSL was acting on the basis that it was responsible for the content of the EM.

64.8. NHSL made multiple comments on the EMs produced by IHSL[167]. These comments included issues where NHSL was concerned that the provisions in the EM did not comply with SHTM 03-01 (such as the single bedroom pressure issue, which is considered in more detail, below). Such comments are inconsistent with the suggestion that the EM was mandatory or that it in some way took precedence over compliance with SHTM 03-01. John Ballantyne attempted to address this point in his evidence[168] by suggesting that NHSL may allow changes to the "line in the sand" and would "sign off on all changes". That involves a misunderstanding of the process that was followed. Although NHSL made comments on the EM, it did not "sign off" on any changes that were subsequently made. This matter is considered in more detail later on in this closing statement. Stewart McKechnie's attitude to these comments in his evidence at the April 2023 hearing[169] seemed to be that he was happy that they were being made as it would reduce the need for WW to identify those issues.

[165] Bundle 8 for the April 2023 hearing page 55 at para 2.8
[166] Page 32 of transcript
[167] See for example Bundle 4 for the April 2023 hearing at page 218
[168] Page 22 of transcript
[169] Pages 117 and 118 of transcript

64.9. Stewart McKechnie expressed[170] his surprise at the level of queries that arose on the EM: it seemed to him that it was odd to be answering questions on the "client's brief". The obvious explanation for this was, of course, that the EM was not the client's fixed brief but rather a document that WW (through IHSL) had taken ownership of. Indeed, he conceded[171] that WW had taken ownership of the EM.

64.10. Similarly, Paul Cooper was surprised[172] by omissions in the EM. Again, the obvious explanation for this is that the document had not been finalised and required to be developed by WW for IHSL.

64.11. In his evidence at the April 2023 hearing[173], Stewart McKechnie confirmed that he understood that if there were ambiguities between the EM and SHTMs, one of WW's responsibilities was to detect that and bring it to the attention of the Board. In this context he also confirmed that WW had checked "what were seen as the key parameters". In his evidence at the February 2024 hearing Mr McKechnie went further. He confirmed[174] that all parameters in the EM, whether they had been in the original EM or had subsequently been added by WW, would have been checked by WW against the applicable guidance. He confirmed[175] that this was a "line-by-line" check. He accepted[176] that WW took responsibility for the compliance of the parameters with the guidance. He stated[177] that WW always had in mind the need to comply with SHTM 03-01. Indeed, he expressly stated[178] "The brief or our design would always have to comply with SHTM 03-01." He said[179] that, if he was being asked for something that was contrary to the guidance, he would raise it. Paul Cooper, who was involved in the electrical side with WW, also confirmed that they would review the EM for compliance with guidance[180] . In his evidence at the February 2024

[170] Paragraph 8 of his Statement for the April 2023 hearing
[171] Paragraph 9 of his Statement for the April 2023 hearing
[172] Paragraph 15 of his Statement for the April 2023 hearing
[173] Page 76 of transcript
[174] Pages 22 and 23 of transcript
[175] Pages 84 and 85 of transcript
[176] Page 23 of transcript
[177] Page 47 of transcript
[178] Page 62 of transcript
[179] Pages 53 to 55 of transcript
[180] Pages 10 and 11 of transcript

hearing[181], Ken Hall confirmed that WW had its own quality standards and that it was WW's role to check for compliance with guidance. This body of evidence makes it plain that the EM was not a mandatory fixed brief that took precedence over SHTM 03-01. It dispels any notion that there was any confusion about the status of the EM.

64.12. A derogation was granted in relation to the provision in paragraph 8 of the BCRs requiring that the works comply with the EM[182]. The derogation was granted because of "anomalies" within the EM. It was noted that "This shall be further developed…" This is inconsistent with the EM being a fixed client brief.

64.13. At Financial Close, the EM was included as part of the RDD. If the EM was a mandatory document, as MPX claims, it is inconceivable that it could have been included as RDD. Its inclusion as RDD appears to have confused Stewart McKechnie as he thought[183] it was the "client's brief" and it "surprised" Paul Cooper[184]. On the other hand, John Ballantyne seemed to have misunderstood the position regarding the inclusion of the EM in the RDD. He claimed[185] that the RDD process was "there to check that the IHSL design was delivering what had been asked for by the Board, including for example what was in the Environmental Matrix." Far from the RDD process being there to confirm compliance with the EM, the inclusion of the EM in the RDD process confirms that the EM itself had not been finalised by that stage. During his evidence[186], Mr Ballantyne did not know whether the EM had been included as RDD. When he was shown documentation confirming that the EM was included as RDD, his position became[187] that this was solely in relation to new rooms being added to it. However, the comments on the EM that were to be addressed during the RDD process went beyond simply adding new rooms. In his evidence[188], Paul Serkis attempted to rationalise the inclusion of the EM as RDD as being part of

[181] Page 113 of transcript
[182] Bundle 5, paper apart volume 1 for the April 2023 hearing at page 3861
[183] Paragraph 22 of his Statement for the April 2023 hearing
[184] Paragraph 9 of his Statement for the April 2023 hearing
[185] Paragraph 36 of his Statement for the April 2023 hearing
[186] Page 23 of transcript
[187] Page 25 of transcript
[188] Page 36 of transcript

a process by which the contract permitted changes, which would then be agreed between the parties. However, this seems to conflate the Change Protocol (at clause 33 and Schedule Part 16 of the Project Agreement) with the RDD process. However, later in his evidence[189] he contradicted this by accepting the validity of Stewart McKechnie's comments to the effect that including the EM in RDD was commercially dangerous for IHSL (which would not be the case if it was part of an agreed change protocol).

64.14. On 15 April 2016, MML sent a message to MPX[190] attaching comments on the EM. The message stated "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 BCRs and PCPs. Any non-compliance with the BCRs and PCPs should be highlighted to the Board." On 17 October 2016, MML emailed IHSL[191] following a review of the most recent draft EM provided by IHSL, stating that the Board "still has significant concerns on the items that do not appear to comply with the BCR's." General comment 6 noted that "Some ventilation rates don't appear to comply with BCRs." The email concluded "Whilst the Board has noted general and specific comments above, the Board reminds Project Co that unless the Board has already accepted a derogation, it is Project Co's obligation to comply with the BCR's/SHTMS [sic] etc, and the Board not commenting, does not remove that obligation on Project Co." A further email dated 7 November 2016[192], upgrading the EM to status B for RDD purposes, noted that "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… the Board believes would result in a non-compliant Facility." IHSL was invited to "resolve non-compliant and other issues as matter of urgency". It is clear from this correspondence that parties were proceeding on the basis that (i) compliance with BCRs required more than simply complying with the EM; (ii) there was an overarching requirement to comply with SHTMs; and (iii) the onus to develop the EM and provide a

[189] Page 56 of transcript
[190] Bundle 13, volume 5 for the February 2024 hearing at page 1097
[191] Bundle 14 for the April 2023 hearing at page 339
[192] Bundle 14 for the April 2023 hearing at page 338

compliant facility rested with IHSL regardless of any comments made by NHSL and/or MML on the EM. In his evidence at the February 2024 hearing[193] Ken Hall was unable to provide a satisfactory explanation as to how this correspondence (particularly the letter dated 17 October 2016) was consistent with his claim that the EM was a fixed brief. In his evidence[194] concerning the email from MML dated 17 October 2016, Darren Pike confirmed his understanding that IHSL was responsible for ensuring that the EM, including the air change parameters for Critical Care, was compliant with the BCRs and SHTM 03-01 (unless there was a derogation). He thought[195] that there was an obligation on MPX to raise any items that it saw as non-compliance with the guidance.

64.15. In May 2016, IHSL issued derogation request WW014[196] This sought a derogation from SHTM 03-01 in relation to the air change rate in single bedroom ensuites. In July 2016, IHSL issued derogation request WW015[197]. This sought a derogation from SHTM 03-01 by decreasing the air change rate in single bedrooms from 6ac/hr to 4ac/hr. WW015 ultimately led to item 13 in SA1, which is discussed in more detail later in this closing statement. The derogations sought in WW014 and WW015 reflected entries that were already in the EM. WW014 and WW015 were attempts to derogate from the requirements of SHTM 03-01 in favour of what was written in the EM. If the EM was a fixed brief that took precedence over SHTM 03-01, there would be no need for IHSL to issue these derogation requests. The fact that IHSL issued these derogation requests makes it plain that IHSL recognised that it required to comply with SHTM 03-01 regardless of what was contained in the EM. This undermines any suggestion that the EM was a fixed brief that in some way took precedence over SHTM 03-01. Although this matter was explored with Ken Hall at the February 2024 hearing[198], he was unable to provide a satisfactory

[193] Page 143 of transcript
[194] Pages 28 and 29 of transcript
[195] Page 30 of transcript
[196] Bundle 13, volume 2 for the February 2024 hearing at page 543
[197] Bundle 13, volume 2 for the February 2024 hearing at page 544
[198] Pages 190 to 197 of transcript

explanation for seeking a derogation from SHTM 03-01 if the EM was indeed a fixed brief.

64.16. In February 2017, WW prepared a document entitled Accommodation Design Criteria – Single Rooms & Multi Bed Wards[199]. The purpose of this document appears to have been to check whether the design solutions for single bedrooms and four bed rooms complied with SHTM 03-01. The fact that this document was prepared suggests that WW was aware that its design required to comply with SHTM 03-01.

64.17. In September 2017, WW confirmed[200] that it had carried out a further line-by-line check of the EM.

64.18. In early 2019, there was an exchange of correspondence between NHSL and IHSL concerning compliance with SHTM 03-01. On 31 January 2019, IHSL wrote to NHSL[201] stating "All ventilation systems have been designed, installed and commissioned in line with SHTM 03-01 as required…" It is plain from this confirmation that IHSL took responsibility for the compliance of the ventilation design (as set out in the EM) with the applicable standards. It completely undermines Ken Hall's claim that SHTM 03-01 had in some way been superseded by the EM for the purposes of the project.

64.19. Although WW was not party to the correspondence referred to in the preceding paragraph, Stewart McKechnie confirmed[202] that WW had been requested to confirm that its design was compliant with SHTM 03-01 "which we did". WW's position was that the design complied with SHTM 03-01 without any qualification.

64.20. The suggestion that the draft of the EM that was developed at reference design stage should remain a mandatory requirement throughout the project is

[199] Bundle 13, volume 2 for the February 2024 hearing at page 678
[200] Bundle 13, volume 2 for the February 2024 hearing at page 1048
[201] Bundle 4 for the February 2024 hearing at page 9
[202] Paragraph 64 of his Statement for the February 2024 hearing

inherently unlikely given that the applicable standards and guidance might change over the lengthy period that the project would inevitably take. It is unrealistic that the expectation would be that values were set in stone at reference design stage.

64.21. The suggestion that the EM developed at reference design stage was a mandatory requirement is inconsistent with the key principle described by Richard Cantlay[203] that the design risk on a PPP contract sits with the private sector (with the exception of Operational Functionality).

65. Having regard to the foregoing considerations, it is apparent that, regardless of the claims made by various witnesses to contrary, all parties, including IHSL, MPX and WW acted on the clear understanding that the EM produced in the ITPD was not a mandatory document and that compliance with SHTM 03-01 was required. Perhaps most importantly, Stewart McKechnie's position was that WW's design would always have to comply with SHTM 03-01[204]; that all parameters in the EM would have been checked by WW against the applicable guidance[205]; and that WW's design was compliant with SHTM 03-01[206]. Accordingly, even if there was any ambiguity in the contractual documentation, that had no practical effect because all parties proceeded on the basis that the design required to comply with SHTM 03-01.

66. At paragraph 7 of CTI 2024 it is suggested that ambiguity in the contractual documentation created "a disconnect between what NHSL wanted the ventilation system to achieve and what the successful tenderer believed the ventilation system required to achieve". It is readily apparent from the overwhelming body of evidence summarised in the preceding paragraphs that, in reality, there was no such disconnect. All parties proceeded on the same understanding that the ventilation system required to achieve compliance with SHTM 03-01. Similarly, although paragraph 31 of CTI 2024 suggests that the contract "contained ambiguous and contradictory provisions" in relation to SHTM 03-01, the evidence is to the effect that all parties proceeded on the

[203] Paragraph 8 of his Statement for the April 2023 hearing
[204] Page 62 of transcript
[205] Pages 22 and 23 of transcript
[206] Paragraph 64 of his Statement for the February 2024 hearing

basis that compliance with SHTM 03-01 was a mandatory requirement. At paragraph 89, CTI 2024 states that NHSL and MML were relying on "on interpretation of the Project Agreement under which the environmental matrix included in it was not to be read as their brief…" It is apparent from the evidence set out in the preceding paragraphs that all of the relevant parties were acting on the basis of the same interpretation. At paragraph 90 of CTI 2024, having accepted that this interpretation "may well be correct", it is then suggested that there is an "air of unreality" about this interpretation. Having regard to all of the evidence set out above, and having a clear understanding of the transfer of risk that is a fundamental feature of the NPD model, there is no such "air of unreality". If there is any "air of unreality" on this matter, it is in (i) MPX/WW persisting in a claimed interpretation of the status of the EM that is entirely at odds with their own actions; and (ii) CTI suggesting that there was any genuine lack of clarity about the status of the EM. At paragraph 90 of CTI 2024, it is suggested that there may "be some force" in the view that "the environmental matrix set out NHSL's preferences" and that "SHTM 03-01 did not compel a change from them, even if they were not consistent with the recommendations which it made". Essentially the suggestion seems to be that the EM might have taken precedence over SHTM 03-01. Any such suggestion is completely inconsistent with the overwhelming body of evidence set out above, including Mr McKechnie's own evidence regarding the need to comply with SHTM 03-01. Contrary to CTI's suggestion at paragraph 90 of CTI 2024, there is no force whatsoever in this suggestion.

67. The erroneous understanding of the status of the EM articulated by witnesses from MPX and WW is also reflected in the document entitled RHCYP/DCN Critical Care Ventilation Systems Review by Mr Maddocks dated 13 December 2023[207]. For example, at paragraph 2.1.5, having stated that he does "not offer any view on the status of the EM", Mr Maddocks goes on to suggest that there "would be no point in a client issuing a "draft" EM that could not be relied on by the engineer." He also states that the EM is "a key briefing requirement" (paragraph 2.2.1), "a fundamental briefing tool" (paragraph 2.2.5) and "a key briefing document" (paragraph 2.2.6). Mr Maddocks does not appear to have had access to the evidence that has been led before the Inquiry concerning the decision to issue the draft EM to bidders and the actions of the parties

[207] Witness Bundle volume 1 for the February 2024 hearing at page 3

thereafter which made it readily apparent that all parties recognised that the EM was to be developed by the successful bidder. He does not appear to have analysed the ITPD documentation and the Project Agreement in order to understand the status of the EM. His comments are at odds with the available evidence. The Inquiry is invited not to place reliance on these parts of Mr Maddocks' review. In any event, in his evidence at the February 2024 hearing[208], he explained that, from a professional perspective, if an engineer was faced with a brief that did not comply with published guidance, they would flag it to the client as a risk. It follows that, in Mr Maddocks' opinion, even if the EM was NHSL's brief, it was still incumbent on WW to highlight any discrepancies between the EM and SHTM 03-01 (which seemed to be accepted by Stewart McKechnie in any event[209]).

68. Even if, contrary to the actions of the parties, there was some misunderstanding about the status of the EM in the ITPD, the effect of the hierarchy of standards provisions at paragraph 2.5 of the BCRs (which is considered in more detail, below, in the context of the Project Agreement) made it plain that IHSL's design required to comply with SHTM 03-01 regardless of the terms of the reference design EM.

69. In any event, even if the foregoing is not accepted, and one were to proceed on the basis that EM was a mandatory document and that there was no specific requirement to comply with SHTM 03-01, that would not alter the requirement that IHSL proceed on the basis of 10ac/hr for Critical Care. Although the individual entries in the matrix for bedrooms in Critical Care stated 4ac/hr, Guidance Note 15 (prior to the alteration by Stewart McKechnie) made it clear that, for HDU Bed Areas and Critical Care Areas, SHTM 03-01 applied and supply ventilation should be 10ac/hr. As Michael O'Donnell noted in his evidence[210], the Guidance Notes pull together what is important, the key notes, from the current guidance. These were put up front as "important watch points". He was clear that the guidance notes take precedence over the values in the matrix. His evidence on this point is consistent with the entry in the "Notes" column of the relevant entries in the matrix stating "See Guidance Notes". In any event, as an engineer, he

[208] Pages 24 to 25 of transcript
[209] Pages 53 to 55 of transcript
[210] Pages 32 and 33 of transcript

considered[211] that if there was any doubt, he would "sit on the side of caution" and go with the more onerous provision until it was clarified. Such an approach is consistent with the terms of paragraph 2.5 of the BCRs, which would apply to any discrepancies within the terms of the EM.

70. Willie Stevenson's evidence[212] was also that the Guidance Notes take precedence as they give instructions on how to deal with the matrix and highlight up front the specific requirements. In the event of a major conflict between the Guidance Notes and the entries in the matrix, he would expect someone to raise a query or derogation, although he agreed with Mr O'Donnell's view that the more onerous would take precedence.

71. Stewart McKechnie's evidence at the April 2023 hearing[213] was that Guidance Note 15's reference to "10ac/hr" related only to isolation rooms. On a reasonable reading of Guidance Note 15, this interpretation is untenable. It did not seem to be shared by any other witness who was asked to comment on the EM. It is based on Mr McKechnie's own interpretation of Table A1 of SHTM 03-01, which seems to be erroneous for the reasons set out earlier in this Closing Statement. In any event, there is no express mention in Guidance Note 15 of the entry being limited to isolation rooms. The fact that the requirement for "10ac/hr" is included, not just for "Critical Care Areas" but also for "HDU bed areas" suggests that all bed areas in HDU or Critical Care, not just those in isolation rooms, were supposed to have this provision. Such an interpretation is supported by the RFRS which also made provision for 10ac/hr supply in HDU.

72. Whether one approaches matters on the basis that (i) Guidance Notes take precedence over the entries in the matrix; or (ii) the more onerous provision takes precedence, it is apparent that the EM, when properly interpreted, mandated 10ac/hr for Critical Care Areas. Similarly, when one considers the entry for HDU in the RFRS, as it is more onerous than the individual bedroom entries for Critical Care, the provision for 10ac/hr ought to take precedence.

[211] Page 88 of transcript
[212] Pages 19 and 20 of transcript
[213] Page 136 of transcript

73. Given the clear importance of the Guidance Notes, it is surprising, and perhaps rather alarming, that Ken Hall's stated interpretation of the Guidance Notes in his evidence at the April 2023 hearing[214] was that they were effectively working notes from the designer that he was "not that… interested in going through". On that basis, his view seemed to be that they could be ignored. It is plain from even a cursory review of the Guidance Notes that they could not reasonably be described as working notes and that it would be unwise to disregard them.

74. Similarly, Ken Hall's view of the RFRS was that it was "not something [he] had any knowledge of"[215]. He agreed to the proposition that he did not think that it was necessary to read or understand this part of the EM. Again, this is rather alarming given that it was an integral part of the document. Michael O'Donnell described[216] it as attempting to summarise all of the repeatable room types in order to make the review process easier.

75. In any event, the whole question of the status of the EM is academic: Stewart McKechnie is of the view that "the EM did accord with SHTM 03-01"[217] and that 4ac/hr in Critical Care "did not appear to be a mistake"[218]. Accordingly, it would not have mattered whether the reference design EM was mandatory or not: IHSL/WW would not have made any changes to the relevant entries because WW considered them to be correct. Even if the Inquiry were to conclude that there was some ambiguity in the ITPD or contractual documentation regarding the status of the EM, any such ambiguity has no causal relationship to the issues that subsequently developed and resulted in the delayed opening of the hospital. The fact that the EM continued to stipulate 4ac/hr for single bedrooms and four bed rooms in Critical Care was because Mr McKechnie considered that this was what SHTM 03-01 required: not because of any uncertainty on his part about the status of the EM and whether WW's design required to comply with SHTM 03-01. It follows that any ambiguity or uncertainty regarding the procurement documents was of no causative significance in relation to the delayed opening of the hospital.

[214] Pages 62 and 63 of transcript
[215] Page 54 of transcript
[216] Page 72 of transcript
[217] Paragraph 24 of his Statement for the April 2023 hearing
[218] Paragraph 26 of her Statement for the April 2023 hearing

76. CTI 2024 suggests that a lack of clarity in the contractual documentation was a causal factor in the issues that led to the delay in the opening of the hospital. For example, at paragraph 7 it is suggested that a misunderstanding about the status of the EM "is at the heart of the matter". At paragraph 22 it states "The issues on the project arose from a lack of clarity in the brief." For all of the reasons set out in the preceding paragraphs, even if there was a lack of clarity about the status of the EM (despite all of the evidence to the contrary), it made no difference to the development of the ventilation issue. Indeed, CTI appear to recognise this at paragraph 93 of CTI 2024 where it is stated that, given Stewart McKechnie's claimed interpretation of SHTM 03-01, "a different outcome could only have been achieved on the RHCYP/DCN project if NHSL had specified, whether in the environmental matrix or during the process of reviewing it, that they wanted 10 air changes in those rooms, and insisted upon it over the views of Wallace Whittle." This appears to be a recognition that the primary cause of the problem was Stewart McKechnie's claimed interpretation that SHTM 03-01 required 4ac/hr in the relevant rooms.

77. The Chair is invited to conclude that there was no lack of clarity in the procurement and contractual documents regarding the status of the EM. Even if there was such a lack of clarity, the Chair is invited to conclude, based on the actions of the parties, that there was a clear common understanding that the design required to comply with SHTM 03-01. In any event, the Chair is invited to conclude that, even if there was a lack of clarity in the procurement and contractual documents regarding the status of the EM, any such lack of clarity was not a cause of the issues that led to the delayed opening of the hospital.

The tender submitted by Bidder C

78. Bidder C (Mosaic) included a revised EM in its tender submission[219]. Amongst many revisions marked in red, supply ventilation for some, but not all[220], of the single bed cubicles and open plan bays in PICU/HDU was changed to 10ac/hr. However, the tender documents did not suggest that this change had been made because the reference

[219] Bundle 7 for the April 2023 hearing at page 52
[220] See the entries for "Neonatal HDU" and "High Acuity" at Bundle 7 for the April 2023 hearing at page 56

design EM was non-compliant with SHTM 03-01. Bidder C's final tender submission in relation C8 (Approach to design and construction – M&E engineering design proposals) stated at section C8.2x[221] "Mosaic environmental matrices have been produced to reflect the design criteria used as the basis of the Mosaic proposals… The matrices have been derived from the reference design environmental matrices in order to show where the design criteria have been modified to reflect the Mosaic engineering strategy." The tender submission continued at section C8.3[222] "It is Mosaic's intent to generally follow the reference design environmental matrices except where the criteria are modified by the different engineering strategies proposed, for example the proposed use of chilled beams combined with fresh supply rates based on occupancy… Some other criteria have been modified to enhance the proposed design criteria or adjust values based on the intended room use…" Although certain "key adjustments" were identified, these did not include the entries related to bedrooms in PICU/HDU.

79. Accordingly, the impression given by the tender documentation was that any revisions made by Bidder C to the reference design EM were "to reflect the design criteria used as the basis of the Mosaic proposals" or "to reflect the Mosaic engineering strategy." This impression is supported by the fact that not all single bed cubicles and open plan bays in PICU/HDU were changed to 10ac/hr. The documentation would not have put the reader on notice that Bidder C had identified entries in the reference design EM that were not in compliance with SHTM 03-01. It is also relevant to note in this context, that, according to Brian Currie[223], Bidder C had introduced other errors into the EM.

80. Willie Stevenson explained[224] that it would not be a cause for concern if one bidder produced a marked up EM and others did not. He noted that H&K had certified that its design complied with SHTMs, so there was no reason to suspect that the reference design EM did not comply with SHTMs. In any event[225], the important thing was not whether EMs produced by bidders matched each other or the reference design EM: the important thing was that they complied with the guidance.

[221] Bundle 7 for the April 2023 hearing at page 156
[222] Bundle 7 for the April 2023 hearing at page 158
[223] Paragraph 83 of his Statement for the February 2024 hearing
[224] Paragraph 16 of his Statement for the April 2023 hearing
[225] Paragraph 17 of his Statement for the April 2023 hearing

81. Richard Cantlay noted[226] that bidders required to confirm that their proposals complied with the BCRs (as set out in C21 of the Bid Submission Requirements). Bidders could present different solutions provided each confirmed that the bid, when developed, would comply with the BCRs. In his evidence at the April 2023 hearing[227], he noted that changes being made to the EM would not be a red flag: rather it would make it clear how the bidder's proposal varied from the baseline EM provided to tenderers.

82. Graeme Greer did not consider[228] that bidders producing two different solutions would necessarily have rung any alarm bells: it would not necessarily mean that one had complied with the guidance and the other had not. In his evidence at the April 2023 hearing[229], he noted that each bidder likely had a different architectural solution, so would have a different matrix for that reason.

83. Colin Macrae also confirmed[230] that different solutions submitted by IHSL and Bidder C was not a cause for concern as the design development had not started – he would have thought Bidder C was being proactive in making a start on developing their design. He noted[231] that the review of the tender did not involve a side-by-side comparison.

84. Paragraph 224 of CTI 2023 sought to ascribe significance to the changes made by Bidder C which is not supported by the available evidence. It was suggested that "the differing tenders submitted by IHSL and Bidder C exemplify the problems with the drafting of the tender documents". CTI 2023 went on to note that both IHSL and Bidder C "offered to comply with" the BCRs but that Bidder C had "required to make changes" to the EM, while IHSL "did not offer to change any values" in the EM. CTI 2023 then stated "It is not clear why one tender was not rejected as a variant bid."

85. It is not at all clear what is meant by a "variant bid". There is no express suggestion that any of the bids failed to comply with the evaluation criteria: they were accordingly not variant in that sense. The fact that the bids varied from each other is entirely normal:

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[226] Paragraphs 14 and 66 of his Statement for the April 2023 hearing
[227] Page 40 of transcript
[228] Paragraph 40 of his Statement for the April 2023 hearing
[229] Page 63 of transcript
[230] Paragraph 10 of his Statement for the April 2023 hearing
[231] Paragraph 14 of his Statement for the April 2023 hearing

given the volume and complexity of the tender documentation, it would be remarkable if the tenders were identical. The fact that Bidder C made changes to the EM does not mean that the EM had to be changed in order to be compliant with SHTM 03-01. The reasons that Bidder C provided for its changes are set out above: it was to reflect Bidder C's design criteria and engineering strategy. These important passages from Bidder C's tender, which are essential to placing Bidder C's changes in context, are not mentioned in CTI 2023. The suggestion in paragraph 224 of CTI 2023 that Bidder C "required to make changes" in order to comply with the BCRs is not borne out by what is stated in Bidder C's tender documentation. The fact that IHSL submitted a different EM would be readily explicable on the basis that it had different design criteria and engineering strategy from Bidder C. In any event, IHSL did indicate that it also intended to make changes to the EM: at C8.2(x)[232] IHSL noted that it "shall provide an addendum matrix for any rooms on an exception basis highlighting any changes at preferred bid stage".

86. A proper analysis of the tenders submitted by IHSL and Bidder C does not support the contention that they "exemplify the problems" with the ITPD documentation. Both bidders confirmed that their design would comply with SHTM 03-01. Both bidders indicated that they understood that changes could be made to the EM. Far from exemplifying problems with the ITPD documentation, this passage of evidence supports the contention that there was in fact no real confusion about what was required of bidders.

87. The Chair is invited to conclude that the fact that Bidder C and IHSL submitted different bids should not have alerted MML to any possible issue with the EM.

The intensity of review of tenders

88. Richard Cantlay explained[233] that the bids were reviewed in accordance with an agreed evaluation methodology set out in the Final Tender Evaluation Manual and Supplementary Guide to Final Tender Evaluation. As Iain Graham noted[234] in relation

[232] Bundle 3 for the April 2023 hearing at page 303
[233] Paragraph 65 of his Statement for the April 2023 hearing
[234] Paragraph 10 of his Statement for the April 2023 hearing

to the tender scoring criteria, a minimum pass/fail threshold was put forward in some areas (such as compliance with basic BCRs) to make the best of quality scores. He considered[235] that M&E was not given a lower weighting than other elements as M&E installations have an extensive underpinning of technical standards and all criteria in the BCRs had to be passed or the bid would be deemed non-compliant. Richard Cantlay noted[236] that M&E was not a standalone item that was assessed only in relation to section C8: it was also taken into account in other criteria such as C4, C5, C9, C10, C15, C18 and C19.

89. Richard Cantlay explained[237] that, when evaluating the tenders, it was not MML's role to check the design on a line-by-line basis but rather to review the bids in accordance with the agreed evaluation methodology. In his evidence at the April 2023 hearing[238] he explained that the tenderers were bidding to design and construct the hospital. They were presenting their approach to how they would do the design rather than presenting a full design. In relation to criteria such as C21 (compliance with the BCRs, which was assessed on a pass/fail basis), the final design could not be considered as it did not exist. Rather the tenderer would be confirming that, when doing the design, they would comply with the BCRs. That statement would be taken at face value. Graeme Greer also confirmed[239] that tender evaluation would not involve a line-by-line check of each bid for compliance with all the guidance in the BCRs. In his evidence at the April 2023 hearing[240] he described how each assessment team would perhaps have two to three hours to review the response to each question: "not a massive amount of time". He noted that this was not a design check, rather it was a review of submissions. So far as compliance with the BCRs was concerned, he explained[241] that the onus was on bidders to confirm that they were complying rather than on NHSL reviewing the submissions to confirm compliance. The rationale for this approach lay in the risk allocation in an NPD contract. In any event, reviewing each submission to ensure compliance with the BCRs would have been a huge task which would not have been possible in the time

[235] Paragraph 14 of his Statement for the April 2023 hearing
[236] Paragraph 20 of his Statement for the April 2023 hearing
[237] Paragraph 65 of his Statement for the April 2023 hearing
[238] Pages 65 and 66 of transcript
[239] Paragraph 22 of his Statement for the April 2023 hearing
[240] Page 21 of transcript
[241] Pages 46 and 47 of transcript

available. Mr Greer considered[242] that checking each tender to ensure compliance with the BCRs would have taken months. Willie Stevenson explained[243] that tender evaluation would be a sample review with a few spot checks: not a line-by-line review. In any event, he noted[244] that the tenders were not the bidder's final design: what was being looked for at final tender stage was an indication that bidders were in agreement that what they were going to design would be compliant with the BCRs. Colin Macrae, who reviewed technical submissions from an M&E perspective including ventilation and many other elements, confirmed[245] that when assessing tenders, he would not be looking at compliance with SHTMs as the design had not been developed at that stage. This body of evidence from MML's witnesses is consistent with the position of Brian Currie. He considered[246] that a detailed examination of the bidders' EMs was not necessary.

90. Graeme Greer noted in evidence at the April 2023 hearing[247] that those RDS that were submitted at tender stage, may have been included as an appendix to the architectural submission as opposed to being part of the M&E submission. In any event he doubted that they would be reviewed as part of the tender evaluation process.

91. Paragraph 234 of CTI 2023 stated that "the evidence indicates that there was a low intensity review of tenders". It is unclear whether this was intended as a criticism of those conducting the tender evaluation process. It is unclear whether it was being suggested that the tender evaluation process deviated in any way from the agreed methodology set out in the Final Tender Evaluation Manual and Supplementary Guide to Final Tender Evaluation. It is unclear whether any criticism was being made of the Final Tender Evaluation Manual and Supplementary Guide to Final Tender Evaluation. Reference was made by CTI to two aspects of the task undertaken as part of the tender evaluation exercise: accepting a statement of compliance with the BCRs at face value; and conducting some sample reviews. The sample review itself was described at paragraph 23 of CTI 2023 as a "very low intensity 'sample' review". It was then

[242] Page 49 of transcript
[243] Paragraph 14 of his Statement for the April 2023 hearing
[244] Paragraph 15 of his Statement for the April 2023 hearing
[245] Paragraph 8 of his Statement for the April 2023 hearing
[246] Paragraph 87 of his Statement for the February 2024 hearing
[247] Pages 59 and 60 of transcript

suggested at paragraph 234 that the characterisation of the tender evaluation process as a "low intensity review" was "exemplified" by the lack of a review of the RDS.

92. It is submitted that the evidence does not support CTI's characterisation of the tender evaluation process as being a "low intensity review". The full work involved in evaluating the tenders was touched on very briefly in evidence. It is submitted that the Inquiry would be unable to reach any conclusions regarding the intensity of the evaluation process from the limited examples mentioned by CTI. The full evaluation criteria are set out in the ISFT documentation[248]. Each of the three tenders had to be evaluated against that full set of criteria. Bundle 6 comprises no more than the "key sections" of IHSL's tender. The bundle runs to 1,203 pages and touches upon a very small proportion of the evaluation criteria. Insofar as any criticism is made of a "sample review" exercise, it is unclear what practical alternative is being suggested. The Inquiry heard evidence (discussed below) from a number of witnesses regarding the scope of the task in conducting a full review of the EM (which formed one relatively small element of the tender documentation). A full review of each of the three tenders, including checking for compliance with all of the BCRs, is likely to have taken several months. Given that, at tender evaluation stage, the design had yet to be developed by the successful bidder, any detailed review would have been wholly disproportionate and prohibitively expensive. This must also be considered against the background that NHSL had received confirmation from H&K that the reference design EM complied with applicable guidance.

93. Insofar as it is suggested that the sample review itself was of "very low intensity" there was simply no evidence about the level of intensity with which the sample review was conducted to enable any view to be formed about its level of intensity. In short, the evidence did not suggest that a sample review exercise was inappropriate, nor that any valid criticism could be made of the manner in which that sample review exercise was carried out.

94. In its Closing Submission following the April 2023 hearing, WW invited the Inquiry to consider whether IHSL may have been left with a misplaced confidence that its tender

[248] Bundle 3 for the April 2023 hearing from page 71 to 153

had been assessed as being fully compliant with the BCRs. WW did not point to any evidence to support the suggestion that IHSL had any such confidence. MML is not aware of any such evidence. Given the evidence (discussed below) regarding the scope of the task in conducting a full review of the EM, it seems highly unlikely that any tenderer could have entertained any genuine understanding that the tender evaluation process included a detailed review of every tender to ensure full compliance with the BCRs.

The period to Financial Close

95. The problems and difficulties described in CTI 2023 (from paragraph 241) were primarily the result of IHSL failing to deliver on its requirements. As CTI 2023 noted (at paragraph 245), despite IHSL's complaints to the contrary, no witness was able to provide any example of a radical change by NHSL to the stated requirements that increased the requirements placed on IHSL.

96. As Graeme Greer stated[249], by Financial Close there was not a complete set of RDS from IHSL. This resulted in RDS being included as RDD. Susan Goldsmith stated[250] that MPX did not make the design progress that it was expected to make prior to Financial Close. She continued[251] that, in order to reach Financial Close, a pragmatic way forward was agreed. She considered that MPX used commercial leverage knowing NHSL had limited options[252]. In her evidence at the April 2023 hearing[253], she explained that NHSL were comfortable waiving the requirement for a full set of RDS by Financial Close because contractual responsibility for producing them would lie with IHSL after Financial Close. Iain Graham noted[254] the pressures from various parties to get to Financial Close, and that the reduction in the number of RDS for inclusion in the Project Agreement was one of many compromises, although this was mitigated by the provision of RDS for key and generic rooms. He noted[255] that MPX strongly resisted completing 100% RDS as it would require too much time and cost prior to Financial

[249] Paragraph 65 of his Statement for the April 2023 hearing
[250] Paragraph 41 of her Statement for the April 2023 hearing
[251] Paragraph 43 of her Statement for the April 2023 hearing
[252] Paragraph 45 of her Statement for the April 2023 hearing
[253] Page 59 of transcript
[254] Paragraph 36 of his Statement for the April 2023 hearing
[255] Paragraph 46 of his Statement for the April 2023 hearing

Close. This resulted in RDD being more extensive than expected[256]. In her evidence at the April 2023 hearing[257], Janice MacKenzie described this as a pragmatic decision because they needed to get on and build the hospital. In his evidence at the April 2023 hearing[258], Richard Cantlay noted that the bidder had put forward a fixed price, so the risk to the Board would be the same whether design issues were finalised pre or post Financial Close.

97. As Graeme Greer explained in evidence at the April 2023 hearing[259], the first RDS were produced eight weeks out from the projected Financial Close date. Given the timescales involved, they were not reviewed prior to Financial Close. In any event, the clinical activities in the RDS for four bed rooms in Critical Care produced at Financial Close gave the impression that these were normal bedrooms rather than Critical Care Areas. This matter is considered in more detail later in this closing statement.

98. Colin Macrae described his involvement in highlighting discrepancies in relation to single bedrooms. His concern was that the bedroom ventilation was described in the IHSL EM as being positive. He considered this to be an infection control risk. This issue was noted during the preferred bidder stage[260]. In his evidence he suggested that during this period his reviews got "more focussed"[261], although still at a "fairly high level"[262]. It is apparent from the comment raised on this issue[263], when compared with the requirements of SHTM 03-01, that the issue related to standard single bedrooms, not to those in Critical Care. This conclusion is supported by the reference to the rooms having ensuites (which would not be the case in Critical Care). This was one of the outstanding issues that led to the EM being RDD[264]. It was not resolved at Financial Close.

[256] Paragraph 50 of his Statement for the April 2023 hearing
[257] Page 34 of transcript
[258] Page 78 of transcript
[259] Page 58 of transcript
[260] Bundle 4 for the April 2023 hearing at page 275
[261] Page 24 of transcript
[262] Page 25 of transcript
[263] Bundle 4 for the April 2023 hearing at page 276
[264] Bundle 5 for the April 2023 hearing at page 880

99. Graeme Greer's position in evidence at the April 2023 hearing[265] was that this was one of many issues that they were working through at that point. It did not jump out as being a higher priority than anything else that was being worked on. He noted[266] that there was no indication that IHSL would not address it so that the design was compliant with SHTM 03-01. In his evidence at the April 2023 hearing[267], Richard Cantlay said that he was not surprised that an issue such as this would arise at this stage as the preferred bidder would be developing its design which would be reviewed in more detail. The understanding that this issue was not sufficiently serious to prompt a wholesale review of the EM is supported by Paul Serkis's evidence[268] that this was not something that had been raised as a red flag to him or John Ballantyne and that he could not recall any major conversations about it. On reviewing the documents now, he considered[269] that this was something being raised for review: it was not unusual, just another item to be dealt with as part of design development. In her evidence at the April 2023 hearing[270], Susan Goldsmith considered that this was one of several issues that needed to be resolved, and that she was reassured by the fact that the risk had been identified and was being addressed.

100. Paragraph 248 of CTI 2023 suggested that this issue highlighted that H&K's confirmation that the EM complied with SHTMs was not accurate, and that a failure to "re-visit" the EM was a missed opportunity. It is unclear what is meant by "re-visit". As is readily apparent from the fact that the issue came to light during a review of the EM, the EM was being subjected to review by MML and NHSL. In that sense it was being revisited. However, for the reasons discussed elsewhere in this submission, any full review of the EM would have taken months. Given the time and costs involved, the pressure to achieve Financial Close, the lack of any obvious reason to suppose there were any other significant errors in the EM, the fact that design risk ultimately sat with IHSL and the expectation that IHSL would review its design for compliance with guidance, any such review would not have been a reasonable option.

[265] Pages 86 and 87 of transcript
[266] Page 87 of transcript
[267] Page 82 of transcript
[268] Pages 49 and 50 of transcript
[269] Pages 52 and 53 of transcript
[270] Page 76 of transcript

101. At paragraph 7 of CTI 2024, it is stated that "The lack of a finalised document clearly setting out the technical requirements for the ventilation, at financial close, was at the root of the problems with the project." At paragraph 336 CTI 2024 states that "The shortcomings in the ventilation system … could have been prevented if a clear brief had been agreed before financial close." Similar statements are made at paragraphs 349 and 350, partly under reference to the lack of a full set of RDS at Financial Close. There is no clear explanation in CTI 2024 for the conclusion that the lack of a finalised ventilation design, including a full set of RDS, at Financial Close led to the issues that subsequently developed. On the assumption that there was some uncertainty about whether the EM was a fixed brief, providing further clarity on this issue at Financial Close would not have prevented the issues that led to the delay in the opening of the hospital from arising. If the brief was to comply with the EM, then compliance with 4ac/hr for the relevant rooms would have been mandatory as that is what was included in the EM at that stage. If the brief was to comply with SHTM 03-01, then the designer, Stewart McKechnie, would have ensured that the air change rates complied with his claimed interpretation of SHTM 03-01, namely 4ac/hr. So, even if there was a lack of clarity in the brief, rectifying that issue would have made no difference to the outcome in the present case. It is highly unlikely that the production of a full set of RDS at Financial Close would have made any difference to the outcome. The RDS would presumably have used the same parameters as the EM, either because the information would simply have been copied across or because WW would have inserted ventilation parameters that were consistent with Mr McKechnie's claimed interpretation of SHTM 03-01. When the relevant RDS were ultimately produced, the ventilation parameters matched those in the EM. Accordingly, even if a full set of RDS at Financial Close would have provided more clarity, it would not have avoided the issues that subsequently developed. It would simply have clarified that 4ac/hr was required. In short, any finalised design at Financial Close would have included the error that ultimately led to the delay in the opening of the hospital. The ventilation parameters would have been no different had they been finalised prior to Financial Close. Accordingly, any "lack of a finalised document" at Financial Close had no causal connection to the delay in the opening of the hospital.

The Contract

102. MML recognises that it is not the role of the Inquiry to determine the correct interpretation of the contract. It is readily apparent that there are competing interpretations amongst the various Core Participants. In this part of the submission MML sets out what it contends to be the correct interpretation of the Project Agreement and to highlight all of the relevant provisions.

103. MML accepts the observation made at paragraph 258 of CTI 2023 that the wording of the Project Agreement did contain some potential ambiguities about the status of the EM. However, MML submits that, when the Project Agreement is viewed as a whole, the status of the EM is clear. In particular, it is clear that the provisions in SHTM 03-01 took precedence over the EM. That understanding is clear not just from consideration of the provisions identified in the following paragraphs: it is also apparent from the actions of the parties (discussed earlier in this closing submission), all of whom proceeded on a clear understanding that compliance with SHTM 03-01 was required. The summary of the position adopted by IHSL/MPX/WW in the last sentence of paragraph 258 of CTI 2023 is not borne out by the evidence regarding their actions.

104. Clause 12.1.1 of the Project Agreement[271] provides that "Project Co shall carry out the Works… so as to procure satisfaction of the Board's Construction Requirements…" Paragraph 8 of the BCRs[272] provides, *inter alia*, that "Project Co shall provide the Works to comply with the Environmental Matrix."

105. Paragraph 2.3 of the BCRs[273] provides that "In addition to the standards listed in paragraph 2.4 of this Sub-Section C, unless the Board has expressed elsewhere in the Board's Construction Requirements, a specific and different requirement, the Facilities shall comply with but not be limited to the provisions of the NHS Requirements as the same may be amended from time to time." The list of NHS Requirements included "h) HTM and SHTM". Paragraph 2.3v[274] continued: "Project Co shall, in relation to all

[271] Bundle 5 for the April 2023 hearing at page 24
[272] Bundle 5 for the April 2023 hearing at page 289
[273] Bundle 5 for the April 2023 hearing at page 211
[274] Bundle 5 for the April 2023 hearing at page 213

SHTM and all HTM (except HTM where an SHTM exists with the same number and covering the same subject matter): take fully into account the guidance and advice included within such SHTM and HTM; ensure that the Facilities comply with the requirements of such SHTM and HTM; and adopt as mandatory all recommendations and preferred solutions contained in such SHTM and HTM."

106. IHSL argues that the EM is a "specific and different requirement" covered by the qualification to paragraph 2.3 such that there is no requirement for it to comply with the SHTMs. It contends that the EM accordingly took precedence over the SHTMs. However, on a complete understanding of the provisions of the Project Agreement, this argument is incorrect for the following reasons:

106.1. A derogation was ultimately granted in relation to the provision in paragraph 8 of the BCRs requiring that the works comply with the EM[275]. The derogation was granted because of "anomalies" within the EM. It was noted that "This shall be further developed…" Accordingly, at the time the Project Agreement was finalised, the requirement that the works comply with the EM was the subject of a derogation and therefore did not form part of the BCRs. It could not have been a "specific and different requirement".

106.2. Similarly, the EM was included in RDD[276]. It had accordingly not been finalised and signed off for construction. Compliance with it could not have been compulsory. In any event, it was not a "specific and different requirement" as it had not yet been finalised.

106.3. The wording "specific and different requirement" in paragraph 2.3 is not apt to describe the EM, even once finalised. It was a wide-ranging summary of environmental parameters. It was described, in Guidance Note 1 as no more than a "reference tool". It does not specifically state that it is to take precedence over SHTMs. There is no specific statement anywhere in the Project Agreement that there did not require to be compliance with SHTM 03-01.

[275] Bundle 5, paper apart volume 1 for the April 2023 hearing at page 3861
[276] Bundle 5 for the April 2023 hearing at page 880

106.4. The EM was not a "different requirement" to the SHTMs. On the contrary the Guidance Notes, particularly Guidance Note 15[277], made express reference to SHTM 03-01. Indeed, Guidance Note 15 specifically stated that SHTM 03-01, requiring 10 air changes, are the applicable "design criteria". On a fair reading of the EM, it is plainly intended to reflect the SHTMs rather than acting as a specific and different requirement to them.

106.5. In any event, the requirement in the BCRs to comply with SHTMs did not come solely from paragraph 2.3. After making reference to the EM, Paragraph 8[278] continued "Project Co shall in carrying out the Works comply with the following non-exhaustive list of mechanical and electrical requirements…" Paragraph 8.1 Minimum Engineering Standards included "The following is a non-exhaustive list of SHTM's, HBN's and HTM's applicable to the Facilities…h) SHTM 03-01: Ventilation in Healthcare Premises." This express reference to SHTM 03-01 is not subject to the qualification in paragraph 2.3 concerning any "specific and different requirement". Accordingly, even if IHSL is correct in its argument that the EM was a specific and different requirement such that the references to SHTMs in clause 2.3 were of no effect, that has no bearing on the clear provisions in paragraph 8 mandating compliance with SHTM 03-01. On a proper understanding of the BCRs, there is no doubt that IHSL's design required to comply with SHTM 03-01. At paragraph 198 of CTI 2023, it was suggested that the language used in paragraph 2.3 contributed to confusion and ambiguity as to the ventilation requirements. Even if that was correct when viewing paragraph 2.3 in isolation, it ignores other provisions such as paragraph 8.1 which made it clear that compliance with SHTM 03-01 was required. Similarly, the second last sentence of paragraph 253 of CTI 2023 implied that paragraph 2.3 is the only paragraph of the BCRs requiring compliance with SHTMs. That is plainly incorrect having regard to the full terms of paragraph 8 and the provisions identified in the following sub-paragraphs (many of which are mentioned in CTI 2023).

[277] Bundle 4 for the April 2023 hearing at page 160
[278] Bundle 5 for the April 2023 hearing at page 289

106.6. Paragraph 2 of the BCRs[279] provided that "Project Co shall ensure the design complies with the general ethos detailed here… Project Co shall ensure that the design of the Facilities draws upon and endeavours to further develop, improve and exceed current best practice (and Good Industry Practice) standards achieved in other similar schemes…" This provision required IHSL's design to comply with SHTM 03-01.

106.7. Paragraph 3.6.3 of the BCRs[280] stated "For the avoidance of doubt, Project Co shall provide mechanical ventilation, comfort cooling and air conditioning to suit the functional requirements of each of the rooms in the Facilities. Irrespective of the ventilation requirements in the Room Data Sheets, where rooms are clearly intended to be occupied and/or become internal spaces during design development and natural ventilation is not possible, mechanical ventilation and/or extract ventilation shall be provided as appropriate to suit the function of the space." This provision required IHSL's design to comply with SHTM 03-01.

106.8. Paragraph 5.2 of the BCRs[281] made provision in relation to Infection Prevention and Control. It stated that "Project Co shall ensure all aspects of the Facilities allow for the control and management of any outbreak and/or spread of infectious diseases in accordance with the following… (f) Ventilation in Healthcare Premises (SHTM 03-01)". This is a further provision requiring IHSL to comply with SHTM 03-01 which is not subject to the qualification in paragraph 2.3 concerning any "specific and different requirement". John Ballantyne commented[282] specifically on this provision during his evidence. He claimed that NHSL had satisfied themselves that the EM complied, without providing any explanation for this claim. When it was put to him that this was not what the provision said, he referred to "the unwritten word" and "implied compliance".

[279] Bundle 5 for the April 2023 hearing at page 209
[280] Bundle 5 for the April 2023 hearing at page 232
[281] Bundle 5 for the April 2023 hearing at page 255
[282] Pages 51 and 52 of transcript

106.9. Paragraph 8.7 of the BCRs[283] provided that "Systems shall be design [sic], supplied, installed, tested, commissioned, operated and maintained all in accordance with the regulations and standards." This provision required IHSL's design to comply with SHTM 03-01.

106.10. Paragraph 8.7.8 of the BCRs[284] stated "Project Co shall demonstrate how the proposals facilitate the control and management of an outbreak and spread of infectious diseases in accordance with SHTM 03-01…" This provision required IHSL's design to comply with SHTM 03-01. Other provisions to similar effect include paragraphs 4.5.17[285] and 8.5.3[286].

106.11. The Clinical Output Based Specification ("COBS") formed sub-section D of the BCRs (Specific Clinical Requirements), the most relevant part of which was B1 Critical Care[287]. At 1.8, Environmental and Services Requirements it states[288] "Flexibility in use of the Critical Care beds for both High Dependency and Intensive Care is key to maintaining efficient use of high specification beds… All PICU and HDU bed spaces are required to be of the same specification to allow greatest flexibility of use". At 1.9 "Attention is drawn to the design guidance contained in the following documents: … SHTM 2025: Ventilation". By the time the contract was finalised, SHTM 2025 had been superseded by SHTM 03-01. Notwithstanding the reference to SHTM 2025, it ought to have been readily apparent to IHSL that it required to comply with the current guidance in SHTM 03-01. Taken as a whole, the COBS for Critical Care, which formed part of the BCRs, required compliance with the applicable SHTM and mandated that all bed spaces in PICU and HDU be of the same specification. In his evidence at the April 2023 hearing[289], Stewart McKechnie claimed that the provisions regarding the specification being the same was not an engineering requirement: his interpretation was that this related to layouts, fittings and furniture, not to environmental conditions. The relevant provision does not

[283] Bundle 5 for the April 2023 hearing at page 294
[284] Bundle 5 for the April 2023 hearing at page 304
[285] Bundle 5 for the April 2023 hearing at page 253
[286] Bundle 5 for the April 2023 hearing at page 292
[287] Bundle 5 for the April 2023 hearing at page 376
[288] Bundle 5 for the April 2023 hearing at page 389
[289] Pages 44 and 45of transcript

contain any qualification suggesting that it did not apply to environmental conditions. Indeed, given that the provision comes under the hearing "Environmental and Services Requirements" the most natural meaning of the provision is that it clearly relates to environmental conditions.

106.12. Paragraph 2.5 of the BCRs, Hierarchy of Standards[290] stated "Where contradictory standards / advice are apparent within the terms of the Board's Construction Requirements and the Appendices then subject to the foregoing paragraph then (1) the most onerous standard / advice shall take precedence and (2) the most recent standard / advice shall take precedence. When the more onerous requirement is to be used the Board will have the right to decide what constitutes the more onerous requirement." Insofar as there was any inconsistency between the EM and SHTM 03-01, the more onerous provision would take precedence.

106.13. The existence of paragraph 2.5 addresses the concern articulated at paragraph 201 of CTI 2023 concerning what "compliance" means when guidance is open to different interpretations. In any event, that concern is said to be exemplified by the difference in views between Stewart McKechnie and Michael O'Donnell regarding the correct interpretation of the guidance in SHTM 03-01. For the reasons set out above, Mr McKechnie's claimed interpretation of SHTM 03-01 is not a tenable interpretation. Indeed, the fact that CTI 2023 (at paragraph 306) invited a finding that there was indeed an error in the EM supports the conclusion that Mr McKechnie's claimed interpretation is incorrect.

106.14. Paragraph 8 of the BCRs[291] stated "For the avoidance of doubt the hierarchy of standards and advice detailed in paragraph 2.5 (Hierarchy of Standards) of Sub-section C of the Board's Construction requirements shall apply to this paragraph 8." It is therefore clear that paragraph 2.5 applies in determining the hierarchy as between provisions in the EM and provisions in guidance including SHTM 03-01.

[290] Bundle 5 for the April 2023 hearing at page 216
[291] Bundle 5 for the April 2023 hearing at page 289

106.15. Even if all of that was wrong, and the EM was mandatory and compliance with SHTMs was not required, that does not mean that IHSL's design was compelled to follow the individual cells concerning bedrooms in PICU/HDU/Critical Care. All of the individual entries for rooms in PICU/HDU/Critical Care include "See Guidance Notes" in the "Notes" column. This makes it plain that all of the individual entries are subject to the Guidance Notes. Guidance Note 15 expressly stated (prior to the amendment discussed below) "Critical Care areas – Design Criteria – SHTM 03-01 – esp Appendix 1 for air change rates – 10ac/hr Supply…" Notwithstanding any individual entries, the reader was accordingly directed back to this provision. To the extent there was any conflict in the EM, paragraph 8 of the BCRs made it plain that "for the avoidance of doubt" paragraph 2.5 applies, which requires the more onerous provision to apply. Even if paragraph 2.5 does not apply as between the EM and guidance, there is no obvious reason why it would not apply as between inconsistent entries in the EM. Accordingly, even if the interpretation of the contract advanced by IHSL, MPX and WW is correct regarding the precedence taken by the EM, that has no practical effect in relation to the ventilation issues under consideration by the Inquiry because it was nevertheless compelled to comply with SHTM 03-01 in Critical Care Areas in accordance with Guidance Note 15.

MML's Role in Reviewing the Design

107. Paragraph 12 of CTI 2024 suggests that a "wider theme on the project" is that "It was not always clear exactly what precise role MML were playing". Similar statements are made at paragraphs 44, 45, 50 and from 445 to 450. The full extent of MML's role was not explored in evidence: the focus was on one very narrow aspect of the project (albeit one which ultimately had significant adverse consequences). There is no doubt that the precise terms of MML's instructions were not always set out in writing by NHSL. As Graeme Greer explained[292], some of the assistance was provided on an "ad hoc" basis. This is perhaps understandable given that the project did not always follow a conventional course. It is also consistent with the fact that some of MML's staff were located in the same office as NHSL's project team[293] and worked together with them

[292] Paragraph 9 of his Statement for the February 2024 hearing
[293] Paragraph 6 of Graeme Greer's Statement for the April 2023 hearing

on a collaborative basis. Brian Currie described[294] NHSL as working "collectively as a team" with MML. Timothy Davison noted[295] that MML was commissioned to work as an integral part of NHSL's project team. NHSL's project team included those with technical expertise such as Ronnie Henderson, who were involved in technical discussions with MML regarding numerous aspects of the project. MML considers this to have been a productive method of working and to have been consistent with NHSL's requirements. The nature of the working relationship was rather different from what might be expected in other contexts, such as the provision of legal advice. The comparison made with solicitors at paragraph 450 of CTI 2024 is not a reasonable comparison. On occasions, MML's role involved the provision of formal written advice, such as the Approach to Reference Design paper discussed earlier in this closing statement. MML provided formal written advice in other areas during the project, although these documents have understandably not been considered by the Inquiry as they are not relevant to the ventilation issues. If NHSL had required formal written advice from MML in relation to any of the ventilation issues that arose, it was well aware that this could have been instructed.

108. The available evidence did not disclose any lack of clarity on the part of MML regarding the role it thought it was performing in relation to the particular areas under consideration by this Inquiry. MML's position is that Brian Currie, who was primarily responsible for instructing MML, had a clear understanding of MML's role. In his evidence at the February 2024 hearing[296], Graeme Greer explained that the extent of MML's role had been discussed extensively with Brian Currie. Any lack of clarity seems to have been on the part of members of NHSL's senior management who were not so closely involved in instructing MML and who appear to be proceeding on the basis of a misunderstanding regarding MML's role. This is explored in more detail below in the context of the period from Financial Close to SA1.

109. Before turning to the specifics of MML's role in reviewing the design as the project progressed, there are a number of general points that ought to be borne in mind when considering MML's role in the project.

[294] Paragraph 30 of his Statement for the February 2024 hearing
[295] Page 165 of transcript
[296] Page 97 of transcript

110. The fundamental point is that, throughout the period from Financial Close, design responsibility, including responsibility for ensuring compliance with SHTM 03-01, lay with IHSL. MML was not engaged by NHSL to act as a shadow design team or to provide design assurance.

111. During the course of the Inquiry hearings, the tenor of some of the questioning might have been taken as suggesting that NHSL relied on MML as the only party with technical expertise that was conducting reviews of the design. CTI 2024 conveys a similar impression. However, it is important to note that MML was not the only party that was available to review the design and/or provide input into compliance with SHTMs:

111.1. WW was responsible for checking that all of the ventilation parameters in the EM complied with SHTM 03-01. In his evidence at the February 2024 hearing[297] Stewart McKechnie confirmed that all parameters in the EM, whether they had been in the original EM or had subsequently been added by WW, would have been checked by WW against the applicable guidance. He explained[298] that WW had performed a line-by-line check of the parameters in the EM to confirm compliance. In his evidence at the February 2024 hearing[299], Ken Hall also confirmed that WW had its own quality standards and it was WW's role to check for compliance with guidance.

111.2. In his evidence[300], Darren Pike explained that he would expect MPX personnel to run a sample check against the BCRs and flag anything that was out of kilter. Given the allocation of design risk in the project, it is unsurprising that MPX would perform such a check. Mr Pike also accepted[301] that the design would be checked and approved by IHSL prior to being issued.

[297] Pages 22 and 23 of transcript
[298] Pages 84 and 85 of transcript
[299] Page 113 of transcript
[300] Page 9 of transcript
[301] Page 13 of transcript

111.3. NHSL had appointed an Independent Tester ("IT") whose role included carrying out inspections and providing regular reports setting out compliance issues[302]. Brian Currie explained[303] that the IT was obliged to familiarise itself with the Project Agreement and project documents and flag any inconsistencies – which it failed to do. In her evidence at the February 2024 hearing[304], Susan Goldsmith stated that she would have expected the IT the identify any issue where there was divergence between the contract and the published guidance. She stated[305] that NHSL had a process agreed with the IT giving NHSL assurance that its contractual requirements had been met. She expressed[306] surprise that the IT did not pick up the issue with ventilation in Critical Care.

111.4. NHSL ultimately appointed IOM to check the ventilation as installed. This appointment came very shortly before the hospital was due to open and many months after the ventilation in Critical Care had been constructed. NHSL could have instructed IOM to check the ventilation at an earlier stage.

111.5. NHSL apparently instructed an Authorising Engineer ("AE"), although their role was not examined in any detail during the evidential hearings. According to Donald Inverarity[307], the AE would have been a "key participant" in any discussions regarding deviations from the guidance. He continued[308] that determination of whether the ventilation is designed in accordance with SHTM 03-01 is "best performed" by an AE. In her evidence[309], Mary Morgan noted that the AE was much more heavily engaged during the remedial works than they had been previously. The AE provided a Design Assurance Statement[310] in relation to the remedial works. It is unclear to what extent NHSL sought input from the AE on this project prior to the remedial works being conducted. In any event, it is clear that if NHSL required design assurance, the appropriate party to provide that assurance was the AE.

[302] Bundle 4 for the February 2024 hearing at page 229
[303] Paragraph 182(vii) of his Statement for the February 2024 hearing
[304] Page 61 of transcript
[305] Page 71 of transcript
[306] Page 125 of transcript
[307] Page 42 of transcript
[308] Page 98 of transcript
[309] Page 258 of transcript
[310] Bundle 1 for the February 2024 hearing at page 3008

111.6. NHSL relied on advice from HFS regarding compliance with SHTMs. For example, NHSL sought advice from HFS regarding the application of SHTM 03-01 in relation to four bed room ventilation[311]. According to Mary Morgan[312], HFS also provided advice, support and scrutiny during the remedial works. NHSL could have sought further advice from HFS in relation to matters such as the Technical Schedule to SA1, but apparently chose not to do so.

111.7. NHSL relied on advice from its own Infection Prevention and Control Team ("IPCT") regarding compliance with SHTMs. For example, NHSL sought some limited advice from the IPCT regarding the application of SHTM 03-01 in relation to four bed room ventilation. This is considered in more detail later in this closing statement. NHSL could have sought further advice from the IPCT in relation to matters such as the Technical Schedule to SA1, but apparently chose not to do so. In her evidence at the February 2024 hearing[313], Susan Goldsmith recognised that there may not have been the right level of input from the IPCT.

111.8. NHSL engaged an independent expert, David Rollason[314] to provide advice on the ventilation requirements for four bed rooms for the purpose of proposed litigation by NHSL against IHSL.

112. When reviewing documentation related to the project, there is a danger in assuming that, just because an employee of MML was copied into correspondence or was present at a meeting, this means that MML was engaged in its role as technical advisor to provide technical advice on matters raised in that correspondence or during that meeting. It is important to recognise that MML acted, not just as technical advisors, but also as project managers; and that most of the MML employees involved in the project were not ventilation engineers. It is also important to recognise that MML acted upon the instructions of NHSL regarding the tasks that it was required to undertake.

[311] Bundle 13, volume 8 for the February 2024 hearing at page 2340
[312] Page 258 of transcript
[313] Page 54 of transcript
[314] Bundle 13, volume 9 for the February 2024 hearing at page 30

For example, although MML employees were copied into (i) email correspondence regarding the risk assessment prepared by NHSL in July 2017[315]; and (ii) email correspondence in April 2018 confirming the brief for air change rates in four bed rooms[316], those individuals from MML that were copied into this correspondence were not ventilation engineers and the correspondence does not suggest that MML was being asked to provide any technical input or advice on these issues. These matters are discussed in further detail below. For the avoidance of doubt, Graeme Greer explained in his evidence at the February 2024 hearing[317] that he, Mo Brown[318], Kamil Kolodziejczyk and Kelly Brown were on the project management team.

113. At paragraph 72 of CTI 2024, it is noted that "Engineers (including Colin MacRae) and project managers (including Mr Greer) attended meetings and were copied in to key correspondence regarding the development of the design." Although it is correct to say that MML employees, including Mr Macrae and Mr Greer, attended some meetings and were copied into some correspondence, it would be incorrect to assume that all key MML personnel were present at all relevant meetings or were copied into to all relevant correspondence. In the following sections, particularly the section on the four bed room issue, these submissions attempt to provide a precise summary of MML's involvement.

114. A further factor to bear in mind when considering MML's role in reviewing the design is the danger of approaching matters with the benefit of hindsight where the sole focus is on one particular issue. The reality was that MML was conducting its reviews in the heat of a complicated project, that was running behind time, and with a tsunami of information being submitted to it for review.

115. It is submitted that these factors should be borne in mind when considering MML's role in reviewing the design. In the following section, MML sets out its position in relation to its role during the progression of the project.

[315] Bundle 13, volume 8 for the February 2024 hearing at page 449
[316] Bundle 1 for the February 2024 hearing at page 2042
[317] Page 91 of transcript
[318] Although the transcript records that Mr Greer referred to "Rob Brown", the person he was referring to is named Mo (or Maureen) Brown.

Reference Design Stage

116. The terms of MML's appointment included, amongst the Technical Advisor Scope[319], an entry to "Check Reference Design for compliance with all appropriate NHSL and legislative guidelines and requirements (list as pre-agreed with NHSL) and identify any derogations". It should be noted that, contrary to the wording at paragraph 269 of CTI 2023, MML's obligation was not to "ensure" compliance. The agreed estimate was that MML would allocate 5 man days for this task with a total value of £2,605. Comparison with other elements that fell under MML's area of responsibility shows that this was a very modest sum, suggesting that this was envisaged to be a relatively small task. The allocation of 5 man days with a total value of £2,605 would have been clear to NHSL.

117. At the April 2023 hearing[320], Richard Cantlay explained that this task involved obtaining confirmation that the reference design had been developed in accordance with the applicable guidance and an understanding of any non-compliances or derogations. He described the task as a process of getting to the point of obtaining the written confirmation from the reference design team. That process is evidenced by the email sent by MML dated 28 February 2012 requesting the compliance statement[321]. The email attached a "Reference Design Compliance Statement Requirements Schedule" which had presumably been prepared by MML as part of the process described by Richard Cantlay. The design compliance statement and derogations list dated 16 March 2012[322] contained comments on multiple pieces of guidance. Although the one concerning SHTMs was a simple statement of confirmation, some of the other entries made reference to derogations from the guidance. MML would have had to consider these derogations. It would accordingly be wrong to view the process as no more than MML asking for confirmation of compliance and the reference design team confirming that there had been compliance: the task involved an understanding of multiple different guidance documents and the extent to which they had been derogated from.

[319] Bundle 2 for the April 2023 hearing at page 86
[320] Pages 54 to 56 of transcript
[321] Bundle 4 for the April 2023 hearing at page 322
[322] Bundle 4 for the April 2023 hearing at page 324

118. Richard Cantlay's evidence at the April 2023 hearing[323] was that the task mentioned in the Technical Advisor Scope was not to be an independent check of the reference design by MML. Such a detailed review would not be required because a competent design team had been appointed to do the design work. To put this explanation in context, it is relevant to note that the total fee to the reference design team was £1,715,000[324]. H&K's fee alone was £300,000. As Stewart McKechnie noted in his evidence at the April 2023 hearing[325], the EM itself (which represented only one part of the reference design) contained 50,000 boxes and would have required months to check for compliance. Given the time and cost allocated to MML's check of the reference design, it is apparent that the Technical Advisor Scope did not contemplate a full design audit.

119. It may be relevant to note that the Technical Advisor Scope formed part of a contract entered into in March 2011, before the formal appointment of the reference design team by Contract Control Order No 290961/02[326] dated 11 July 2011. The Technical Advisor Scope was accordingly a prospective assessment of the work that, it was anticipated, would be performed. The final box under the heading "Procurement of NPD Co including Competitive Dialogue" (of which the entry "Check Reference Design" formed a part), states "All items above assume contract to be based on Standard PPP Form Contract." The contract was not a standard form PPP contract. In her evidence at the April 2023 hearing[327], Susan Goldsmith stated that the inclusion of a reference design was a departure from a normal PPP. It is therefore unclear to what extent this provision regarding checking the reference design remained relevant given the form of contract that was ultimately entered into.

120. In any event, the reference design team had an obligation to check the reference design against the applicable guidance. The reference design team, including H&K, produced a reference design compliance statement and derogations list dated 16 March 2012[328]. This stated, amongst many other entries, "We have followed SHTMs and also HTMs when there is no Scottish equivalent." Although Michael O'Donnell noted[329] that a

[323] Page 55 of transcript
[324] Bundle 2 for the April 2023 hearing at page 177
[325] Page 76 of transcript
[326] Bundle 2 for the April 2023 hearing at page 174
[327] Page 17 of transcript
[328] Bundle 4 for the April 2023 hearing at page 324
[329] Paragraph 30 of his Statement for the April 2023 hearing

further updated EM was subsequently produced in September 2012, he did not suggest that this would have affected the previous confirmation that SHTMs had been followed. He did not suggest that the EM had been revised after March 2012 in a manner that was inconsistent with SHTMs. Insofar as the EM potentially failed to comply with SHTM 03-01 in relation to rooms in Critical Care, H&K was unaware of that issue. In any event, in his evidence[330], he stated that in order to make the compliance statement, checks were made in relation to the guidance notes. Given that these guidance notes did not change between March 2012 and September 2012, the results of any checks would have been the same. He went on to state[331] that he did not think any design work had taken place between February 2012 and September 2012. Accordingly, had H&K been asked to provide a further design compliance statement and derogations list after producing the revised EM in September 2012, it is a reasonable assumption that it would have been in the same terms as the document provided in March 2012.

121. At paragraph 88 of CTI 2024, it is stated that when "the reference design documentation was produced, MML had confirmed that the documentation complied with published guidance, including SHTM 03-01." This is presumably a reference to the process by which MML obtained a compliance statement from the reference design team. For the avoidance of doubt, MML did not itself confirm that the reference design complied with SHTM 03-01.

122. In light of the design compliance statement and derogations list provided by the reference design team, MML proceeded on the basis that the EM prepared by H&K had been checked to ensure that it complied with the applicable guidance including SHTM 03-01. As CTI 2023 suggested at paragraph 269, there was little more MML could, or should, have done.

123. Brian Currie was specifically asked[332], under reference to the Technical Advisor Scope, whether MML should have picked up the inconsistencies in the EM during the reference design period. Although he considered it to be "unfortunate" that MML did not pick up the inconsistencies, he did not go so far as to conclude that MML should have done

[330] Page 85 of transcript
[331] Pages 86 and 87 of transcript
[332] Paragraph 36 of his Statement for the February 2024 hearing

so. He noted that MML had obtained the compliance statement from the reference design team and may have been reassured by that. His evidence is entirely consistent with the position set out by MML in the preceding paragraphs.

Period to Financial Close

124. MML's role during the procurement phase, including the evaluation of tenders has been set out in detail earlier in this closing statement.

Financial Close to Settlement Agreement 1

125. According to the Technical Advisor Scope in MML's appointment[333], MML's role as Technical Advisor following Financial Close was primarily "Management of [RDD] process on behalf of authority…" Graeme Greer described[334] the role as providing project management support and ad hoc technical support to NHSL's reviews of IHSL's design. He noted[335] that IHSL had been employed to undertake the design and design check and that NHSL did not ask MML to duplicate that work. During this period, MML's appointment did not include any requirement to check IHSL's design for compliance with guidance or the BCRs.

126. On 4 June 2018, Graeme Greer sent an email to Brian Currie expressing concerns about SA1 significantly altering the Project Agreement risk allocation[336]. The email also confirmed the limits of MML's role in relation to reviewing design submissions and providing design assurance. It stated: "Furthermore, I don't think the Board is in a position to fully confirm compliance with the BCRs, the burden of responsibility should always remain with Project Co. As we are not the designers, Mott MacDonald would not be in a position to provide that design assurance to NHSL." During the remedial works, MML sent an email to NHSL dated 4 May 2020[337] in response to a request that MML provide a design assurance statement. The email stated that "Our Advisory Services are inconsistent with providing a Design Assurance Statement, and as such I

[333] Bundle 2 for the April 2023 hearing at page 87
[334] Paragraph 9 of his Statement for the February 2024 hearing
[335] Paragraph 11 of his Statement for the February 2024 hearing
[336] Bundle 13, volume 5 for the February 2024 hearing at page 1272
[337] Bundle 3 for the February 2024 hearing at page 943

hope you can understand we are unable to do so. Any assurance regarding design compliance… we believe should be provided by Project Co. MML assists the Board in providing Advisory Services, not design or design assurance… our scope clarifies that we are unable to validate, check, endorse, sign off or approve the design… We cannot confirm that Project Co's design will meet the requirements of Part A without undertaking design, and we cannot be Designer and client Advisor at the same time." Although this later piece of correspondence dates from during the remedial works, it is consistent with the role played by MML throughout the project.

127. A similar issue arose in relation to the AHU Remedials Cover Sheet[338]. Although the redacted version included in the Inquiry Bundles makes it look like MML had signed off on the compliance of the AHUs (and a question[339] was put to Stephen Maddocks on this basis), it is apparent from a review of the unredacted version of this document that MML did not sign it. This document had been sent to MML by email from Ronnie Henderson on 21 May 2020. MML responded by email dated 29 May 2020 that "you will appreciate MML would not be able to sign off or approve the AHU's".

128. MML did not receive any response from NHSL to any of this correspondence that suggested that NHSL had a different understanding of the limits of MML's role.

129. It became apparent during the February 2024 hearing that some of those within NHSL's senior management were proceeding on the basis of a fundamental misunderstanding of MML's role. In particular, in her evidence[340], Susan Goldsmith stated that her understanding was that MML was "providing assurance to the Board" that IHSL was delivering the hospital that would meet the BCRs. She continued that MML's "responsibility simply was to ensure that [the BCRs] were delivered by IHSL". Ms Goldsmith's understanding of MML's role is incorrect. It did not appear to be shared by those who had a better understanding of the scope of MML's appointment, such as Brian Currie and Ronnie Henderson. It is inconsistent with the documentation set out in the preceding paragraphs. It is inconsistent with the risk allocation in an NPD

[338] Bundle 1 for the February 2024 hearing at page 3233
[339] Page 69 of transcript
[340] Page 46 of transcript

project. Although Ms Goldsmith expressed[341] a concern that the issue with the Critical Care ventilation had not been identified by MML, that concern was presumably motivated by her inaccurate expectations of the role that MML had been engaged to perform. Given her stated understanding of MML's scope it is understandable that she would have been critical of MML's performance: however, with an accurate understanding of MML's appointment, such criticisms ought to fall away. In his evidence[342], Timothy Davison expressed his expectation that MML would have picked up the issue with Critical Care ventilation: however, as he conceded[343], he was not involved in the detail of MML's appointment, so he is not best placed to comment on whether MML ought to have identified this issue. Indeed, given his level of seniority and lack of engineering expertise, it is unrealistic to suppose that Mr Davison has the technical expertise to form a reasonably informed view on what ought to have been expected of a technical advisor in the particular circumstances of this project.

130. In any event, Ms Goldsmith appeared to recognise that there was some uncertainty about the scope of MML's appointment. In her evidence at the February 2024 hearing[344] she drew a distinction between technical advisors who were appointed to provide advice as part of a team; and technical advisors who were appointed to provide formal, professional advice supported by professional indemnity insurance. She suggested that for future projects NHSL was working on providing clearer instructions about the basis of such appointments. The available documentation suggests that MML's appointment fell into the first of Ms Goldsmith's two categories. As Timothy Davison noted in his evidence[345], MML was commissioned to work as an integral part of NHSL's project team.

131. During the period post Financial Close, MML did conduct reviews of design submissions made by IHSL. However, as Graeme Greer explained[346], any such reviews were conducted within the framework of the RDD process. These were "collaborative sample review[s] in the context of the operational functionality risk allocation"[347].

[341] Page 9 of transcript
[342] Page 165 of transcript
[343] Page 222 of transcript
[344] Page 48 of transcript
[345] Page 165 of transcript
[346] Paragraph 9 of his Statement for the February 2024 hearing
[347] Paragraph 10 of his Statement for the February 2024 hearing

132. The RDD process is a contractual mechanism set out in the Project Agreement. The relevant provisions are to be found at Schedule Part 8[348]. Clause 4.5[349] stipulates that the return of any RDD endorsed by NHSL as Level A, B or C "shall mean that the relevant Submitted Item may be used or implemented for the purposes for which it is intended but, save to the extent expressly stated in this Agreement including, without limitation, as specified in Appendix 1 Table A to this Schedule Part 8 (Review Procedure), such return or deemed return of any Submitted Item shall not otherwise relieve Project Co of its obligations under this Agreement nor is it an acknowledgement by the Board that Project Co has complied with such obligations." Appendix 1 Table A[350] states that Level A or B endorsement of Room Data Sheets confirms that "the Board is satisfied that the design and other information in the relevant room data sheets satisfies Operational Functionality". Similar provisions are made in relation to various types of drawings. The EM is not included in Appendix 1 Table A. The fact that the qualification related to Operational Functionality applied in relation to some aspects of the design, but not in relation to the EM, perhaps reflects the fact that the EM contained parameters that went well beyond Operational Functionality. The concept of Operational Functionality has little obvious application in relation to the EM.

133. It is therefore clear from the unambiguous terms of the Project Agreement that endorsement of the RDS or EM as Level A, B or C in accordance with the RDD process meant no more than that IHSL could use them for the purpose for which they were intended: it did not otherwise relieve IHSL of its obligations under the Project Agreement. So far as the RDS were concerned, endorsement at level A or B, meant that NHSL was satisfied that they satisfied Operational Functionality. However, any endorsement of the EM did not even go so far as to confirm that it satisfied Operational Functionality. At paragraph 75 of CTI 2024, it is stated that "the only contractual effect of NHSL's approval was to confirm that the approved item satisfied NHSL's requirements for Operational Functionality." Although this statement is correct in relation to some elements of RDD, such as the RDS, it is incorrect in relation to the EM.

[348] Bundle 5 for the April 2023 hearing at page 1491
[349] Bundle 5 for the April 2023 hearing at page 1498
[350] Bundle 5 for the April 2023 hearing at page 1500

134. This understanding of the RDD process is consistent with the evidence of Brian Currie[351]. He explained that he repeatedly explained to MPX and IHSL that NHSL would be reviewing IHSL's design in terms of the RDD protocol in relation to Operational Functionality only, albeit during the process of review issues were identified that went beyond Operational Functionality.

135. In addition to the explanations provided by Mr Currie, MML provided several reminders to IHSL and MPX during the RDD process regarding the risk allocation. On 15 April 2016, MML sent a message to MPX[352] attaching comments on the EM. The message stated "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 BCRs and PCPs. Any non-compliance with the BCRs and PCPs should be highlighted to the Board." On 17 October 2016, MML sent an email to IHSL[353] which concluded "Whilst the Board has noted general and specific comments above, the Board reminds Project Co that unless the Board has already accepted a derogation, it is Project Co's obligation to comply with the BCR's/SHTMS [sic] etc, and the Board not commenting, does not remove that obligation on Project Co."

136. It was apparent during the course of the February 2024 hearing that witnesses from MPX and WW had a fundamental misunderstanding about the nature of the RDD process. In his evidence[354], Darren Pike stated that he understood RDD approval "to be confirmation that the design… met the requirements of the contract". He went on to state that he understood NHSL to be approving that ventilation parameters such as air changes and pressure regimes "met their brief". He made similar comments in his statement[355], although he did not back any of them up with reference to any of the contractual documentation. In his evidence at the February 2024 hearing[356], Ken Hall stated that his understanding was that NHSL and MML were reviewing the design, including the EM, "to ensure that it was meeting the client's requirements". Stewart

[351] Paragraph 30 of his Statement for the February 2024 hearing
[352] Bundle 13, volume 5 for the February 2024 hearing at page 1097
[353] Bundle 14 for the April 2023 hearing at page 339
[354] Page 11 of transcript
[355] Paragraphs 9, 20 and 55 of his Statement for the February 2024 hearing
[356] Page 129 of transcript

McKechnie stated[357] that, in the RDD process, the technical advisor "scrutinises the proposals for their compliance with the design brief or contractor's proposals". He also suggested[358] that, if NHSL did not comment on an entry in the EM, "this was taken as acceptance by NHSL of that entry". In his evidence[359] he clarified that, by this, he meant that, if NHSL did not comment, he took this as NHSL confirming that this was the brief.

137. At one point in his statement[360], Stewart McKechnie seemed to accept that the RDD process involved NHSL checking that the design met Operational Functionality. He then went on to suggest that Operational Functionality "covered performance, control and maintainability of system". However, in his evidence at the February 2024[361], he explained that he only recently looked into the phrase; that he did not see its relevance to engineering systems; and that it was not concerned with ventilation parameters. Similarly, Darren Pike conceded[362] that Operational Functionality did not include output parameters to be achieved by the ventilation system.

138. Against the background of the clear contractual provisions regarding the RDD process, and the repeated reminders from NHSL and MML, it is concerning that senior personnel employed by the contractor appeared to be unfamiliar with the terms of the contract and to have an entirely erroneous understanding of this important feature of the contract. The nature of the RDD process is not a matter of opinion where each witness can form their own view: it is determined by the contract.

139. At paragraph 77 of CTI 2024, it is stated that NHSL and MML "approached the RDD process with an attitude which more closely reflected the design risk allocation of the Project Agreement". The approach taken by NHSL and MML to the RDD was entirely consistent with the terms of the Project Agreement. The approach taken by MPX/WW was inconsistent with the terms of the Project Agreement, apparently because key personnel had not familiarised themselves with the contractual provisions regarding the

[357] Paragraph 21 of his Statement for the February 2024 hearing
[358] Paragraph 40 of his Statement for the February 2024 hearing
[359] Pages 27 and 28 of transcript
[360] Paragraph 27 of his Statement for the February 2024 hearing
[361] Page 6 and 7 of transcript
[362] Page 15 of transcript

RDD process. At paragraph 86 of CTI 2024, it is noted that development of the EM "proceeded in a generally unsatisfactory way", with WW being frustrated by difficulty getting NHSL's agreement. WW's reported frustration and any resulting unsatisfactory progress was the result of the inaccurate understanding that MPX/WW had of the RDD process. Similarly, at paragraph 92 of CTI 2024, it is stated that "the operation of the RDD process in relation to the environmental matrix and the ventilation design was unsatisfactory. The parties approached it at cross-purposes." MML agrees with this observation: however, it is important to understand that parties were at cross-purposes because MPX/WW did not understand the contractual provisions regarding the operation of the RDD process. Had MPX/WW conducted themselves in accordance with the contractual provisions, the RDD process would have proceeded in a more satisfactory manner. Nevertheless, it would not have altered the outcome in the present case: WW would still have produced a finalised design that failed to comply with SHTM 03-01.

140. In any event, notwithstanding his erroneous understanding of the RDD process, Darren Pike accepted[363] that the RDD process did not remove the design obligations from MPX, and that it still had an obligation for the design to meet the employer's requirements. He conceded[364] that IHSL was responsible for ensuring that the EM, including the air change parameters for Critical Care, was compliant with the BCRs and SHTM 03-01 (unless there was a derogation).

141. At paragraph 4.4 of PPP8, it is suggested that the RDD process involved "approval of the final design". Having regard to the provisions in the Project Agreement concerning the RDD process, this conclusion is plainly incorrect. Similarly, the document entitled RHCYP/DCN Critical Care Ventilation Systems Review by Stephen Maddocks dated 13 December 2023[365] appears to proceed on the basis of a fundamental misunderstanding regarding the RDD process and the limited nature of any endorsement provided by NHSL. At paragraph 3.2.8 it is suggested that 4ac/hr "was agreed" and notes that there was "no adverse comment by NHSL or its advisors on the content of these room data sheets." A similar comment is made at paragraph 3.4.1

[363] Page 16 of transcript
[364] Pages 28 and 29 of transcript
[365] Witness Bundle volume 1 for the February 2024 hearing at page 3

regarding an "agreement to the lower AC/HR". These comments reflect a misunderstanding of where design risk lies in an NPD project, and the limited nature of any approvals provided by NHSL. Mr Maddocks does not appear to have had access to the evidence led before the Inquiry regarding the limited nature of the reviews conducted by NHSL and MML. Nor does he appear to have analysed the contractual provisions regarding the RDD process.

142. NHSL used the RDD process as an opportunity to make comments on submissions made by IHSL. RDD submissions by IHSL would be received by MML's project management team. They would then be disseminated to all stakeholders, including those within NHSL. MML's technical personnel and other stakeholders conducted reviews of the RDD as part of this process. The consolidated comments of all stakeholders would then be fed back to IHSL. Although MML would manage the process and provide its own comments following its own spot checks, MML was not the only party conducting a review for the purposes of the RDD process. Nevertheless, any such reviews and comments must be understood within the contractual context: design risk remained with IHSL and the endorsement of any RDD did not alleviate IHSL of its obligation to comply with the Project Agreement, including its obligation to comply with the BCRs.

143. In order to manage the RDD process, parties had agreed a schedule for submission of design proposals by IHSL. Graeme Greer explained[366] that IHSL continually failed to adhere to this schedule. This led to the review team being overburdened with material. Brian Currie described[367] times when there was a "tsunami of information" which made it a "very demanding process" that went on for months, if not years, due to the "sheer volume of design information that was coming in". Had the design proposals been submitted in an orderly fashion in accordance with the agreed schedule, the review process would have been easier. Although it remains unlikely that MML would have identified the potential issue with the ventilation design in such a scenario (given the limited nature of the reviews being undertaken) it is at least conceivable that there would have been a different outcome.

[366] Paragraph 19 of his Statement for the February 2024 hearing
[367] Paragraph 142 of his Statement for the February 2024 hearing

144. Throughout the project, MML's role did not involve conducting a line-by-line check to ensure compliance with the guidance. Graeme Greer explained[368] that MML undertook sample reviews of aspects of the design but that IHSL was responsible for the design of the project. He noted in his evidence at the April 2023 hearing[369] that this was due to the risk allocation in an NDP project; it came back to who was best placed to take the risk in such a project. However[370], it was beneficial to NHSL for MML to do some level of review to assist in IHSL developing their proposals. In his evidence at the February 2024 hearing[371] he explained that a lighter approach had been taken in other NPD projects, but that NHSL wanted "some eyes on the Project Co design" due to issues at the Royal Infirmary of Edinburgh. He noted in his evidence at the April 2023 hearing[372] that this level of review was in keeping with discussions that he had had with Brian Currie of NHSL, who had asked why they would employ MML to do the design if someone else had already been employed to do it. Mr Greer confirmed that NHSL was aware that MML was doing a sampling exercise rather than an audit. He recalled[373] discussions with NHSL regarding MML conducting a line-by-line review in addition to a review by WW: NHSL's position was "why… pay twice for the same work product". In his evidence at the February 2024 hearing[374], he explained that the extent of MML's role had been discussed extensively with Brian Currie. This understanding is consistent with the evidence of Ronnie Henderson at the February 2024 hearing[375] who confirmed his understanding that MML was "reviewing for operational functionality" and was not undertaking a "design assurance review function" or acting as a shadow design team[376]. He also confirmed his understanding that the EM was difficult to review in its entirety and that MML was doing sample reviews[377].

145. Willie Stevenson[378] spoke to the reviews he conducted on the drafts of the EM produced by IHSL. He described this as a "sample review or spot check" not a "line-by-line check or audit". He noted that it would not have been practical to conduct such a

[368] Paragraph 8 of his Statement for the April 2023 hearing
[369] Page 22 of transcript
[370] Page 25 of transcript
[371] Page 96 of transcript
[372] Page 27 of transcript
[373] Paragraph 11 of his Statement for the February 2024 hearing
[374] Page 97 of transcript
[375] Page 57 of transcript
[376] Page 58 of transcript
[377] Page 65 of transcript
[378] Paragraphs 14 and 23 of his Statement for the April 2023 hearing

detailed check given the timescales involved. He stated that they would take care not to make suggestions that might lead to MML becoming designer by default as that was not MML's role. In his evidence[379] he noted that there were over 1,100 lines in the EM and that a full line-by-line review of just the electrical information would take 2.5 days if he was uninterrupted and everything went smoothly: however, on the mechanical side there would be a lot more information to check. After the Preferred Bidder was appointed, he noted[380] that they would still perform sample checks which was because design responsibility lay with IHSL. Colin Macrae also stated[381] that it was not MML's role as Technical Advisor to do a line-by-line check of the EM – it was IHSL's responsibility to produce a compliant design. He would undertake "sample reviews" of each version of the EM produced by IHSL. The spot checks were aimed at ascertaining that the design development was progressing. He noted[382] that the level of review he undertook on this project was in line with the reviews he used to undertake on other projects. He stated[383] that he would be careful to avoid offering design solutions as MML was not the designer. In his evidence he suggested[384] that, after the preferred bidder was appointed, his reviews got "more focussed". He described[385] this as looking for anomalies, although it was done at a "fairly high level". He noted that a line-by-line review would be time consuming and very onerous. David Stillie advised[386] that doing a full check of the design from the architectural perspective would have been a huge job: once the design was developed there was a huge volume of information which would make it "well nigh impossible" to do a line-by-line check. To adopt the words at paragraph 320 of CTI 2023, to detect the sort of issue which arose with the EM would require a disproportionate duplication of technical expertise at undue cost. As CTI note at paragraph 58 of the CTI 2024, the only way that the problems would have been detected would have been with "a full technical audit".

146. The focus of reviews conducted by MML was primarily in relation to changes that had been made to the design. Graeme Greer noted[387] that the remit was to undertake sample

[379] Pages 21 to 23 of transcript
[380] Page 24 of transcript
[381] Paragraph 18 of his Statement for the April 2023 hearing
[382] Paragraph 58 of his Statement for the April 2023 hearing
[383] Paragraph 19 of his Statement for the April 2023 hearing
[384] Page 24 of transcript
[385] Page 25 of transcript
[386] Page 41 of transcript
[387] Paragraph 26 of this Statement for the February 2024 hearing

reviews with a particular focus on specific changes highlighted by IHSL. This is consistent with Ken Hall's evidence at the February 2024 hearing[388] that his experience of the RDD process was that only changes would be reviewed. This is significant in the context of the air change rates for the rooms in Critical Care as they did not change from the reference design EM.

147. Although MML's role was primarily to review design submissions in relation to Operational Functionality in accordance with the RDD process, MML did identify matters that went beyond Operational Functionality, which were then raised with IHSL. In his evidence at the February 2024 hearing[389], Graeme Greer explained that if there were "readily apparent, clearly obvious issues", these would be flagged for compliance with guidance. In his evidence at the February 2024 hearing[390], Ronnie Henderson explained that, if MML spotted things that were clearly wrong or clearly an issue, they would be flagged. He noted that MML would provide advice on compliance with SHTM 03-01 "if it was identified"[391]. Although this led to a passage of evidence that suggested some degree of reliance by NHSL on MML in relation to compliance with guidance, this passage must be viewed in the context that Mr Henderson was clear[392] that MML did not provide design assurance and[393] that any comments made by MML that went beyond Operational Functionality only occurred when MML spotted things that were clearly wrong. In his evidence at the February 2024 hearing[394], Stewart McKechnie also noted that what happened during the RDD process went beyond Operational Functionality. This reflects the fact that MML would make comments on issues that it had identified: it does not undermine the contractual provisions regarding the limited nature of any approval under the RDD process and the allocation of design responsibility. Insofar as MML provided comments that went beyond Operational Functionality, it was going further than the Project Agreement, and the terms of its own appointment, required.

[388] Page 142 of transcript
[389] Page 103 of transcript
[390] Page 58 of transcript
[391] Page 59 of transcript
[392] Page 57 of transcript
[393] Page 58 of transcript
[394] Page 10 and 11 of transcript

148. MML's position regarding the level of checking of the EM that would have been feasible was supported by some of the evidence given by Stewart McKechnie. His evidence at the April 2023 hearing[395] was that there were 50,000 entries on the EM[396] so there was a limit on what could be done by way of reviewing the matrix: he would only look at the "key parameters". He stated[397] that, to check every single parameter in the EM for compliance with guidance would have taken "months of work" and it would be almost like reinventing the EM. He described[398] the task as "impossible". Similarly, when it was suggested to Ken Hall at the April 2023 hearing[399] that IHSL ought to have carried out a detailed review of the EM he considered that this would "not have been possible", a "very difficult job" and a "highly unreasonable request". It is unclear to what extent Mr McKechnie's evidence on this matter at the April 2023 hearing is consistent with his evidence at the February 2024 hearing. At the latter hearing[400] his position was that all parameters in the EM would have been checked by WW against the applicable guidance. He confirmed[401] that this was a "line-by-line" check. Based on his evidence[402] there can be no doubt that Mr McKechnie accepted that it was WW's responsibility to ensure that the parameters complied with the guidance. Given his conflicting evidence at the two hearings, it is less clear whether WW actually performed a thorough check to confirm that WW was complying with this responsibility. Against the background of Mr McKechnie's untenable claimed interpretation of SHTM 03-01; and his inexplicable failure to highlight the change to Guidance Note 15, this does raise concerns about whether the error in the EM was caused by WW's failure to conduct a thorough check of the EM for compliance with SHTM 03-01 rather than any genuine difference of opinion on the appropriate interpretation of SHTM 03-01.

149. In any event the evidence from MML witnesses concerning the practicability of performing a line-by-line check is consistent with the evidence of Peter Henderson from HFS who stated[403] "For an external body to carry out a full check for compliance with

[395] Pages 15 and 76 of transcript
[396] As NHSL noted in its response to paragraph 7.8 of PPP8, the EM is a 2,350 line document with 25 columns, giving 58,750 entries
[397] Pages 76 and 77 of transcript
[398] Page 83 of transcript
[399] Pages 139 and 140 of transcript
[400] Pages 22 and 23 of transcript
[401] Pages 84 and 85 of transcript
[402] Page 23 of transcript
[403] Paragraph 45 of his Statement for the April 2023 hearing

all relevant guidance it would require the employment of a full shadow design team. (This level of involvement could potentially diminish the level of liability of the original designer)." Similarly, Thomas Rodger of NHS Scotland Assure noted[404] that Assure would review only a sample of RDS "as we are not a shadow design team". Similarly, he stated[405] that Assure would not undertake a full line-by-line check of an EM because Assure is not a shadow design team. The clear implication of his evidence[406] was that, unless a body is appointed as a shadow design team, it would be unreasonable to expect it to do more than a sample review of design submissions. MML was not employed to be a full shadow design team. Although Ken Hall's statement[407] suggested that MML were "resourced almost like" a shadow design team, that does not mean that they were one. At the February 2024 hearing[408] Ronnie Henderson confirmed his understanding that MML was not acting as a shadow design team. In her evidence at the April 2023 hearing[409], Janice MacKenzie of NHSL stated that she would not agree with the suggestion that MML was a shadow design team as she did not think they were there to design. Willie Stevenson[410] expressed the view that MML was definitely not a shadow design team and had no design responsibility whatsoever on the project. David Stillie stated[411] that he did not at any time consider that MML were anything like a shadow design team. At the April 2023 hearing[412], Graeme Greer explained that MML definitely did not have a design team working on the project. He noted that this was due to the risk allocation in an NPD project; it came back to who was best placed to take the risk in such a project. In his evidence at the April 2023 hearing[413], Richard Cantlay explained that the term "shadow design team" is not terminology that he would associate with a revenue funded project due to the arrangements concerning where design risk sits.

150. The evidence from MML witnesses concerning the practicability of performing a line-by-line check is also consistent with the evidence of Lindsay Guthrie. She described[414]

[404] Paragraph 132 of his Statement for the February 2024 hearing
[405] Paragraph 205 of his Statement for the February 2024 hearing
[406] See also paragraph 239 of his Statement for the February 2024 hearing
[407] Paragraph 43 of his Statement for the April 2023 hearing
[408] Page 58 of transcript
[409] Page 19 of transcript
[410] Page 13 of transcript
[411] Page 41 of transcript
[412] Page 24 of transcript
[413] Page 51 of transcript
[414] Paragraph 185 of her Statement for the February 2024 hearing

an exercise during the remedial works in which she and Dr Inverarity, supported by personnel from MML, conducted a line-by-line check of the ventilation parameters in the EM. In particular, this check concerned "supply, extract, air change rate, air pressure". It should be noted that this would not have been a complete check of EM, which included many parameters beyond the four that were checked by Ms Guthrie. She described the process as being "very time-consuming", requiring significant concentration. It took "several meetings, lasting several hours over several weeks". Plainly a full line-by-line check of all of the parameters in the EM would have taken significantly longer; and a complete check of the entirety of the design longer still. MML cannot reasonably have been expected to conduct such a check without clear instructions to do so, which would no doubt have had significant consequences in terms of the time and cost of performing such a review.

151. MML's position regarding the nature of the checks conducted by it appeared to be disputed by Liane Edwards who spoke[415] to very detailed comments coming back regularly. She did not consider MML to be conducting light touch, sample reviews. However, Ms Edward's role related to architectural matters, not to M&E. The specific examples provided by her (such as the size and number of screws or the colour of cladding) had no bearing in M&E matters. The evidence from MML witnesses regarding conducting sample reviews related primarily to M&E matters, particularly the EM, not to architectural matters. Accordingly, Ms Edwards' recollections regarding the detailed nature of MML's review of matters that she was involved in have no obvious bearing on the extent of MML's reviews of the EM. Similarly, although Paul Serkis commented on the level of detail in MML's review of documents submitted by IHSL, this related specifically to the PCPs, not to the EM. Although he claimed[416] that NHSL/MML were "changing the fundamentals… altering the basis of the bid which they had accepted", in his evidence[417] he could not provide any examples: in any event, this comment did not seem to relate specifically to M&E aspects and/or to the EM.

[415] Page 23 of transcript
[416] Paragraph 46 of his Statement for the April 2023 hearing
[417] Page 44 of transcript

152. In his evidence[418], John Ballantyne asserted that he saw MML as checking PCPs to ensure compliance with the BCRs but did not provide any explanation of the basis upon which MML would be undertaking such a task. He claimed that MML was reviewing submissions line-by-line, but it is unclear how he would be in a position to comment on what MML were doing as he was not part of MML's team and was not privy to the terms of MML's appointment. In his evidence[419] Darren Pike claimed that RDD submissions were "pretty thoroughly checked". Ken Hall gave similar evidence at the February 2024 hearing[420]. Although that may have been their perception based on the number of comments NHSL provided, they were not involved in conducting the check and were not privy to the terms of MML's appointment, so are not best placed to comment. In any event, the volume of comments being made by NHSL may be more of a reflection of the quality of the design than on how thorough the review was.

153. It is possible that the NPD form of contract was apt to cause some confusion regarding the rights and responsibilities of the parties (unless parties took the time to familiarise themselves properly with the terms of the contract). Although the form of contract involved a transfer of design risk to the private sector for all matters other than Operational Functionality, the Health Board would inevitably retain a clear interest in the developing design and would want to make comments on that design even if those comments went beyond matters of Operational Functionality. Such comments might then by misinterpreted by Project Co as the Health Board accepting some responsibility for the design. Similarly, in the present case, the perception of IHSL may have been that NHSL/MML were doing thorough reviews of the design, but that was not the reality of the situation and it was not what the contract envisaged. These misinterpretations and misperceptions seem to have arisen primarily because key personnel within MPX and WW had not familiarised themselves with the contractual documentation. Rather, they appear to have proceeded on the assumption that the contractual structure for the project was the same as it had been in other projects that they had undertaken. Although the use of a new contractual structure might therefore have been the source of some confusion, it ought not to have posed a problem if parties had taken the time to familiarise themselves properly with the terms of the contract.

[418] Pages 55 and 56 of transcript
[419] Page 13 of transcript
[420] Page 130 of transcript

154. At paragraph 7.2 of PPP8 it is provisionally concluded that "The RDD process involved a thorough review of the Environmental Matrix. Mott MacDonald on behalf of the Board provided detailed comments…" The suggestion that MML conducted a "thorough" review of the EM is potentially misleading. As noted above, MML was not required to, and did not, conduct a line-by-line review of the EM for compliance with SHTM 03-01. Although comments were produced, these were not the product of a comprehensive review of every single entry in the EM. When the comments were provided to IHSL, the correspondence would remind IHSL about its contractual responsibilities, including its obligation to comply with the BCRs (examples of which are considered earlier in this closing statement).

155. The issue with the ventilation in Critical Care was not readily apparent from a review of the EM. Michael O'Donnell did not spot the error when he signed off on the EM. He stated[421] that "the cover guidance notes and room function reference sheet probably gave a reassurance to anyone upon initial view that important parts of the guidance are captured, resulting in no actual digging into the individual cells…" In his evidence[422] he noted on reflection that the RFRS may have "blinded him" from seeing the entry in the department sheets. In his view, someone reviewing the EM would probably have looked at the RFRS and "gone with that". Having regard to these considerations, it is understandable that somebody conducting a sample review or spot check of the EM would not notice the error.

156. The issues with the ventilation in Critical Care would also not have been readily apparent from a review of the RDS. The volume of this documentation coupled with the limited nature of MML's sample reviews meant that MML would have been unlikely to notice this issue. In any event, as discussed later in this closing statement, the clinical activities in the RDS had been altered from the ADB template. In Graeme Greer's opinion[423], the clinical activities set out in the RDS might have caused a reviewer to form the understanding that these RDS did not relate to bedrooms in which

[421] Paragraph 29 of his Statement for the April 2023 hearing
[422] Pages 79 and 80 of transcript
[423] Paragraph 35 of his Statement for the February 2024 hearing

Critical Care activities were to be conducted. This would have made any discrepancies in the air change rates harder to spot.

157. In September 2017[424], during the course of the RDD process for the EM, WW "requested a review line by line" of the EM by MML. During Stewart McKechnie's evidence at the February 2024 hearing[425], it became apparent that he expected MML to lead a line-by-line review so that MML would agree that the parameters recorded in the EM were the client's brief. This reflects a complete misunderstanding of where design risk sat, and the limited nature of MML's role in reviewing the EM. The suggestion by WW appears to have been an attempt by WW to shift design responsibility from itself back onto NHSL. In any event, WW had confirmed that it had already carried out a line-by-line check of the EM. WW's line-by-line check would have been one of the best opportunities for the errors in the EM to have been identified: however, there was no such identification, presumably because of WW's claimed interpretation of SHTM 03-01 or because the review was not carried out as thoroughly as WW have claimed. MML confirmed that there was "no requirement" for the line-by-line check proposed by WW. MML's rationale for making this observation was entirely reasonable: if a line-by-line check had already been conducted by WW, the party responsible for undertaking IHSL's mechanical and electrical design work, there was no need for another one. In any event, given the risk allocation and the nature of the RDD process, it would have been inappropriate for MML to conduct a line-by-line review.

158. At paragraph 93 of CTI 2024 it is suggested that this was a missed opportunity and that the actions of MML on behalf of NHSL in declining the review is "more difficult to defend in the wider circumstances of NHSL having put the environmental matrix into circulation in the first place". Given all of the evidence set out above regarding the onerous nature of a line-by-line review, this suggestion by WW was not a genuine practical opportunity. As CTI 2024 notes at paragraph 58, "a full technical audit" would have been required in order to identify the issue. Any such audit would have been expensive and time-consuming. It would have involved a fundamental change to the terms of MML's appointment or for an independent engineer to be instructed. Perhaps more importantly, undertaking a review in order to "agree the parameters that we had

[424] Bundle 13, volume 2 for the February 2024 hearing at page 1048
[425] Page 81 of transcript

recorded in the matrix was the client's brief" would have involved completely altering the risk allocation in the project. The ramifications of such an alteration were not explored in evidence, but taking this course would presumably have involved SFT and the Scottish Government given that it would essentially have involved a different contractual model. Although CTI suggest that the approach by MML on behalf of NHSL may be "difficult to defend", the reality is that there was no practical alternative but to decline WW's invitation. It was no more a "decision to trust the designer to comply with the guidance" than with any other element of the project where the contractor had been engaged to design in accordance with the BCRs. As CTI 2024 notes at the end of paragraph 93, "This issue links in to the wider theme of whether the NPD model is suitable for healthcare projects." The proposed line by line review was incompatible with this form of contract.

Alteration to Guidance Note 15

159. IHSL issued revision 2 of the EM on 4 December 2015[426]. On the opening page of the document it states "Document highlighted items amended inline [sic] with NHS comments." This statement suggests two things: (i) amendments have been highlighted; and (ii) any changes relate to NHSL's comments.

160. It is apparent that this version of the EM contains several changes, which are generally highlighted in red. Some of the highlighted changes relate to the Guidance Notes[427]. Graeme Greer set out his recollection[428] that it had been discussed and agreed by IHSL that changes made to the EM would be highlighted in red, which would be in accordance with good industry practice. Ronnie Henderson also explained[429] that there was an agreed protocol that all changes to the EM would be highlighted in red. In his evidence at the February 2024 hearing[430], Ken Hall agreed that highlighting the changes would be good industry practice. Even Stewart McKechnie accepted in his evidence at the February 2024 hearing[431] that there was an agreed protocol that changes would be

[426] Bundle 13, volume 5 for the February 2024 hearing at page 959
[427] Bundle 13, volume 5 for the February 2024 hearing at page 961
[428] Paragraph 24 of his Statement for the February 2024 hearing
[429] Paragraph 34 of his Statement for the February 2024 hearing
[430] Page 118 of transcript
[431] Page 37 of transcript

marked up. This is consistent with the words on the opening page which implied that amendments had been highlighted.

161. In this version of the EM, Guidance Note 15 had been altered by the insertion of the words "for isolation cubicles" after the words "10ac/hr Supply" in the section related to Critical Care Areas[432]. This change was not highlighted in red. This change was not related to the NHSL comments.

162. This change is significant for three reasons:

162.1. The fact that WW made this change to the EM makes it clear that WW did not regard the EM as a document it was obliged to comply with; the insertion of the qualifying words represented a major change which was directly related to the proper interpretation of the guidance. As CTI note at paragraph 84 of CTI 2024, WW's conduct is "difficult to reconcile with their position that the environmental matrix was a fixed client brief".

162.2. The precise ventilation requirements for Critical Care were plainly being considered by WW at the time this change was made. The consideration given to Guidance Note 15 by WW clearly represented an opportunity to identify the potential issue.

162.3. WW did not highlight this change. The lack of highlighting is considered in the following paragraphs.

163. The lack of any highlighting is surprising. Other changes made in this version of the EM were highlighted in red. For example, changes made to Guidance Notes 19, 21, 24 and 26 were all clearly highlighted in red. This highlighting included such minor issues as the insertion of the word "the" in Guidance Note 21. This highlighting made the changes readily apparent. In the absence of any such highlighting of the change to Guidance Note 15, there was no reason for MML or NHSL to suppose that any change had been made. Indeed, given that the change did not relate to any of NHSL's

[432] Bundle 13, volume 5 for the February 2024 hearing at page 961

comments, any change to Guidance Note 15 would not have been anticipated. The change would only have been detectable had NHSL or MML carried out a line-by-line comparison of this version of the EM against previous versions. Given that NHSL and MML would have had a reasonable expectation that all changes had been highlighted, there would have been no reason for such a line-by-line comparison to have been conducted. Indeed, given that the opening page of the document suggests that any changes relate to NHSL comments, a review of the entire document for any further changes ought to have been entirely unnecessary. Although NHSL and MML did not identify that the change had been made, it is unreasonable to have expected either NHSL or MML to have picked up this change in absence of any highlighting.

164. The lack of any highlighting of this one change is particularly surprising given the significance of this change (which involved changing the Guidance Note from being compliant with SHTM 03-01 to being non-compliant). Had the change been highlighted, it would have provided an opportunity for NHSL and MML to consider the issue further. In his evidence at the February 2024 hearing[433], Stewart McKechnie agreed that if the change had been highlighted, NHSL and MML would have had the opportunity to clarify whether 10ac/hr should be confined to isolation rooms in Critical Care. In his evidence at the February 2024 hearing[434], Ken Hall also accepted that, as the change was not highlighted, NHSL was denied the opportunity to make a choice between 4 and 10 air changes for the rooms in Critical Care. Given that NHSL sought a facility that was compliant with SHTM 03-01, had it been asked to make such a choice, it is reasonable to infer that it would have confirmed that 10ac/hr was required for all Critical Care Areas, not just isolation rooms. Had the change been highlighted, it is likely that the delay in the opening of the hospital would not have occurred.

165. Stewart McKechnie explained[435] that this alteration was made "purely for clarification to align with SHTM 03-01 guidance as we felt the original text was vague". In his evidence at the February 2024 hearing[436], he refused to accept that this change narrowed the scope of Guidance Note 15, despite the fact that it plainly did. However, he did

[433] Page 39 of transcript
[434] Page 127 of transcript
[435] Paragraph 41 of his Statement for the February 2024 hearing
[436] Pages 31 and 32 of transcript

eventually concede[437] that the change removed a conflict, although a few answers later he seemed to renege from that position.

166. It is implicit in Mr McKechnie's explanation that he considered the Critical Care entry in Guidance Note 15 to be important and that it was in need of "clarification". However, this recognition of the importance of this part of Guidance Note 15 is difficult to reconcile with a report prepared by Mr McKechnie in April 2022 entitled "Critical Care Department Briefing Review[438]. According to Mr McKechnie[439], this document was prepared for the specific purpose of assisting this Inquiry. As is clear from the title, the document was specifically concerned with the Critical Care Department. According to section 1.0, the report reviews the H&K EM "and accompanying Guidance notes". At section 3.2 of the report, express consideration is given to those Guidance Notes, including Guidance Note 15. However, Mr McKechnie quotes only from the part of Guidance Note 15 that relates to "HDU Bed Areas". He does not mention the part of Guidance Note 15 that relates to "Critical Care Areas". In a document that is said to "examine the Client's briefing for the Critical Care Department", and which makes specific reference to Guidance Note 15, it is difficult to understand why Mr McKechnie would entirely omit the section of Guidance Note 15 that specifically dealt with Critical Care Areas.

167. In his evidence at the February 2024 hearing[440] Mr McKechnie was unable to offer a satisfactory explanation for not highlighting the change. At one point he seemed to suggest that only "technical changes" were to be highlighted. This explanation is not consistent with highlighting the addition of the word "the" in Guidance Note 21 and ignores the fact that the change to Guidance Note 15 was a technical change. At another point he suggested that WW was "tidying up" the document rather than making a change to it. However, the change was plainly more significant than merely "tidying up". He ultimately expressed a wish that it had been highlighted: which suggests that he accepted that it should have been.

[437] Page 36 of transcript
[438] Bundle 1 for the February 2024 hearing at page 757
[439] Paragraph 74 of his Statement for the February 2024 hearing
[440] Pages 37 and 38 of transcript

168. WW's position in response to PPP8[441] was that WW's "understanding was that it needed only to highlight any changes to the tabulated information…" It is unclear where this understanding came from given that it was not spoken to by Mr McKechnie in evidence. In any event, it is plainly inaccurate: even a cursory glance at the EM[442] shows that changes made to other Guidance Notes had been highlighted. As matters presently stand, it is submitted that WW has not provided any satisfactory explanation for its failure to highlight the important change made by it to Guidance Note 15.

169. In his evidence at the February 2024 hearing[443], Mr McKechnie claimed that MML had commented on the change and was "well aware of it". He suggested[444] that comments had been made by Graeme Greer on this change. He was taken to correspondence dated 22 September 2015[445] which he said[446] supported the change to the Guidance Note. However, even from a cursory review of this correspondence, it is apparent that it had no relevance whatsoever to the change that had been made to Guidance Note 15. In any event, it is not immediately apparent whether Mr McKechnie was relying on this correspondence as being the basis for the claim that MML was aware of the change. Rather his evidence[447] appeared to relate to statements submitted to the Inquiry. It became apparent that he was relying on paragraph 24 of Graeme Greer's statement for the February 2024 hearing. However, on being taken to this paragraph, Mr McKechnie conceded[448] that Mr Greer had only noticed the change in Guidance Note 15 in the second half of 2019. He withdrew his claim that Graeme Greer had any knowledge of the change at the time it was made. It is concerning that Mr McKechnie made this baseless claim in his sworn evidence and sought to justify it by reference to documents that actually offered no support whatsoever to his position.

170. Similarly, at paragraph 8.2.1 of its Closing Submission following the April 2023 hearing, WW claimed, under reference to paragraph 83 of Graeme Greer's statement for the April 2023 hearing, that the change to Guidance Note 15 was noted by others at

[441] Bundle 12, volume 1 for the February 2024 hearing at paragraph 9.3.3
[442] Bundle 13, volume 5 for the February 2024 hearing at page 961
[443] Page 39 of transcript
[444] Page 40 of transcript
[445] Bundle 13, volume 2 for the February 2024 hearing at page 55
[446] Pages 44 and 45 of transcript
[447] Page 40 of transcript
[448] Pages 59 and 60 of transcript

the time. In fact, paragraph 83 of the statement simply narrates that the change was made: it says nothing about when Mr Greer became aware of it. The timing of Mr Greer's awareness was then clarified at paragraph 24 of his statement for the February 2024 hearing, from which it is readily apparent that he was not aware of the change until after the issue with Critical Care ventilation came to light in July 2019. In his evidence at the February 2024 hearing, Graeme Greer explained[449] that Kelly Bain (one of MML's project management team) spotted the change after the ventilation issue in Critical Care came to light in July 2019. He stated[450] that he had investigated the change and could not find any meeting notes or emails where the change had been discussed.

171. For the sake of completeness, it should also be noted that Brian Currie[451] refuted any suggestion that, during the construction period, he was aware of Mr McKechnie's claimed interpretation of SHTM 03-01.

172. In his evidence at the February 2024 hearing[452], Ken Hall also attempted to justify the lack of highlighting by reference to WW seeking clarification from MML in relation to isolation cubicles. He seemed to imply that there was no need for WW to highlight the change because MML had been made aware of it in correspondence. It became apparent[453] that this was a reference to the correspondence dated 22 September 2015[454]. However, this correspondence had no relevance whatsoever to the change that had been made to Guidance Note 15. It is surprising that Mr Hall sought to explain away the change to Guidance Note 15 by reference to this correspondence.

173. The alteration to Guidance Note 15 was not the only important change made by WW to the EM that was not highlighted. WW also failed to highlight that it had removed the entry for HDU from the RFRS in the EM prepared for Financial Close[455]. In his evidence at the April 2023 hearing[456], Mr McKechnie described this as tidying up as WW was "taking ownership" of the EM. This change was not in response to a comment

[449] Page 98 of transcript
[450] Page 101 of transcript
[451] Paragraph 53 of his Statement for the February 2024 hearing
[452] Pages 120 and 123 of transcript
[453] Page 124 of transcript
[454] Bundle 13, volume 2 for the February 2024 hearing at page 55
[455] Bundle 4 for the April 2023 hearing at page 222
[456] Page 140 of transcript

from NHSL. Had this change been highlighted, it might have provided another opportunity for NHSL and MML to challenge WW's treatment of rooms situation in Critical Care.

Single Bedrooms

174. The issue with the ventilation in single bedrooms arose initially with the issuing by IHSL of derogation request WW015[457]. WW015 is dated 26 July 2016. It was issued to MML by email on 1 August 2016[458]. WW015 sought to derogate from SHTM 03-01 by decreasing the air change rate in single bedrooms from 6ac/hr to 4ac/hr. The document referred to mixed mode ventilation with natural ventilation being available from opening windows.

175. This request clearly did not apply to single bedrooms that were Critical Care Areas. In the first place, the proposed reduction was from 6ac/hr rather than from 10ac/hr. As Graeme Greer noted[459], it was not immediately apparent to him that this document applied to rooms in Critical Care due to its reference to 6ac/hr. Secondly, the proposal concerns rooms with openable windows, which would not apply in Critical Care.

176. The understanding that WW015 did not relate to single bedrooms in Critical Care is consistent with the documentation highlighted by Ronnie Henderson[460]. Janice MacKenzie's recollection[461] is that any discussion regarding the derogation for single bedrooms was never in the context of single bedrooms in Critical Care.

177. The matter raised in WW015 ultimately became item 13 in SA1. Item 13 is discussed in more detail later in this closing statement. For the reasons set out there, it is quite clear that the solution that was ultimately agreed in relation to the single bedrooms had no application to those rooms in Critical Care. In any event, regardless of the correct legal interpretation of SA1, it would not have been apparent to MML when reviewing the proposed change to single bedroom ventilation that it had any application to Critical

[457] Bundle 13, volume 2 for the February 2024 hearing at page 544
[458] Bundle 13, volume 2 for the February 2024 hearing at page 545
[459] Paragraph 37 of his Statement for the February 2024 hearing
[460] Paragraphs 36 and 37 of his Statement for the February 2024 hearing
[461] Paragraph 31 of her Statement for the February 2024 hearing

Care given that (i) it involved a change from 6ac/hr to 4ac/hr rather than from 10ac/hr; and (ii) it involved rooms with openable windows and/or ensuites, which would not be consistent with it applying to those rooms situated in Critical Care.

Four Bed Rooms

178. Before considering the evidence concerning MML's role in the four bed room issue in detail, it is important to understand WW's role. In his evidence at the February 2024 hearing[462], Stewart McKechnie confirmed his understanding that NHSL was relying on WW "to ensure that the solution complied with SHTM guidance". The importance of this confirmation was such that, at the invitation of the Chair, the question was put to Mr McKechnie twice, with the same answer being elicited both times. This concession is consistent with the risk allocation in the project. Notwithstanding the fact that correspondence was exchanged between parties including NHSL and MML, and that representatives of NHSL and MML attended various meetings, the fundamental obligation to ensure that the solution being proposed complied with SHTM 03-01 lay with WW. This is the basis upon which MML was proceeding during these discussions: it was not MML's role to ensure that the solution complied with SHTM 03-01. MML had not been appointed to provide design assurance. As with other aspects of the project, if MML had identified a departure from SHTM 03-01, it would have flagged this: but it was not MML's role to check that the solution being proposed by WW was compliant with the guidance.

179. The issue of ventilation in four bed rooms seems to have arisen in late 2016 or early 2017[463]. Graeme Greer's position in his evidence at the February 2024 hearing[464] was that this issue had developed from consideration of the single bedroom ventilation issue discussed in the preceding section. The driving factor for the change in pressure regime in the four bed rooms seems to have been input from NHSL clinical staff who considered there to be a need for balanced or slightly negative pressure (rather than

[462] Pages 104 and 105 of transcript
[463] Although paragraph 102 of CTI 2024 states that NHSL took advice from HFS in June 2016, Ronnie Henderson's evidence (at page 68 of the transcript under reference to the document at Bundle 13, volume 8 for the February 2024 hearing at page 2340) was that the document was incorrectly dated as June 2016 and that the correspondence took place in June 2017.
[464] Page 132 of transcript

positive pressure) in four bed rooms so as to enable cohorting of infectious patients. The relevant rooms had apparently been identified by NHSL's clinical team. MML did not provide any input into the selection of rooms.

180. According to Janice MacKenzie's evidence at the February 2024 hearing[465], NHSL initially sought advice from Colin Macrae of MML regarding the appropriate pressure regime for four bed rooms. Ms MacKenzie explained that any such correspondence took place before Ronnie Henderson contacted the IPCT. This means that this correspondence took place by mid-January 2017 at the latest, which would be before the list of affected rooms had been confirmed. Ms MacKenzie was unsure whether Mr Macrae was aware that any of the rooms were in Critical Care. When discussing this issue, she suggested that Mr Macrae may have seen the risk assessment at some point: however, that document was not produced until several months after this correspondence with Mr Macrae. There is accordingly no evidence that, when this correspondence took place, Colin Macrae was aware that any of the rooms under discussion were in Critical Care. There is no evidence that, after this initial advice from Colin Macrae, MML was ever asked to provide any formal advice or design assurance regarding the compliance of the proposed solution for this issue with SHTM 03-01. In questioning of Susan Goldsmith, CTI put to her[466] that MML had "signed off that good industry practice means balanced or negative for these rooms". There was never any such sign off by MML.

181. On 20 January 2017, Ronnie Henderson sought advice from the IPCT regarding the application of SHTM 03-01 in relation to four bed room ventilation[467]. According to Lindsay Guthrie's evidence[468], this is the only record of any input from the IPCT being sought or provided in relation to this issue.

182. On 31 January 2017, WW sent an email[469] attaching a document headed Bedroom Ventilation Key Considerations[470]. In relation to four bed room ventilation, the

[465] Page 227 of transcript
[466] Page 11 of transcript
[467] Bundle 13, volume 7 for the February 2024 hearing at page 37
[468] Pages 137 and 138 of transcript
[469] Bundle 13, volume 1 for the February 2024 hearing at page 19
[470] Bundle 13, volume 1 for the February 2024 hearing at page 20

document suggested a compromise solution involving "increasing the ensuite and WC ventilation rates". The reference to ensuites would have suggested that any rooms in Critical Care were not included within this proposal, as none of the rooms in Critical Care had ensuites.

183. On 9 February 2017, MML was amongst the recipients of an email[471] from WW attaching a document headed Multi Bed Rooms – Ventilation Amendment Proposal to Achieve Room Balance[472]. The email also attached general arrangement layout drawings showing the location of the rooms[473]. However, it is not at all clear from the copies of the drawings included in the Inquiry bundle whether any of the rooms were in Critical Care. The Ventilation Amendment Proposal itself did not expressly state that any of the rooms were in Critical Care. In any event, MML was not asked to review the rooms that had been identified by NHSL or to provide any advice on whether the proposed solution complied with SHTM 03-01 for all of the identified rooms.

184. A Bedroom Ventilation Update Meeting took place on 24 February 2017[474]. The only attendee at this meeting from MML was Kamil Kolodziejczyk, one of MML's project management team: Colin Macrae was not in attendance. Ronnie Henderson thought[475] that this was the meeting where clinicians tabled the rooms that they required to be balanced. A document marked up at that meeting[476] shows that 20 rooms were considered, of which 14 were marked as "Essential" and six were marked as "Not Essential". In her evidence at the February 2024 hearing[477], Janice MacKenzie could not remember whether she told people at this meeting that some of the rooms were in Critical Care: her recollection was that they quickly went through the list using the codes for each room. Although he was not present at the meeting, Graeme Greer's evidence at the hearing in February 2024[478] was that this meeting was when the decision on the 14 rooms was taken and that this decision was not then revisited until after the ventilation issue came to light in July 2019. Although Mr Greer was correct in his

[471] Bundle 13, volume 1 for the February 2024 hearing at page 21
[472] Bundle 13, volume 1 for the February 2024 hearing at page 25
[473] Bundle 13, volume 1 for the February 2024 hearing at page 22
[474] Bundle 13, volume 1 for the February 2024 hearing at page 34
[475] Page 82 of transcript
[476] Bundle 13, volume 1 for the February 2024 hearing at page 35
[477] Page 218 of transcript
[478] Page 150 of transcript

understanding that the 14 rooms identified at this meeting were the same 14 rooms that were included within SA1, fuller consideration of the chronology shows that there was further discussion in March 2018 about the selection of rooms. This is addressed later in this closing statement.

185. In May/June 2017 it became apparent that there was a dispute between IHSL and NHSL about whether the proposed change in pressure regime for the four bed rooms represented a Board Change[479]. By this stage, the appropriate technical solution for the proposed pressure cascade had been agreed; the issue between the parties was who should bear the cost of making the change.

186. In July 2017, NHSL prepared a risk assessment in relation to the four bed room ventilation issue[480]. MML had no direct involvement in its preparation. In her evidence at the February 2024 hearing[481], Janice MacKenzie suggested that the statement in the risk assessment about non-compliance with SHTM 03-01 had come from the correspondence with Colin Macrae (which for the reasons set out above must have taken place before mid-January 2017). The risk assessment itself is concerned only with the pressure cascade in the selected rooms: it does not mention air change rates at all.

187. The risk assessment was circulated by email dated 6 July 2017[482]. Nobody from MML was a direct recipient. Three members of MML's project management team were copied into the email, but not Colin Macrae. MML was not instructed to do anything in this email. In particular, MML was not instructed to review the risk assessment, the selected rooms or the ventilation parameters. It was not instructed to consider whether the proposal for four bed rooms complied with SHTM 03-01. In his evidence at the February 2024 hearing[483], Graeme Greer was not sure whether the risk assessment was passed to any other people within MML.

[479] Bundle 13, volume 1 for the February 2024 hearing at page 51
[480] Bundle 13, volume 8 for the February 2024 hearing at page 451
[481] Page 227 of transcript
[482] Bundle 13, volume 8 for the February 2024 hearing at page 449
[483] Page 143 of transcript

188. An updated risk assessment was prepared in January 2018[484]. Again, MML had no direct involvement in its preparation. In her evidence at the February 2024 hearing[485], Janice MacKenzie could not recall whether this document was ever sent to MML. No documentation has been produced suggesting that this document was sent to MML. The fact that NHSL did not think that MML required to be copied into this document supports the impression that, at the relevant time, NHSL was not relying on MML's technical advice in relation to the appropriateness of the proposed change to the ventilation in four bed rooms.

189. In her evidence at the February 2024 hearing, Janice MacKenzie described[486] it as "very disappointing" that nobody picked up that some of the rooms identified in the risk assessment were in Critical Care. However, she acknowledged that it was "an incredibly busy time". Ms MacKenzie went on to suggest, in response to a leading proposition put to her by CTI[487], that MML, with input from NHSL Estates, should have been translating the requirement to cohort patients into "a detailed ventilation specification". This exchange reflected a fundamental misunderstanding not only of MML's role in the project, but also of the risk allocation between NHSL and IHSL. It was IHSL's responsibility to put together a ventilation specification for the proposed change to four bed room ventilation. If NHSL had any expectation that MML would have input into that specification, or review it for compliance with SHTM 03-01, NHSL could have instructed MML to do so. It did not. Insofar as the risk assessment was concerned (which was the matter being discussed when the question was posed), MML was not instructed to review it. The first draft of it was simply copied to project management staff. The revised version does not appear to have been sent to MML at all. In any event, according to Ms MacKenzie's evidence at the February 2024 hearing[488], it was Ronnie Henderson, rather than her who was predominantly liaising with MML. As Graeme Greer noted[489], it was Brian Currie who managed MML's scope. Accordingly, Ms MacKenzie is not best placed to judge whether MML ought to have been providing advice on this matter.

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[484] Bundle 6 for the February 2024 hearing at page 14
[485] Page 11 of transcript
[486] Page 210 of transcript
[487] Page 211 of transcript
[488] Page 212 of transcript
[489] Pages 169 and 170 of transcript

190. In early 2018, NHSL considered raising legal proceedings against IHSL. It is apparent from correspondence related to the dispute[490] that, at this stage, the proposed litigation concerned all 20 four bed rooms in the hospital rather than the restricted list of 14 rooms that had been identified as essential in February 2017.

191. For the purposes of this litigation, Graeme Greer prepared a draft affidavit. Although reference was made to this document during the questioning of witnesses at the February 2024 hearing, the Inquiry was not taken to the terms of the affidavit. The affidavit is primarily a factual chronology setting out the history of the dispute. Although it sets out the Board's position, it is not offering any technical view on what SHTM 03-01 required. NHSL had engaged an expert in the form of David Rollason to provide that.

192. In early 2018, MML produced a four bed room tracker[491]. This included all of the 20 four bed rooms that were initially discussed at the meeting on 24 February 2017. The document is described at paragraph 116 of the CTI 2024 as "a MML table": while that description is technically correct, it may give the misleading impression that MML had created the content of the document. Although the document has the MML logo on it, it is clear from the title that it comprises "extracts from" the IHSL EM and the preamble states that it is a tracker collated using information from IHSL's EM. In his evidence at the February 2024 hearing[492], Graeme Greer explained that this was a project management document, not a document prepared by the technical team. It was produced for the purpose of being provided to Mr Rollason, the expert instructed by NHSL in relation to its proposed litigation against IHSL. Mr Greer explained that, in the version of the document that is contained within the Inquiry Bundle, some of the cells are hidden; however, the original version of the document included all of the EM. He noted[493] that the original intention was to summarise all versions of the EM for Mr Rollason. In his evidence under reference to this document[494], Ronnie Henderson confirmed that MML's role had not changed from providing a light-touch sampling

[490] Bundle 13, volume 9 for the February 2024 hearing at page 92
[491] Bundle 13, volume 5 for the February 2024 hearing at page 1244
[492] Pages 153 and 154 of transcript
[493] Page 156 of transcript
[494] Page 106 of transcript

review. He suggested that this document may be something that MML was managing on NHSL's behalf rather than an engineering review[495]. In one question to Ronnie Henderson[496], CTI suggested that MML had "added" information about HDU to this tracker. In another question to Janice MacKenzie[497], CTI suggested that MML had populated the air changes and pressure rates in the tracker. This line of questioning reflects a misunderstanding of the source of the information in the tracker. According to the clear terms of the document, and the evidence from Graeme Greer, the information in the table had been taken directly from IHSL's EM; it had not been produced by MML. On a proper understanding of the evidence, it is clear that this document was no more than an extract from IHSL's EM which had been prepared by the project management team as part of the process of providing instructions to Mr Rollason.

193. On 22 March 2018, IHSL wrote to NHSL with a settlement proposal[498]. This included a document headed "4 Bedded Ventilation Options". Although this document does not appear to be in the Bundles, Matthew Templeton[499] describes the options as follows:

193.1. Option 1: a proposal that had previously been discussed at length to achieve a negative or balanced pressure in 14 rooms.

193.2. Option 2: negative or balanced pressure in 14 rooms at 4ac/hr.

193.3. Option 3: negative or balanced pressure in 20 rooms at 4 ac/hr.

194. From Mr Templeton's description, the precise difference between option 1 and option 2 is unclear; however, it might be inferred from consideration of WW's Ventilation Amendment Proposal as it stood prior to March 2018[500] that option 1 included air change rates that were lower than 4ac/hr.

[495] Page 106 of transcript: MML noted the evidence as being "rather than" not "other than"
[496] Page 107 of transcript
[497] Page 16 of transcript
[498] Bundle 13, volume 9 for the February 2024 hearing at page 100
[499] Paragraph 68 of his Statement for the February 2024 hearing
[500] Bundle 13, volume 1 for the February 2024 hearing at page 40

195. These options were discussed at a meeting on 28 March 2018. According to a meeting note[501] and Matthew Templeton's evidence[502], the meeting was attended by three representatives of NHSL, but not by anyone from MML. At this meeting NHSL agreed to progress on the basis of ventilation option 2 (which included 14 rooms at negative or balanced pressure at 4ac/hr). From the available documentation, this seems to be the first point at which the air change rate for the affected rooms was discussed and agreed. This discussion and agreement took place without the presence of MML. This is perhaps understandable given that the agreement was in accordance with the air change rates that were in the EM. Prior to this meeting, NHSL does not seem to have made any express stipulation about the air change rates that were to apply in the rooms: that would have been a matter for IHSL to determine in accordance with its obligations under the Project Agreement.

196. On 18 April 2018, Ronnie Henderson had an exchange of emails with Ken Hall[503]. Mr Henderson stated that "we are seeking 4 Air Changes to all 14 rooms". Mr Hall responded "4ACH is the brief". This correspondence seems to be confirmation of the agreement reached at the meeting on 28 March 2018 rather than any new instruction. In his evidence[504] Mr Henderson explained that, despite this reference to the air change rate, the focus was really on the pressure regime. The email exchange on 18 April 2018 was copied to Kamil Kolodziejczyk and Douglas Anderson of MML. Mr Kolodziejczyk was one of MML's project management team. As Graeme Greer explained in his evidence at the February 2024 hearing[505], Douglas Anderson was an electrical engineer. The email was not copied to Colin Macrae. MML does not appear to have been asked to provide any advice regarding the applicable air change rate. This is perhaps understandable as the correspondence was confirming the air change rates that already appeared in the EM rather than proposing any change.

197. On 14 May 2018, WW issued version 6 of the document entitled General Ward – Ventilation Amendment Proposal to Achieve Room Balance[506]. In this version of the

[501] Bundle 13, volume 9 for the February 2024 hearing at page 110
[502] Paragraph 70 of his Statement for the February 2024 hearing
[503] Bundle 1 for the February 2024 hearing at page 2042
[504] Page 129 of transcript
[505] Page 92 of transcript
[506] Bundle 13, volume 2 for the February 2024 hearing at page 1268

document, the proposed solution for all of the rooms, including those situated in Critical Care, made reference to ensuite ventilation. This suggests that, even at this late stage, WW was unsure that some of the rooms were situated in Critical Care.

198. On 5 July 2018, Ken Hall sent an extract from the EM showing the affected four bed rooms to Kamil Kolodziejczyk and Ronnie Henderson[507]. However, consideration of the extract from the EM[508] shows that the department names had been removed from the extract. The rooms and departments are referred to by their code numbers, the meaning of which would not necessarily have been readily apparent to the reader. This matter is addressed later in this closing statement. The email was not sent to Colin Macrae.

199. The final version of the WW document entitled Multi Bed – Ventilation Amendment Proposal to Achieve Room Balance was issued in June 2018[509]. On 26 July 2018, Janice MacKenzie signed the document off as RDD at level A[510]. In her evidence at the February 2024 hearing[511], she stated that her understanding is that this document would have been thoroughly reviewed by MML. This understanding seems to have been, at least in part, because it was a relatively short document. It is important to note that, regardless of the thoroughness of the review being conducted by MML, any such review was to confirm that the proposed design solution satisfied Operational Functionality. The purpose was not to confirm whether the proposed design solution was consistent with guidance such as SHTM 03-01.

200. Based on the available evidence, it is not clear to what extent MML was, or ought to have been, aware that any of the four bed rooms under discussion were in Critical Care. In his evidence at the February 2024 hearing[512], Graeme Greer confirmed that he did not know that some of the rooms under discussion were in Critical Care. Nevertheless, he thought that it was known to MML[513], and in particular to Colin Macrae[514], that some

[507] Bundle 13, volume 2 for the February 2024 hearing at page 1337
[508] Bundle 13, volume 2 for the February 2024 hearing at page 1340
[509] Bundle 10 for the February 2024 hearing at page 179
[510] Bundle 10 for the February 2024 hearing at page 182
[511] Page 27 of transcript
[512] Page 133 of transcript
[513] Page 132 of transcript
[514] Page 134 of transcript

of the rooms were in Critical Care. However, on further questioning[515] he conceded that this was no more than an assumption. In any event, in forming this view, Mr Greer appears to have proceeded on an erroneous understanding of how matters had developed. It is apparent[516] that he based his conclusion on his understanding that Colin Macrae was present at the meeting on 24 February 2017 when the fourteen "essential" rooms were identified. It is perhaps understandable that Mr Greer assumed that Mr Macrae was at this meeting. However, Mr Greer (who was not taken to the attendees list during his evidence) was mistaken in his understanding on this matter. Consideration of the attendee list[517] shows that the only person from MML that was present at that meeting was Kamil Kolodziejczyk, one of MML's project management team. Even if Mr Kolodziejczyk had some awareness, through his attendance at this meeting, that some of the 14 rooms were in Critical Care, as he was not a ventilation engineer, it would not necessarily have been apparent to him that this would have had any significance in terms of compliance with SHTM 03-01. In any event, it would be erroneous to assume that attendees at the meeting on 24 February 2017 would have become aware that some of the rooms were in Critical Care. As set out above, Janice MacKenzie[518] could not remember whether she told people at this meeting that some of the rooms were in Critical Care. Although Ronnie Henderson was at this meeting, he was not aware that some of the rooms were in Critical Care. This is discussed in more detail below. Graeme Greer's own view[519] was that the rooms were identified by codes rather than a description of their location and that it would not have been readily apparent which department each room was located in. Accordingly, the basis for Mr Greer's view that MML was aware that some of the rooms were in Critical Care, does not seem to be supported by the available evidence.

201. Consideration of another contemporaneous document suggests that there was a lack of appreciation on the part of MML that some of the rooms were in Critical Care. In June 2017, MML prepared a Design Issues Report[520]. This document was originated by Kamil Kolodziejczyk and Kelly Bain, checked by Colin Macrae amongst others, and

[515] Page 137 of transcript
[516] Page 134 of transcript
[517] Bundle 1 for the February 2024 hearing at page 2046
[518] Page 218 of transcript
[519] Paragraph 85 of his Statement for the February 2024 hearing
[520] Bundle 13, volume 5 for the February 2024 hearing at page 1217

approved by Graeme Greer[521]. It is plain from section 2.2.2.2 of this document[522] that MML's collective understanding at this stage was that the four bed rooms under discussion had ensuites. As none of the rooms in Critical Care had an ensuite, it follows that MML's understanding (including the understanding of Colin Macrae) at this stage appears to have been that none of the 14 rooms was in Critical Care.

202. It is also important to note that Ronnie Henderson, who agreed that he had a "good solid working knowledge of SHTM 03-01"[523], was plainly familiar with using Table A1[524], and appears to have been present at all of the relevant meetings and party to all of the relevant correspondence, did not "join the dots" that some of the rooms were in Critical Care[525]. At the relevant time he did not know that the room code B1 related to Critical Care[526]. His lack of appreciation that any of the rooms was in Critical Care is consistent with the evidence of Stewart McKechnie at the February 2024 hearing[527], who did not recall any discussion at all that four of the rooms were in the Critical Care department. Given that Mr Henderson did not appreciate that any of the rooms were in Critical Care, it is reasonable to conclude that it was not set out clearly, either in correspondence or in any meeting, that any of the relevant rooms were in Critical Care. That being the case, it is unreasonable to expect MML to have picked this up. Although Ronnie Henderson suggested in evidence[528] that he would have expected MML to pick up on the fact that some of the rooms were in Critical Care, he did not provide any explanation for why he would have expected MML to have picked this up when he had not.

203. Even if Colin Macrae was present at some meetings (other than the meeting on 24 February 2017) at which the four bed room issue was discussed, it would be erroneous to assume that his presence at such a meeting would have involved him becoming aware of, or giving advice on, the selection of rooms or on the ventilation parameters that were to be applied. Colin Macrae may have been more concerned with how WW's proposed solution would go about achieving balanced/negative pressure rather than with (i) the

[521] Bundle 13, volume 5 for the February 2024 hearing at page 1218
[522] Bundle 13, volume 5 for the February 2024 hearing at page 1226
[523] Page 15 of transcript
[524] Page 26 of transcript
[525] Page 71 of transcript
[526] Paragraph 30 of his Statement for the February 2024 hearing
[527] Page 99 of transcript
[528] Page 81 of transcript

location of the affected rooms; and (ii) whether that proposed pressure regime was consistent with SHTM 03-01 in the first place. The compliance of the ventilation parameters with guidance remained the responsibility of IHSL. Other technical ventilation matters would presumably have been under discussion at this stage such as how the parameters were to be met from an engineering perspective in terms of ductwork and air handling units. It is quite possible that his involvement would have been primarily concerned with those matters rather than with the location of the affected rooms or the selection of the ventilation parameters.

204. At paragraph 117 of CTI 2024, it is stated that the fact that rooms were in Critical Care "ought to have been readily apparent to anyone familiar with the project through the use of plans identifying the rooms' location and the "B1" department code used to identify the affected rooms". So far as the plans are concerned, this is presumably a reference to the general arrangement layout drawings[529] attached to the email from WW dated 9 February 2017[530]. As is noted above, it is not at all clear from the copies of the drawings included in the Inquiry bundle whether any of the rooms were in Critical Care. So far as the B1 department code is concerned, the evidence does not support the conclusion that it ought to have been "readily apparent to anyone familiar with the project" that it referred to Critical Care. Graeme Greer's view[531] was that, if a room was identified using a code, it would not have been readily apparent which department the room was located in. Similarly, Ronnie Henderson's evidence[532] was that, at the relevant time, he did not know that the room code B1 related to Critical Care. It therefore seems that, contrary to the submission advanced by CTI, those with an intimate knowledge of the project were not necessarily familiar with the department codes.

205. Accordingly, having regard to the available contemporaneous evidence, it is far from clear that MML was, or ought to have been, aware that any of the rooms under discussion was in Critical Care.

[529] Bundle 13, volume 1 for the February 2024 hearing at page 22
[530] Bundle 13, volume 1 for the February 2024 hearing at page 21
[531] Paragraph 85 of his Statement for the February 2024 hearing
[532] Paragraph 30 of his Statement for the February 2024 hearing

206. Even if MML was, or ought to have been, aware that any of the rooms under discussion was located in Critical Care, it does not necessarily follow that this would have raised any red flags in relation to compliance with applicable guidance and/or the suitability of the change being proposed at that stage. This is for three reasons. Firstly, as Stewart McKechnie confirmed in his evidence at the February 2024 hearing[533], NHSL was relying on WW, not MML, "to ensure that the solution complied with SHTM guidance". Secondly, the focus of the change was on the pressure regime not on the air change rate. Thirdly, MML's understanding was that all of the rooms, regardless of their location, were normal bedrooms. The second and third reasons are developed in the following paragraphs.

207. As the four bed room issue developed throughout 2017, the focus was entirely on the pressure regime in the affected rooms. As Ronnie Henderson noted in his evidence[534], there was a very narrow focus on the pressure regime. The change to the pressure regime was based on input from clinical experts and was the subject of a risk assessment. The IPCT view regarding the pressure regime in Critical Care[535] was that, although a balanced or slightly negative pressure is not compliant with SHTM 03-01, such an approach would not increase the risk of infection spread. In his evidence[536], Donald Inverarity agreed that neither positive nor balanced/slightly negative pressure is necessarily wrong. It therefore seems that, had the IPCT been consulted, it would not have opposed the change. Having regard to these factors, particularly the existence of a clinical justification, Stephen Maddocks confirmed in his evidence at the February 2024 hearing[537] that he would have been comfortable with there being a non-compliance with SHTM 03-01 in relation to the pressure regime. It follows that, even if MML had been, or ought to have been, aware that the change to the pressure regime for four bed rooms applied to rooms in Critical Care, it would have been reasonable for MML to have been comfortable with the proposed change notwithstanding its inconsistency with SHTM 03-01 in relation to Critical Care Areas. There is no obvious reason why the proposal ought to have raised red flags for MML.

[533] Pages 104 and 105 of transcript
[534] Page 85 of transcript
[535] Bundle 13, volume 8 for the February 2024 hearing at page 555
[536] Page 162 of transcript
[537] Page 55 of transcript

208. The focus of the proposed change was not on the applicable air change rates for the affected rooms. The proposed change to the ventilation parameters did not involve any change to the air change rates in the affected rooms. Those air change rates were to be as set out in the EM. So far as NHSL and MML were concerned, H&K had confirmed that the reference design EM complied with SHTM 03-01 and IHSL had taken on responsibility to develop the EM in accordance with its obligation to comply with SHTM 03-01. There was no reason for NHSL or MML to review the air change rates for the affected rooms. The applicable air change rate was raised briefly by Ronnie Henderson in the email exchange on 18 April 2018[538], but even at that stage, his focus was on the pressure regime. His concern in raising the air change rate was to ensure that the rates were not being reduced from those in the EM: he was simply seeking confirmation that the air change rates remained as set out in the EM (which was understood to comply with SHTM 03-01). As the proposal did not involve any change to the air change rates in the EM, there was no obvious reason for the air change rates to be checked. In any event, Mr Henderson did not seek any technical input from MML on this issue before confirming the applicable rate with MPX. Accordingly, even if MML had been, or ought to have been, aware that the affected rooms included rooms in Critical Care, it would have been unreasonable to expect MML to have raised any red flags in relation to the air change rate.

209. Turning to the third reason, as Graeme Greer explained in his evidence at the February 2024 hearing[539], his understanding was that all of the rooms were effectively normal bedrooms, as opposed to Critical Care Areas. This was supported by the fact that all of the discussions concerned a change from 6ac/hr to 4ac/hr (as had been the case with single bedrooms), rather than from 10ac/hr (as would be required for a Critical Care Area). It was also supported[540] by the fact that the room function for each of these rooms in the EM was "Multi-Bed Ward" rather than HDU (HDU having been deleted from the RFRS Sheet by WW). Mr Greer explained that his impression that these were all normal bedrooms found further support when he considered the RDS that had been produced for these rooms. He noted that the clinical activities on these RDS were for normal bedrooms, notwithstanding their location in the Critical Care department. These

[538] Bundle 1 for the February 2024 hearing at page 2042
[539] Pages 132 and 133 of transcript
[540] Page 155 of transcript

activities were not the same as the clinical activities in the template ADB sheet for Critical Care multi-bed rooms[541]. In his view, there had been a conscious change when these RDS had been prepared to make them normal bedrooms.

210. During his evidence, Mr Greer was not taken to the specific RDS for the relevant rooms or to the template ADB sheet to vouch his explanation. Nevertheless, it is clear when one reviews the available RDS for the project that the clinical activities for the relevant four bed rooms in Critical Care had indeed been changed from those in the template ADB sheet for multi-bed rooms in Critical Care to those of a normal bedroom. The ADB template for multi-bed rooms in Critical Care[542] has clinical activities including "Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support systems". The room number on the template ADB sheet is B1609. The bundles do not contain a complete set of the RDS as they developed during the project. Nevertheless, the available RDS for four bed rooms in Critical Care show that the clinical activities had been changed from those in ADB sheet B1609. The Financial Close RDS for room B1-031, "4 beds Low Acuity"[543] includes a room reference B1609-01, suggesting that it is derived from ADB sheet B1609. Nevertheless, the clinical activities have been changed from the template ADB sheet. Although some of the activities are similar, there is no longer any reference to accommodating patients needing continuous medical and nursing care: however, "Rest and relaxation" has been added as an activity. The same changes have been made to the Financial Close RDS for room B1-063, "4 beds High Acuity"[544]. As Brian Currie noted[545] the air change rate on these RDS has also been altered from the ADB template.

211. The bundles also contain an RDS for room B1-009, another four bed room in Critical Care[546]. This RDS is dated 11 July 2017 and would therefore seem to have been produced during the RDD period, after the four bed room issue had arisen, but before the conclusion of SA1. Again, the clinical activities do not refer to accommodating

[541] Paragraph 34 of his Statement for the February 2024 hearing
[542] Bundle 10, volume 2 for the April 2023 hearing at page 1112
[543] Bundle 1 for the February 2024 hearing at page 1597
[544] Bundle 1 for the February 2024 hearing at page 1617
[545] Paragraph 123 of his Statement for the February 2024 hearing
[546] Bundle 5 for the February 2024 hearing at page 1111

patients needing continuous medical and nursing care. However, they do include "Rest and relaxation" and "Patient may take meals or refreshments in bed or by the bed".

212. It is therefore apparent that, if someone were to review the RDS for these rooms, it would not have been immediately apparent that these were Critical Care Areas. Rather, these rooms would seem to be normal bedrooms, with no obvious reason to treat them differently from the other four bed rooms in the hospital. In Graeme Greer's opinion[547], the clinical activities in the RDS might have caused a reviewer to form the understanding that these RDS did not relate to Critical Care bedrooms. It follows that, notwithstanding the fact that some of the rooms were situated in Critical Care, closer examination of those rooms by reference to their RDS could have caused a reviewer to form the reasonable impression that the room was not a Critical Care Area requiring 10ac/hr.

213. This understanding of the significance of the RDS is consistent with the evidence of Donald Inverarity. In his evidence[548] he noted that, in Critical Care, patients are often either unconscious or sedated. He explained[549] the sort of clinical activities that would be expected in Critical Care, including invasive procedures such as chest drain insertion which would be more in keeping with an operating theatre. It was the possibility of such activities being performed that justified the need for the recommended air change rates. In his evidence[550] he explained that lower air change rates may be acceptable in wards where there are no aerosol generating procedures. Lindsay Guthrie gave evidence[551] to similar effect. In her view[552], the parameters that apply to a room are partly based on the type of activity being delivered in that room. The RDS for the relevant rooms in this project suggested clinical activities that were far removed from those described by Dr Inverarity and Ms Guthrie for Critical Care Areas.

214. It is unclear how the clinical activities in the RDS came to have been altered from those in the template ADB sheet. This matter was not explored in evidence.

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[547] Paragraph 35 of his Statement for the February 2024 hearing
[548] Page 82 of transcript
[549] Paragraph 92 of his Statement for the February 2024 hearing
[550] Page 148 of transcript
[551] Page 47 of transcript
[552] Page 66 of transcript

215. Graeme Greer drew support for his conclusion that not all bedrooms situated in the Critical Care department would necessarily be classed as Critical Care Areas from a review of the changes made by Bidder C to the EM[553]. He noted that some, but not all, of the rooms in Critical Care were changed to 10ac/hr by Bidder C. He also noted[554] that paragraph 2.60 of SHTM 03-01: Part A[555] stated that specific requirements for individual spaces are included in ADB sheets. A review of the ADB sheet for multi bed rooms in Critical Care[556] shows that the air change rate is 6ac/hr, not 10ac/hr. These factors undermine the suggestion that simply because a bedroom is situated within the Critical Care department, it is necessarily viewed as a Critical Care Area for the purposes of Table A1 of SHTM 03-01.

216. Further support for Graeme Greer's evidence on this point comes from a consideration of the revised version of SHTM 03-01 issued in February 2022[557]. Table A1[558] draws a distinction between a "General Ward (level 0 and 1 care)", which requires 6ac/hr and "Critical care areas (Level 2 and 3 care)" which requires 10ac/hr. Level 1 care is defined as "Patients at risk of their condition deteriorating, or recently relocated from higher levels of care, whose needs can be met through normal ward care with additional advice and support from the critical care team"[559]. Level 2 care is defined as "Patients requiring more detailed observation or intervention, including support for a single failing organ system or post-operative care and those 'stepping down' from higher levels of care"[560]. It is apparent from the revised table that a Critical Care Area is defined not by reference to the location of the room but by reference to the level of care required by the patient. Such an approach is consistent with Graeme Greer's review of the clinical activities in the RDS in order to understand the level of care being provided in the relevant room. Having regard to the activities set out in the RDS for the four bed rooms in Critical Care, the level of care being provided would appear to be level 1, in

[553] Page 135 of transcript
[554] Page 136 of transcript
[555] Bundle 1 for the February 2024 hearing at page 1063
[556] Bundle 10, volume 2 for the April 2023 hearing at page 1113
[557] Bundle 1 for the February 2024 hearing at page 2263
[558] Bundle 1 for the February 2024 hearing at page 2431
[559] Bundle 1 for the February 2024 hearing at page 2487
[560] Bundle 1 for the February 2024 hearing at page 2488

which case it would be appropriate, for the purposes of the revised SHTM 03-01, to treat the space as a normal bedroom rather than as a Critical Care Area.

217. The views expressed by Darren Pike regarding the meaning of Critical Care Area in SHTM 03-01 are similar to those of Graeme Greer. In his evidence[561] he noted the lack of a definition for those areas and commented that he would look to use SHTM 03-01 in conjunction with other briefing documents. He considered that Critical Care Area would apply to bed areas, unless there was a specific output which was different. In the present case, the clinical activities in the RDS would appear to be a specific output that was different from a Critical Care Area.

218. Accordingly, even if MML had been, or ought to have been, aware that the affected rooms included rooms in the Critical Care department, it would not follow that MML ought to have appreciated that the affected rooms were Critical Care Areas requiring 10ac/hr. For this reason, in addition to the others set out above, it would have been unreasonable to expect MML to have raised any red flags in relation to the proposed solution to the four bed room issue.

MML's Role in Relation to SA1

219. In his statement for the February 2024 hearing[562], Graeme Greer explained MML's role during SA1 negotiations. So far as reviews of technical design submissions were concerned, he explained that the same RDD framework was applied and that NHSL did not instruct any alteration to the level of design review MML was to provide.

220. The technical solutions for the single bedroom and four bed room ventilation issues had been agreed long before SA1 was concluded. In relation to the single bedrooms, Graeme Greer explained[563] that IHSL issued a document on 19 June 2017 noting that an agreed design solution had been reached. In relation to the four bed rooms, he noted[564] that the technical solution had been broadly agreed since around spring 2017.

[561] Pages 6 and 7 of transcript
[562] Paragraph 73 of his Statement for the February 2024 hearing
[563] Paragraph 88 of his Statement for the February 2024 hearing
[564] Paragraph 78 of his Statement for the February 2024 hearing

It is apparent from the documentation reviewed above, that further discussions took place in March 2018 at which formal agreement was reached that there was to be negative or balanced pressure in 14 rooms at 4ac/hr. However, the technical solution essentially remained as discussed in spring 2017. To the extent that issues related to ventilation remained outstanding during the SA1 negotiations, the primary concern was not a technical review: any technical involvement at that stage was dedicated to issues other than ventilation[565].

221. So far as the preparation of the Technical Schedule to SA1 was concerned, Graeme Greer stated[566] that MML collaborated with NHSL to produce a list of current issues. SFT then collated that list with IHSL's own list to produce a Technical Schedule. This was then reviewed and revised by NHSL with the assistance of MML and legal advisors. In his evidence at the February 2024 hearing[567] he described a collaborative approach between NHSL, MML and NHSL's legal advisers and stated that the process was similar to the RDD process. However, he was clear[568] that MML was not advising NHSL on whether the contents of the Technical Schedule complied with SHTM 03-01. So far as the technical solution for the four bed room issue is concerned, this was the solution as agreed by NHSL at the meeting on 28 March 2018. The task in preparing issue 7 of the Technical Schedule was to reflect this agreed solution, not to reconsider the matter. As Matthew Templeton noted[569], the draft Technical Schedule issued in June 2018[570] reflected what had already been agreed. Indeed, the works to implement that agreement had commenced in May 2018. According to Mr Templeton[571] the works were completed in around September or October 2018.

222. During the evidence of Jeane Freeman, CTI stated[572] that the Inquiry had heard evidence that the Technical Schedule to SA1 had been drafted by MML. This is repeated at paragraph 158 of CTI 2024 where it is expressly stated that "MML drafted the technical schedule to SA1." A similar statement is made at paragraph 266 of CTI

[565] Paragraph 66 of his Statement for the February 2024 hearing
[566] Paragraph 63 of his Statement for the February 2024 hearing
[567] Page 107 of transcript
[568] Page 107 of transcript
[569] Paragraph 43 of this Statement for the February 2024 hearing
[570] Bundle 13, volume 9 for the February 2024 hearing at page 5
[571] Paragraph 45 of his Statement for the February 2024 hearing
[572] Page 40 of transcript

2024. Having regard to Graeme Greer's evidence on this point, as set out in the preceding paragraph, that is an oversimplification of the process by which the Technical Schedule was prepared. The same line of questioning of Jeane Freeman also implied that MML was providing some sort of assurance in relation to the terms of the Technical Schedule. Again, that represents a fundamental misunderstanding of MML's role, which did not involve any design assurance regarding the contents of the Technical Schedule.

223. During the negotiations leading to SA1, Graeme Greer sent an email to Brian Currie on 4 June 2018[573] expressing concerns about SA1 significantly altering the Project Agreement risk allocation. The email also confirmed the limits of MML's role in relation to reviewing design submissions and providing design assurance. It stated: "Furthermore, I don't think the Board is in a position to fully confirm compliance with the BCRs, the burden of responsibility should always remain with Project Co. As we are not the designers, Mott MacDonald would not be in a position to provide that design assurance to NHSL." In his evidence at the February 2024 hearing[574], Mr Greer explained that Brian Currie escalated this within NHSL and had received comfort that the risk allocation was not changing. This is consistent with the evidence of Susan Goldsmith at the February 2024 hearing[575] who noted that concerns were mitigated by relying on NHSL's legal advisors who provided advice to ensure that there was no shift of risk to NHSL. In any event, NHSL do not appear to have questioned MML's stated position regarding its role in relation design assurance.

224. Graeme Greer described continuing concerns about risk allocation. He recalled[576] a discussion he had had with Brian Currie around 28 June 2018 about whether MML could take any further mitigation measures to protect the Board's position in relation to risk allocation. In his evidence at the February 2024 hearing[577], he provided more information about the options presented to NHSL: option one was for MML to carry on as before; option two was for MML's scope to increase to give additional assurance;

[573] Bundle 13, volume 5 for the February 2024 hearing at page 1272
[574] Page 108 of transcript
[575] Pages 36 and 37 of transcript
[576] Paragraph 70 of his Statement for the February 2024 hearing
[577] Pages 106 and 168 of transcript

and option three was for MML to do the design itself. Mr Greer recalled[578] Mr Currie commenting that due to IHSL's assurance of compliance, no greater level of review was required of MML: MML carried on in accordance with option one. In his evidence at the February 2024 hearing[579], Mr Greer noted that this decision was taken in the context of the serious commercial pressure on the project. These pressures were summarised in the evidence of Susan Goldsmith[580].

225. During his evidence, it was put to Mr Greer[581] that Ronnie Henderson had a "very different recollection" on this matter. The basis for this question was Mr Henderson's evidence[582] that NHSL relied on advice from MML in relation to the agreed resolutions. A similar question was asked[583] of Janice MacKenzie. Despite the manner in which these questions were framed, it is not immediately apparent that Mr Henderson's recollection, or indeed that of Ms Mackenzie, on this point was inconsistent with Mr Greer's evidence. As Mr Greer explained[584] MML did provide advice in relation to the agreed resolutions: however, what it did not provide was design assurance. In any event, as Mr Greer noted[585], Mr Henderson was not involved in all of the conversations that Mr Greer had with Brian Currie. It was Mr Currie who managed MML's scope. Neither Mr Henderson nor Ms MacKenzie was copied in to Mr Greer's email to Mr Currie dated 4 June 2018[586].

226. At paragraph 47 of CTI 2024 it is stated that "Members of NHSL's project team thought that MML had confirmed that the technical solution set out in SA1 was adequate and appropriate." MML is unclear about the basis for this statement: having reviewed the transcripts of the evidence and statements of those on the NHSL project team (Ronnie Henderson, Janice MacKenzie and Brian Currie), MML has been unable to locate any statement to the effect that any of these individuals thought that MML had confirmed that the technical solution set out in SA1 was adequate and appropriate. Although Mr

[578] Paragraph 70 of his Statement for the February 2024 hearing
[579] Page 109 of transcript
[580] Paragraph 32 of her Statement for the February 2024 hearing
[581] Page 169 of transcript
[582] Paragraph 27 of his Statement for the February 2024 hearing
[583] Pages 33 and 34 of transcript
[584] Page 170 of transcript
[585] Pages 169 and 170 of transcript
[586] Bundle 13, volume 5 for the February 2024 hearing at page 1272

Henderson stated[587] that NHSL relied on advice from MML in relation to the agreed resolutions and Ms MacKenzie agreed[588] with that statement, that falls some way short of confirmation that the technical solution was adequate and appropriate. Similarly, at paragraph 57 of CTI 2024 it is suggested that MML gave statements that it was "happy with the technical solution". MML is unclear of the evidential basis for this statement. At paragraph 11 of CTI 2024 it is stated that "NHSL considered it was getting technical advice and assurance from MML". A similar statement is made at paragraph 159: "there was nonetheless a belief that [MML] were providing assurance to NHSL about the technical solutions". Reference is then made to the evidence of Susan Goldsmith, Ms MacKenzie and Mr Henderson. Ms Goldsmith was not on the project team and (as discussed above) her evidence proceeded on the basis of a fundamental misunderstanding of MML's role. The cited reference to Ms MacKenzie's evidence is simply to her agreement that NHSL "relied on advice from [MML] in relation to the agreed resolutions", not to any suggestion that MML was providing "assurance". The cited reference to Mr Henderson's evidence seems to be to a passage in which he agrees that MML was "providing technical advice" to NHSL. His evidence regarding assurance was that MML was not undertaking a "design assurance review function"[589]. There is accordingly no compelling body of evidence that MML was providing any form of design assurance to NHSL.

227. At paragraph 49 of CTI 2024, it is stated that "On MML's analysis, there was no technical advice or assistance provided to NHSL on the solution set out in SA1 as MML could not agree to take on design responsibility." That is not a correct statement of MML's position. As Mr Greer explained[590] MML did provide advice in relation to the agreed resolutions: however, what it did not provide was design assurance.

IHSL's Confirmation of Compliance with SHTM 03-01

228. In early 2019, there was an exchange of correspondence between NHSL and IHSL concerning compliance with SHTM 03-01. On 31 January 2019, IHSL wrote to

[587] Paragraph 27 of his Statement for the February 2024 hearing
[588] Page 33 of transcript
[589] Pages 57 and 58 of transcript
[590] Page 170 of transcript

NHSL[591] stating "All ventilation systems have been designed, installed and commissioned in line with SHTM 03-01 as required…" The timing of this correspondence is significant because it came after the technical solution had been agreed in relation to the single bedroom issue and four bed room issue, but before NHSL entered into SA1. Taken at face value, it would seem to be confirmation that the ventilation system design (which would include ventilation in single bedrooms, four bed rooms, and Critical Care) complied with SHTM 03-01. It would have provided NHSL with comfort that SA1 did not involve any departure from the requirements of SHTM 03-01 except to the extent that NHSL had agreed any derogations.

229. In his statement[592], Darren Pike claimed that the words "as required" in the letter dated 31 January 2019 meant "except to the extent that the Board had stated a different requirement". Although Mr Pike's intention when he drafted the letter may have been to convey this meaning, it is plain from the words used that he did not do so. The obvious and natural meaning of the words "as required", is that compliance with SHTM 03-01 was a requirement of the Project Agreement and of the letter from the Scottish Government dated 25 January 2019[593] that prompted Mr Pike's letter; and that the design met that requirement. In his evidence[594], Mr Pike conceded that the letter had been read differently from his intended meaning. Although Stewart McKechnie was not party to this correspondence, he confirmed[595] that WW had been requested to confirm that its design was compliant with SHTM 03-01 "which we did". It therefore seems that WW's position was that the design complied with SHTM 03-01 without the need for the artificial qualification put upon that by Mr Pike.

SA1

230. Paragraph 6.2 of PPP8 states that SA1 "provided for 4ac/hr with a balanced pressure regime for single and multi-bed rooms in the Critical Care Department". Similar statements are to be found in the report obtained by NHSL from Grant Thornton

[591] Bundle 4 for the February 2024 hearing at page 9
[592] Paragraph 77 of his Statement for the February 2024 hearing
[593] Bundle 13, volume 1 at page 762
[594] Page 68 of transcript
[595] Paragraph 64 of his Statement for the February 2024 hearing

("GT")[596]. The GT report appears to have been very influential in relation to the views of senior management within NHSL such as Timothy Davison and Susan Goldsmith. GT's report states (at para 279) that SA1 contains "the formal sign off that the three four bedded rooms within critical care were to have 4 air changes per hour…" and (at para 280) that SA1 "inadvertently accepted 4 air change rates per hour within the single rooms located in critical care, in error"[597]. The GT report concludes (at paragraphs 18 and 19) that SA1 "derogated the responsibility for [IHSL] to comply with SHTM 03-01 and agreed an air change rate of 4 air changes per hour within critical care… [SA1] cemented the error contractually."[598]. These are not accurate statements regarding the effect of SA1. MML's position regarding the relevant provisions in SA1 and the correct interpretation of those provisions is set out in the following paragraphs.

231. Clause 1.3(i) of SA1[599] states that Dispute means:

> "all claims, disagreements and disputes between the Parties arising out of or in connection with the matters which are set out in the column entitled "Dispute" in Part 1 of the Schedule (Technical Schedule)…"

232. There are two entries in the Technical Schedule that are relevant for present purposes: item 7 concerning "4-bed ventilation"; and item 13 concerning "Single-Bedroom Ventilation air changes".

Item 7 – The Dispute

233. Item 7 in the Technical Schedule[600] gives a lengthy description in the "Dispute" column. It sets out NHSL's position that the ventilation pressure regime and the air change rates are "non-compliant." It notes that "the principal concern to the Board" relates to the proposed pressure regime.

[596] Bundle 10 for the February 2024 hearing at page 4
[597] Bundle 10 for the February 2024 hearing at page 34
[598] Bundle 10 for the February 2024 hearing at page 7
[599] Bundle 1 for the February 2024 hearing at page 2055
[600] Bundle 1 for the February 2024 hearing at page 2083

234. IHSL's narrated response is that "the design and installation meets the requirements of the Project Agreement…"

235. The Dispute column does not expressly state whether it concerns four bed rooms in Critical Care.

Item 13 – The Dispute

236. Item 13 in the Technical Schedule[601] also gives a lengthy description in the "Dispute" column. It states:

> "In relation to ventilation air change rates, the Board believes Project Co's design for the single bed ventilation is non-compliant with the [BCRs]… 4ac/h supply provided to the bedrooms instead of the required 6ac/h. The ensuite extract rate proposed in excess of 10ac/h where requirements of SHTM 03-01 is 3ac/h."

237. IHSL's narrated response is again that "the design and installation meets the requirements of the Project Agreement…"

238. The Dispute column does not expressly state whether it concerns single bedrooms in Critical Care, although it does make reference to the rooms having ensuites.

The Agreed Resolutions

239. Clause 1.3(i) of SA1[602] states that Agreed Resolution means:

> "the technical solution required to resolve the Dispute … and the obligations on each Party to meet (or procure the meeting of) that agreed technical solution all as detailed in the column entitled "Description of Agreed Resolution" in Part 1 of the Schedule (Technical Schedule)"

[601] Bundle 1 for the February 2024 hearing at page 2087
[602] Bundle 1 for the February 2024 hearing at page 2055

240. Clause 6.4 of SA1[603] states:

> "6.4 The Parties agree that the design of:
>
> 6.4.1 the works set out in Part 1 of the Schedule (Technical Schedule)…
>
> shall be deemed to have been submitted and reviewed in accordance with Clause 12 (The Design Construction and Commissioning Process) of the Project Agreement and that the Board has confirmed that Project Co is entitled to proceed with construction. Any such design shall be deemed to be an Approved RDD Item…"

Item 7 – The Agreed Resolution

241. The Description of the Agreed Resolution in relation to item 7[604] states:

> "The Reviewable Design Data noted below for this item has been given status Level B in accordance Schedule Part 8 (Review Procedure).
>
> The resolution of the Dispute submitted by Project Co through the Schedule Part 8 (Review Procedure) and agreed by the Board, is for 14 No 4 bed rooms to be balanced or negative to the corridor at 4 ac/hr…"

242. The Agreed Resolution relates to the RDD process under Schedule Part 8 of the Project Agreement. The mechanism by which the Agreed Resolution has come about is that IHSL is said to have submitted its proposal through the RDD process. This is consistent with the terms of clause 6.4 of SA1.

243. In accordance with Schedule Part 8 of the Project Agreement, Level B status means "proceed subject to amendment as noted" (para 4.3.1)[605]. As noted above, Clause 4.5[606] stipulates that the return of any RDD endorsed by NHSL as Level A, B or C:

[603] Bundle 1 for the February 2024 hearing at page 2068
[604] Bundle 1 for the February 2024 hearing at page 2083
[605] Bundle 5 for the April 2023 hearing at page 1498
[606] Bundle 5 for the April 2023 hearing at page 1498

> "shall mean that the relevant Submitted Item may be used or implemented for the purposes for which it is intended but, save to the extent expressly stated in this Agreement including, without limitation, as specified in Appendix 1 Table A to this Schedule Part 8 (Review Procedure), such return or deemed return of any Submitted Item shall not otherwise relieve Project Co of its obligations under this Agreement nor is it an acknowledgement by the Board that Project Co has complied with such obligations."

244. Accordingly, giving the agreed resolution for item 7 a Level B status, meant no more than that IHSL could proceed with the installation, but was not relieved of its obligations under the Project Agreement.

245. It follows that, having regard to the full terms of SA1, in particular the manner in which the Agreed Resolution for item 7 is expressed, IHSL was not entitled to proceed on the basis that it had been agreed that four bed rooms in Critical Care ought to have 4ac/hr. As the Agreed Resolution was to give this proposal Level B status under the RDD procedure, IHSL still required to comply with the other obligations under the Project Agreement. This included compliance with the BCRs. For the reasons set out above, it is clear that the BCRs required compliance with SHTM 03-01, which in turn required 10ac/hr for Critical Care Areas.

246. Paragraph 10 of CTI 2024 argues that in the Agreed Resolution "there was a lack of clarity in terms of whether the parties were setting out NHSL's brief … or agreeing a design solution to that brief". A similar statement is made at paragraph 30. There was no such lack of clarity. The fact that the Agreed Resolution was couched in terms of the RDD process (as is recognised at paragraph 160 of CTI 2024) made it abundantly clear that parties were not setting out NHSL's brief. The Agreed Resolution was treated as a design solution submitted by IHSL for which NHSL had provided limited approval in accordance with the contractual provisions governing RDD. At paragraph 161 of CTI 2024 it is suggested that there is "an air of unreality about treating the ventilation solutions in this way". In support of this, it is suggested, apparently under reference to a passage in Susan Goldsmith's evidence, that "the process leading up to SA1 therefore involved clarification by NHSL of their ventilation brief". MML has been unable locate

such a sentiment in the transcript of Ms Goldsmith's evidence. In any event, regardless of the process leading up to SA1, the Agreed Resolutions are plainly expressed by reference to the RDD process: one cannot simply ignore that due to some nebulous suggestion of unreality. This reference to the RDD process is entirely grounded in reality. The evidence of Susan Goldsmith at the February 2024 hearing[607] was that concerns about risk transfer in SA1 were mitigated by relying on NHSL's legal advisors who provided advice to ensure that there was no shift of risk to NHSL. The reference to the RDD process in the Agreed Resolutions was entirely consistent with NHSL's desire to retain the allocation of risk set out in the Project Agreement. Although CTI 2024 states at paragraph 162 that "on any view… SA1 set out the technical basis on which NHSL had agreed to installation of the ventilation system", and at paragraph 164 refers to "the agreed ventilation parameters", any such agreement was for the limited purpose of the RDD process: it did not absolve IHSL of responsibility for compliance with the BCRs, including the requirements of SHTM 03-01.

247. CTI 2024 comments on MML's role in relation to the Agreed Resolution. It recognises that, if the Agreed Resolution was not NHSL's brief (i) "It would be understandable for MML to refrain from taking design responsibility for the contractor's solution" (paragraph 11); and (ii) MML "could not assist with [it] without a change to their remit and a fundamental departure from the standard risk profile of the revenue funded model which places design risk with the project company" (paragraph 10). However, if the Agreed Resolution was NHSL's brief, it is suggested that "it would be reasonable for NHSL to expect assistance from the technical advisors that had been engaged since the reference design stage of the project" (paragraph 10). For the reasons set out above, it is clear that the Agreed Resolution was not NHSL's brief. Accordingly, as CTI state, it is understandable that MML had no design responsibility for the Agreed Resolution.

Item 13 – The Agreed Resolution

248. The Description of the Agreed Resolution in relation to item 13[608] states:

[607] Pages 36 and 37 of transcript
[608] Bundle 1 for the February 2024 hearing at page 2087

> "The Board/Project Co agree this item is closed, and the agreed technical solution approved through Schedule Part 8 (Review Procedure) and, agreed by the Board and Project Co as resolving the Dispute is as set out in Disputed Works Schedule Appendix 1 Item 13."

249. Item 13 of the Disputed Works Schedule Appendix 1[609] sets out at section 1.0 the Detail of Change. This expressly refers to the provision in Table A1 in SHTM 03-01: Part A concerning single rooms which provides for 6ac/hr. IHSL then proposes to:

> "1. Decrease the mechanical air change ventilation rate within single bedrooms from 6 air changes per hour (6ac/hr) to 4 air changes per hour (4ac/hr); and
> 2. Increase the mechanical air change ventilation rate within single bedroom WCs from 3 air changes per hour (3ac/hr) to minimum 10 air changes per hours (10ac/hr)."

250. Item 13 does not specify which single bedrooms it applies to. There is no mention of Critical Care either in item 13 of the Technical Schedule or in item 13 of the Disputed Works Schedule Appendix 1. However, the express reference in the Disputed Works Schedule to the provision Table A1 of SHTM 03-01: Part A related to "single room" is a clear indication that item 13 concerns standard single bedrooms, not those that are Critical Care Areas which have their own specific provision in Table A1. Further, the fact that IHSL's proposal is to change from 6ac/hr rather than from 10ac/hr demonstrates that the provision relates to standard single bedrooms, not to those that are Critical Care Areas.

251. The foregoing analysis is based on an interpretation of Table A1 of the SHTM 03-01: Part A to the effect that the provision for "Critical Care Areas" covers single bedrooms in Critical Care. This interpretation was disputed by Stewart McKechnie. His claimed interpretation was that "Critical Care Areas" in Table A1 of the SHTM 03-01: Part A related only to isolation rooms. For the reasons set out above, Mr McKechnie's claimed interpretation of Table A1 is not a tenable interpretation. In any event, even if Mr

[609] Bundle 13, volume 2 for the February 2024 hearing at page 1307

McKechnie's claimed interpretation of Table A1 is correct, it would not follow that item 13 of the Disputed Works Schedule has any application in relation to single bedrooms in the Critical Care. Point 2 of IHSL's proposal makes reference to ventilation within "single bedroom WCs". This conclusively demonstrates that the Agreed Resolution in relation to single bedroom ventilation has no relevance to single bedrooms with Critical Care, as the single bedrooms in Critical Care did not have WCs (as Ken Hall confirmed in his evidence at the February 2024 hearing[610]).

252. In any event, the Agreed Resolution for item 13 is said to have been "approved through Schedule Part 8 (Review Procedure)". For the reasons set out above in relation to item 7, such approval meant no more than that IHSL could proceed with the installation, but was not relieved of its obligations under the Project Agreement.

253. Accordingly, even if the Agreed Resolution for item 13 applied to single bedrooms in Critical Care (which it did not for the reasons set out above), IHSL still required to comply with the other obligations under the Project Agreement.

254. It follows that, having regard to the full terms of SA1, IHSL was not entitled to proceed on the basis that it had been agreed that single bedrooms in Critical Care ought to have 4ac/hr. It is clear that the Agreed Resolution, as set out in the Disputed Works Schedule, had no application to those single bedrooms in Critical Care. Even if the Agreed Resolution applied to single bedrooms in Critical Care, as the resolution related to approval given under the RDD procedure, IHSL still required to comply with the other obligations under the Project Agreement. This included compliance with the BCRs. For the reasons set out above, it is clear that the BCRs required compliance with SHTM 03-01, which in turn required 10ac/hr for Critical Care areas.

Conclusion on SA1

255. Having regard to the full terms of SA1, in particular the manner in which the Agreed Resolutions for Items 7 and 13 were expressed, IHSL was not entitled to proceed on the basis that it had been agreed that four bed rooms and single bedrooms in Critical

[610] Pages 49 and 50 of transcript

Care ought to have 4ac/hr. IHSL still required to comply with the BCRs, including SHTM 03-01, in relation to these rooms. In order to comply with its obligations under the Project Agreement, as amended by SA1, IHSL required to provide 10ac/hr in all Critical Care Areas in accordance with SHTM 03-01.

Findings

256. In the following paragraphs, MML responds to the findings proposed in CTI 2023. CTI 2024 does not have a specific section setting out proposed findings. MML's response to the submissions made in CTI 2024 is to be found at the relevant section in the discussion set out above.

257. The Chair is invited not to make the finding suggested at paragraph 304 of CTI 2023. For the reasons set out above, on a proper reading of the Project Agreement, there was no ambiguity in relation to whether the ventilation system required to fully comply with SHTM 03-01. It is plain from numerous provisions, not just paragraph 2.3 of the BCRs, that compliance with SHTM 03-01 was required. In particular, on a full reading of paragraphs 8 and 8.1 (which were not subject to the qualification in paragraph 2.3 concerning any "specific and different requirement"), compliance with SHTM 03-01 was mandatory. The Chair is invited to make a finding to that effect.

258. The Chair is invited not to make the finding suggested at paragraph 305 of CTI 2023. MML accepts that the procurement documentation did contain some potential ambiguities and inconsistences. However, when the provisions are viewed as a whole, it is clear that the EM was not intended to be mandatory. In any event, the subsequent actions of the parties make it clear that there was no real confusion. The Chair is invited to make a finding to that effect.

259. The Chair is invited not to make the finding suggested at paragraph 307 of CTI 2023. Although the reference design team was ring fenced from the procurement exercise, there was no evidence to suggest that this meant that "the problem was exacerbated". There was no evidence that any of the bidders wanted to "discuss matters with the engineers that produced the Environmental Matrix". Had they been able to do so, there was no evidence that they would have discussed any of the matters mentioned towards

the end of paragraph 307. Any supposed effect of the reference design team being ring fenced is purely hypothetical. In any event, had bidders wished to clarify the matters mentioned towards the end of paragraph 307, they could have done so by asking NHSL or MML.

260. The Chair is invited not to make the finding suggested in the third and fourth sentences of paragraph 310 of CTI 2023. MML accepts that the procurement documentation did contain some potential ambiguities and inconsistences. However, when the provisions are viewed as a whole, it is clear that the EM was not intended to be mandatory. In any event, the subsequent actions of the parties make it clear that there was no real confusion.

261. The Chair is invited not to make the finding suggested in the final sentence of paragraph 310 of CTI 2023. The available evidence directly contradicts this suggested finding. Any supposed confusion regarding the status of the EM had no causative effect in relation to the problems that arose with the ventilation system. Stewart McKechnie's position is that "the EM did accord with SHTM 03-01" [611] and that 4ac/hr in Critical Care "did not appear to be a mistake" [612]. Accordingly, it would not have mattered whether the reference design EM was mandatory or not: IHSL/WW would not have made any changes to the relevant entries because they considered them to be correct. To adapt the language of the proposed finding, had the status of the document been made clearer, the problems would have occurred in any event due to Mr McKechnie's interpretation of SHTM 03-01.

262. The Chair is invited not to make the finding suggested at paragraph 311 of CTI 2023. The wording of the opening sentence is potentially misleading and does not accurately reflect the evidence. Although a "more intense review" could potentially have identified the issues, the available evidence suggests that a review of sufficient intensity to have identified the issues would not have been practical. The Chair is accordingly invited to make a finding that "The tenderers' confirmation that their design complied with the BCRs for the purposes of evaluation criterion C21 was taken as face value. The tender evaluation process was carried out in accordance with the agreed

[611] Paragraph 24 of his Statement for the April 2023 hearing
[612] Paragraph 26 of her Statement for the April 2023 hearing

methodology set out in the Final Tender Evaluation Manual and Supplementary Guide. It would have been wholly disproportionate and prohibitively expensive to conduct a review of the tender submissions that would have been of sufficient intensity to have identified the issues with the EM."

263. The Chair is invited not to make the finding suggested in the first sentence of paragraph 312 of CTI 2023. MML was not appointed to "design" the ITPD; nor was it appointed to "confirm" the reference design complied with published guidance. A more accurate wording would be "At the procurement stage, NHSL appointed technical advisers whose responsibilities included developing the technical components of the ITPD and checking the reference design for compliance with all appropriate NHSL and legislative guidelines and requirements."

264. In relation to the matters raised in paragraph 313 of CTI 2023, the Chair is invited to conclude that conducting a detailed review of the EM would not have been a reasonable option for the reasons set out above.

265. The matters raised in paragraph 313 of CTI 2023 are reflected to some degree in the Executive Summary at paragraph 9 of CTI 2023. However, paragraph 9 goes on to suggest that, had H&K "been asked to refresh the statement of compliance, there is a possibility that the errors could have been spotted." For the reasons set out above, there is no evidential basis to support the contention that the outcome would have been any different had a further statement of compliance been sought in September 2012.

266. MML accepts the position set out in the second and third sentences of paragraph 315 of CTI 2023. However, the manner in which this matter is set out in the Executive Summary at paragraph 8 of CTI 2023 is ambiguous. For the avoidance of doubt MML submits that the error in the cells of the EM was a genuine mistake. However, the fact that this was not detected by NHSL or MML before the contract was signed could not properly be considered to be a mistake because neither NHSL nor MML could reasonably have been expected to have detected the error.

Potential Recommendations

267. In the following paragraphs MML sets out its response to the proposed recommendations suggested in CTI 2024. This response is restricted to those matters that impact directly upon MML.

268. In response to paragraph 421 of CTI 2024, MML can see the merit in the suggestion of a symposium.

269. In response to paragraph 422 of CTI 2024, MML agrees that the introduction of the Ventilation Safety Group is an important improvement. However, MML note that this improvement is specifically focused on ventilation issues. There may be some merit in considering the implementation of similar safety groups in other design contexts, such as fire safety.

270. In response to paragraph 424 of CTI 2024, MML agrees that the establishment of Assure is a positive step.

271. In response to paragraph 428 of CTI 2024, MML does not agree that the Board is necessarily best placed to identify which output parameters of key building systems are essential for the particular clinical use. That may depend upon which funding model is being used for the particular project (and therefore the contractual risk allocation).

272. In response to paragraph 430 of CTI 2024, MML agrees that a standard form derogation for use throughout the NHS would be beneficial.

273. In response to paragraph 431 of CTI 2024, MML agrees that consideration should be given to merging the various procedures designed to ensure that health board projects meet appropriate standards. In any event, MML suggests that it would be helpful to have greater clarity about what all of the various procedures are intended to do – what matters fall within the scope of each of the procedures and what matters do not.

274. In response to paragraph 434 of CTI 2024, MML agrees that it would be helpful for health boards to have access to useful information about common project errors.

275. In response to paragraph 437 of CTI 2024, MML agrees that a short report should be generated following commissioning and validation confirming whether there is full compliance with published guidance.

276. In response to paragraph 451 of CTI 2024, MML suggests that this is an area that requires further consideration. For the reasons set out above, the role played by a technical advisor is rather different from that played by a solicitor: it may therefore be inappropriate to expect that the manner in which advice is instructed and provided is the same for both disciplines. There may well be circumstances in which formal advice is sought from a technical advisor. In those instances, MML agrees that there should be a clear record of the advice requested and the advice tendered. However, technical advisors often work collaboratively with their NHS client (as happened in the present case) in a way that is not always conducive to having instructions and advice formalised in writing. Such formalisation could undermine the collaborative approach, which in MML's experience has been an effective approach in many projects. A further layer of formalisation could add cost to the project and prolong the programme timetable. This is perhaps a matter that would merit further discussion at the symposium suggested at paragraph 421 of CTI 2024.

277. In response to paragraph 452 of CTI 2024, MML agrees that it would be beneficial to have a uniform policy or procedure for boards undertaking new build hospital projects in relation to obtaining and recording technical advice on key issues.

278. In response to paragraph 487 of CTI 2024, MML considers that it would be beneficial to have a fully populated template EM that is maintained and updated by the NHS. MML is not best placed to comment on whether the maintenance of such a template EM would be feasible.

Clyde & Co Scotland LLP

28 May 2024

THE SCOTTISH HOSPITALS INQUIRY

Closing Statement

on behalf of

Multiplex Construction (Europe) Limited ("Multiplex")

relative to the Royal Hospital for Children and Young People and Department of Clinical Neurosciences in Edinburgh

1. Introduction

1.1 This closing statement follows on from, and is to be read with, the Interim Written Submissions dated 23 June 2023 lodged by Multiplex following the April/May 2023 hearing diet.

1.2 This closing statement also supplements Multiplex's responses to the Inquiry's Provisional Position Papers 6, 7 (including the PPP7 Supplementary Note) and 8 (the response to PPP8 being in two parts). Those responses are referred to and their terms incorporated herein for the sake of brevity. On that basis, this closing statement does not generally seek to address general matters of background and chronology. Instead, it seeks (i) to focus on particular matters canvased in the [2024] hearings before the inquiry, and (ii) to address the specific matters mentioned in paragraphs 3.4.1 3.4.5 of the Chair's Direction 6.

1.3 These submissions are presented in the following five chapters:

- Executive Summary
- Discussion of the evidence on certain particular matters occurring after Financial Close
- The matters mentioned in Paragraphs 3.4.1 3.4.5 of Direction 6

- Other matters
- Conclusions

1.4 In accordance with instructions from the Inquiry (email dated 14 May 2024), references to documents contained in the bundles created for the February/March 2024 hearings are in the following format: (Bundle [x], Volume [y], Page [z]. Where reference is to made to a document contained in a bundle created for either the first (May 2022) or second (April/May 2023) hearings it is referenced as follows: [2022 or 2023], Bundle [x], Volume [y], Page [2].

1.5 References to the transcripts of the evidence are given in the following format: TD1,C45,p.25 = Transcript Day 1, Column 45, pdf page 25. All such references are to the transcripts of the hearings commencing on 26 February 2024 unless expressly stated otherwise.

1.6 In this Closing Statement, 4AC means 4 air changes per hour, 10AC means 10 air changes per hour and so on.

2. **Executive Summary**

2.1 At the heart of this Inquiry is the fact that NHSL's brief for the project did not reflect what it is now understood that NHSL actually wanted.

2.2 Those best placed to identify that the EM did not reflect what NHSL actually wanted were NHSL and their advisers, Mott MacDonald. Several opportunities for this to be identified arose, both before Financial Close and after, but these opportunities were missed.

2.3 The basic problem was compounded by the fact that SHTM-03-01 is guidance and was open to differing interpretations. Mr McKechnie's interpretation of SHTM-03-01 was such that he did not perceive there to be any inconsistency between the EM and SHTM-03-01 in respect of the multi-bed and single rooms within the critical care department. If Mr McKechnie had had a different interpretation of

SHTM-03-01 it is possible that the disconnect between the EM and SHTM-03-01 might have been identified earlier than it was.

2.4 The EM and the underlying design documents for the ventilation system were the subject of detailed scrutiny by NHSL and Mott MacDonald through the RDD process. This included comments specifically in relation to air change rates in some bedrooms within the Critical Care department. Ventilation for the multi-bed rooms, including four multi-bed rooms in the Critical Care department, was given particular scrutiny and even became the subject of a dispute which was eventually resolved, from a contractual perspective, by SA1 (the technical solution having been agreed and implemented many months earlier). The ventilation system was designed and constructed in accordance with the agreed technical solution. This was confirmed by the Independent Tester certifying that the Actual Completion Date of the Works and the Actual Commissioning End Date of the Works were achieved on 22 February 2019 (see Bundle 4, pages 222 and 223).

2.5 After the decisions not to open the hospital, and to undertake works to design and install a ventilation system that provided positive pressure and 10AC in Critical Care, had been taken, the revised specification for the ventilation system was set out in High Value Change Notice HVC 107 and SA2. This is inconsistent with any understanding that the Project Agreement always required a ventilation system that provided positive pressure and 10AC in Critical Care, regardless of the terms of the EM. If that was the case, no High Value Change Notice would have been necessary.

2.6 The proposed recommendations made by Counsel to the Inquiry in their Closing Statement are agreed as being appropriate.

3. Discussion of the evidence on certain particular matters occurring after Financial Close

3.1 At paragraphs 3.2 3.5 of its Interim Written Submissions of 30 June 2023, Multiplex identified six matters upon which it was anticipated that the Inquiry may wish to hear further evidence. Those were:

- Ken Hall and Graeme Greer corresponded by email on 26 May, 15 June and 22 July 2015 in terms indicating that both parties (through Multiplex and Mott MacDonald) were proceeding on the understanding that the EM was only RDD to the extent of NHSL's 7 comments from the meeting of 11 November 2014, which were subsequently included in section 5 of Schedule Part 6 to the Project Agreement [2023] Bundle 6, pdf page 80).

- The design of the ventilation system (including not only the number of AC but also the ductwork, air handling units and plant space necessary to supply the number of AC) was reviewed by NHSL and Mott MacDonald, including (i) during the RDD process, where NHSL's requirement for 4AC in Critical Care bedrooms was confirmed; (ii) during discussions in relation to the pressure regime for the multi bed wards, where in an email of 18 April 2018 NHSL stated that they were "seeking a design for 4AC for all 14 rooms"- which included the multi-bed wards in Critical Care, and (iii) in the Settlement Agreement between NHSL and IHSL dated 22 February 2019.

- After the agreed approach to the number of air changes per hour in Critical Care (HDUs) was questioned by IOM in IOM's first issues log, circulated by email by Brian Currie on 25 June 2019, NHSL approached IHSL to undertake additional work to achieve 10AC in Critical Care on the basis that this would be a Change in accordance with Schedule Part 16 (Change Protocol) to the Project Agreement.

- Multiplex did not undertake the additional works mentioned above, but understands that they were undertaken by IHSL and were the subject of Supplemental Agreement 2 dated 5 August 2020, the purpose of which appears to have been to amend and supplement the original Project Agreement: reference is made to paragraphs 95-109 of the Inquiry's PPP4.

- Stewart McKechnie of TUV-SUD/Wallace Whittle referred in his evidence to having clarified that the rooms treated with 10AC and 10 pascals of

pressure was a correct interpretation, albeit this was a "wee bit away" from the Inquiry's timeline [2023 Hearings] TD7,C33, pdf p. 19).

- It is also anticipated that the Inquiry may wish to hear evidence relating to the post Financial Close documents which Mott MacDonald sought (unsuccessfully) to be allowed to put to witnesses at the hearings in May 2023.

3.2 In this section of this Closing Statement, Multiplex makes brief submissions on the evidence on each of these matters which was heard in the February/March 2024 hearings.

3.3 Ken Hall and Graeme Greer corresponded by email on 26 May, 15 June and 22 July 2015 in terms indicating that both parties (through Multiplex and Mott MacDonald) were proceeding on the understanding that the EM was only RDD to the extent of NHSL's 7 comments from the meeting of 11 November 2014, which were subsequently included in section 5 of Schedule Part 6 to the Project Agreement ([2023] Bundle 6, pdf page 80).

3.3.1 This exchange of correspondence was spoken to by Ken Hall at paragraphs [5]-[9] of his witness statement, Witness Statement Bundle, Volume 2, pages 42-43.

3.3.2 It is apparent on the face of the final exchange of emails on 22 July 2015 that only the 7 comments from the meeting of 11 November 2014 are being worked on, in the context of updating and formally issuing the EM (see Bundle 13, Volume 2, pages 48-49). There is no indication that any further or other changes to the EM are anticipated by either party.

3.3.3 On that basis, it is clear that the understanding of both parties (NHSL/Mott MacDonald on the one hand and IHSL/Multiplex/Wallace Whittle on the other) were of the understanding that the EM was only RDD to the extent of the 7 comments.

3.4 The design of the ventilation system (including not only the number of AC but also the ductwork, air handling units and plant space necessary to supply the number of AC) was reviewed by NHSL and Mott MacDonald, including (i) during the RDD process, where NHSL's requirement for 4AC in Critical Care bedrooms was confirmed; (ii) during discussions in relation to the pressure regime for the multi bed wards, where in an email of 18 April 2018 NHSL stated that they were "seeking a design for 4AC for all 14 rooms"- which included the multi-bed wards in Critical Care, and (iii) in the Settlement Agreement between NHSL and IHSL dated 22 February 2019.

3.4.1 In order to avoid extensive repetition, reference is made to section 4.5 below in relation to these matters.

3.5 After the agreed approach to the number of air changes per hour in Critical Care (HDUs) was questioned by IOM in IOM's first issues log, circulated by email by Brian Currie on 25 June 2019, NHSL approached IHSL to undertake additional work to achieve 10AC in Critical Care on the basis that this would be a Change in accordance with Schedule Part 16 (Change Protocol) to the Project Agreement.

3.5.1 This was spoken to by Darren Pike at paragraphs [103] to [115] and [121]-[122] of his witness statement (Witness Statement Bundle, Volume 3, Pages 80-83.

3.5.2 Mr Pike's evidence was that on 3 July 2019 NHSL issued an instruction for IHSL/Multiplex to provide 7AC in all single bedrooms (with the exception of room 1-B1-037) and 5AC in all four bedded rooms (with the exception of room 1-B1-063) (See Bundle 13, Volume 1, page 836).

3.5.3 Later, on 26 July 2019, IHSL forward to Mr Pike NHSL's draft High Value Change Notice (Bundle 13, Volume 1, page 846 at 849), asking IHSL to design, supply and install a ventilation system capable of delivering 10AC per hour and 10PA of pressure in Critical Care rooms.

3.5.4 The proposed use of a High Value Change Notice is inconsistent with any understanding of the requirements of the Project Agreement. If the Project Agreement demanded compliance with SHTM-03-01 regardless of the terms of the EM, a High Value Change Notice would not have been necessary.

3.6 Multiplex did not undertake the additional works mentioned above, but understands that they were undertaken by IHSL and were the subject of Supplemental Agreement 2 dated 5 August 2020, the purpose of which appears to have been to amend and supplement the original Project Agreement: reference is made to paragraphs 95-109 of the Inquiry's PPP4.

3.6.1 As is noted at paragraphs 281, 392, 393 and 394 of Counsel to the Inquiry's Closing Statement, Imtech and Hoare Lea were engaged to design and install a ventilation system that provided positive pressure and 10 air changes per hour. The revised specification for the ventilation system is set out in High Value Change Notice HVC 107 (Bundle 3, page 1146) and Settlement Agreement 2 (Bundle 3, page 1204). In accordance with Clause 33 of the Project Agreement and Schedule Part 16 of the Project Agreement, NHSL issued IHSL with a Board Change Notice in respect of the required works.

3.6.2 As above, the use of a High Value Change Notice is inconsistent with NHSL's stated understanding of the contractual requirements of the Project Agreement. If the Project Agreement demanded compliance with SHTM-03-01 regardless of the terms of the EM, a High Value Change Notice would not have been necessary.

3.7 Stewart McKechnie of TUV-SUD/Wallace Whittle referred in his evidence to having clarified that the rooms treated with 10AC and 10 pascals of pressure was a correct interpretation, albeit this was a "wee bit away" from the Inquiry's timeline [2023 Hearings] TD7,C33, pdf p. 19).

3.7.1 This was spoken to by Mr McKechnie in his evidence (Transcript day 4, pages 16-25). He maintained that an exchange of email correspondence in September 2015 involving Mott MacDonald (Bundle 13, Volume 2, page 55 and

following), concerning the proper treatment of isolation rooms within the Critical Care department, added extra support to Wallace Whittle's change to Guidance Note 15 of the EM in November 2015 by the addition of the words "for isolation cubicles".

3.7.2 Regardless of that explanation, Wallace Whittle's failure to highlight the change to Guidance Note 15 in red text, as they did with other changes to the EM, is a missed opportunity to have identified a discrepancy between (the original terms of Guidance Note 15) and the body of the EM in respect of critical care rooms.

3.8 It is also anticipated that the Inquiry may wish to hear evidence relating to the post Financial Close documents which Mott MacDonald sought (unsuccessfully) to be allowed to put to witnesses at the hearings in May 2023.

3.8.1 This refers to the correspondence in early 2019 which is discussed at paragraphs 141 146 of the Closing Statement of Counsel to the Inquiry. Namely the letter(s) written by Darren Pike of Multiplex to IHSL dated 31 January 2019 confirming *inter alia* that all ventilation systems at the RHCYP/DCN had been designed, installed and commissioned in line with SHTM-03-01 "*as required*".

3.8.2 The phrase "as required" used by Mr Pike in each of these letters is both accurate and unobjectionable.

3.8.3 Mr Pike confirmed in his evidence that in part, he intended the words "as required" to mean "except to the extent that the Board had stated a different requirement" (Transcript, page 67). He was also influenced by the fact that the primary focus of the initial letter from the Scottish Government was on maintenance (Transcript, pages 68-69). Mr Pike was clear that in drafting the letter, in order to answer the question posed, he had in mind that Multiplex required to comply with the construction contract (Transcript, page 74).

3.8.4 At paragraph 154 of the Closing Statement of Counsel to the Inquiry, it is noted, correctly, that IHSL's corresponding letter to NHSL of 31 January 2019 was written not as a formal element in project governance, but in response to a Scottish Government letter to all health boards based on their emerging concerns about ventilation at the QEUH. The letter does not appear to have been relied upon by NHSL in deciding to execute SA1 (Goldsmith, Transcript, page 70).

3.8.5 Further, at the time, NHSL's project team were aware of departures from the requirements of SHTM-03-01, for example in relation to the Lochranza neutropenic ward, where it was known that there were 4AC as opposed to the 10AC which SHTM-03-01 recommended. They could not, therefore, properly have taken "*as required*" to mean that there was full compliance with SHTM-03-01, because they knew that not to be the case.

3.8.6 It is submitted that paragraphs 154 and 155 of the Closing Statement of Counsel to the Inquiry go too far in suggesting that IHSL's letter "*confirmed compliance with SHTM-03-01 in the design, installation and commissioning of the ventilation systems*" and "*confirmed compliance with published guidance*". Considered objectively, the confirmation offered in the letter was qualified, and qualified appropriately.

4. The matters mentioned in Paragraphs 3.4.1 – 3.4.5 of Direction 6

4.1 <u>In so far as they differ with Counsel to the Inquiry, what themes they submit have emerged from the evidence which are relevant to the Terms of Reference of the Inquiry.</u>

4.1.1 Subject to what follows, Multiplex is in agreement with Counsel to the Inquiry's identification of the themes which emerged from the evidence which are relevant to the Terms of Reference, as set out in Section Two (Key Themes) of the Closing Statement of Counsel to the Inquiry.

4.1.2 The key area of difference is that Multiplex does not accept that there was any lack of a clear brief set by NHSL, at least at bid stage.

4.1.3 For the reasons set out in Multiplex's Interim Written Submissions, it is submitted that NHSL's brief, at bid stage, was perfectly clear: the Reference Design Environmental Matrix was NHSL's briefing document in respect of room environmental criteria. Bidders were required to comply with it, but could propose changes to it on an exception basis.

4.1.4 It is however accepted that there was a lack of clarity in the relationship between the Board's Construction Requirements and the Environmental Matrix in the Project Agreement.

4.1.5 Reference is made to section 4.5 below.

4.2 Whether they accept or not Counsel's proposed explanations of and, where framed as questions, proposed answers to, each of the topics listed in the List of Topics; and, in the event that they do not accept Counsel's proposed explanations and answers, their reasons for not doing so, their alternative explanations and answers, and reference to the evidence upon which they rely as supporting their positions.

4.2.1 Subject to what follows, Multiplex accepts Counsel's proposed explanations of, or answers to, each of the topics listed in the List of Topics.

4.2.2 At paragraph 108 of Counsel to the Inquiry's Closing Statement it is stated that the debate over the multi-bed room pressure issue did not concern the number of air changes in the critical care rooms. That issue, it is said, formed no part of the parties' dispute.

4.2.3 Multiplex does not agree with that characterisation of matters. Pressure and air change rates are intrinsically linked, because air change rates are used to achieve pressure. See, for example, the initial discussions around lowering the AC rates when looking to achieve balanced pressure (discussed at paragraph

135 of Counsel's Closing Statement). As noted there, air change rates were specifically discussed. Furthermore, in the Technical Schedule to SA1 at Item 7 (4 bed ventilation) the description of the dispute includes the following "*In addition, the Board believe the intake air change rate and the extract air change rate are non-compliant.*" (This can be found at Bundle 1, page 2083.)

4.2.4 At paragraph 127 it is suggested that the pressure proposal for the multi-bed rooms was developed at length and in depth without any of the parties involved realising that some of the rooms were in the Critical Care department.

4.2.5 That is contrary to the evidence. Key personnel were well aware that some of the multi-bed rooms were in the Critical Care department (see e.g. Ronald Henderson, Transcript Day 1, page 89, pages 97-103, page 107; Graham Greer, Transcript Day 2, page 127-12; page 146. What was not realised by anyone, including NHSL and its advisers, was that NHSL wanted these rooms dealt with differently from what was shown in the EM, and from what had been confirmed in the specific discussions over the multi-bed rooms.

4.2.6 Against that background, Multiplex agrees that Mr Henderson's request for confirmation that 4AC would be used as "the brief" for multi-bed rooms was not intended as a change by NHSL to their brief. But it was confirmation of the brief which was given in circumstances where, if that was not the intention, it ought to have been highlighted (cf paragraphs 137 and 138 of Counsel to the Inquiry's Closing Statement). There can however be no doubt that NHSL knowingly stated a requirement for 4AC in all of the multi-bed rooms under consideration, including those in Critical Care. Indeed, NHSL accept as much in their response to PPP8 at paragraph 3.11 (see Bundle 12, Volume 1, page 80).

4.2.7 Multiplex therefore does not agree with the characterisation of the position in paragraph 156 of the Closing Statement by Counsel to the Inquiry. The true characterisation of the position is, it is submitted, that the technical solutions for ventilation were agreed without any party considering, or realising, that there was a disconnect between the brief of 4AC for rooms in Critical Care and

what NHSL actually wanted. From the perspective of Multiplex, however, the critical point is that, in the circumstances, only NHSL were in a position to recognise that 4AC was not what they really wanted in the Critical Care multi-bed rooms. The foregoing comments apply also to paragraph 257 of the Closing Statement where it is said that [NHSL] did not knowingly agree to [a derogation from SHTM-03-01]. NHSL did know it was agreeing to 4AC in multi-bed rooms, and knew that some of those rooms were located within the Critical Care department, but did not consider or realise that they wanted those rooms to comply with the recommendations in SHTM-03-01.

4.2.8 At paragraph 161 of their Closing Statement, Counsel correctly acknowledge that whether or not the approach taken in the technical schedule to SA1 was successful in treating the agreed solutions as part of IHSL's design solution for which IHSL bears the whole design risk is a matter of contractual interpretation. As such, it is not a matter the Chair will require to determine. It is however submitted that an approach to construction which relies solely on the terms of the technical schedules, ignoring the terms of the Release in clause 3 as well as other terms of the agreement, is unsound. In any event, Multiplex agrees with Counsel to the Inquiry where they say, in paragraph 161, that there is an air of unreality about treating the ventilation solutions in that way. Multiplex also agrees with the submission in paragraph 161 that the process leading up to SA1 involved clarification by NHSL of their ventilation brief.

4.3 Whether they accept or not Counsel's proposed answers to the questions which are posed in Terms of Reference 1 to 12; and, in the event that they do not accept Counsel's proposed answers, their reasons for not doing so, their alternative answers, and reference to the evidence upon which they rely as supporting their positions.

4.3.1 Subject to what follows, Multiplex accepts Counsel to the Inquiry's proposed answers to the questions which are posed in Terms of Reference 1 to 12.

4.3.2 At paragraph 333 of the Closing Statement by Counsel to the Inquiry, Counsel suggest that the ventilation system for Critical Care "was not adequate": if that is intended to mean no more than that the ventilation system for Critical Care did not comply with SHTM-03-01 then it is unobjectionable. If, however, it is intended to mean that the ventilation system for Critical Care did not meet the requirements of the Project Agreement then that is not accepted, for all the reasons set out in Multiplex's Interim Written Submissions and herein. At paragraph 458 of the Closing Statement by Counsel to the Inquiry it is submitted (i) that the evidence indicates that the system as installed would have had unacceptable risk, and (ii) that therefore, the decision not to open the hospital until there was full compliance with SHTM-03-01 was justifiable. There is however a tension here. At paragraph 335 of the Closing Statement it is identified that the available evidence indicates that achieving 4AC when 10 are recommended creates an unacceptable level of risk to safety **unless other sufficient control measures are introduced**. At paragraph 334 Counsel recognise that the evidence also indicates that other factors could be introduced to make a space that did not have ventilation compliant with SHTM-03-01 sufficiently safe that patients could be treated there, giving the example of the old Sick Kids hospital at Sciennes. At paragraph 460 Counsel to the Inquiry identify that there is a lack of clear, research-based evidence in relation to the healthcare built environment, including the link between specific air changes per hour and infection risk. At paragraph 458, it is acknowledged that when the decision was taken not to open the RHCYP/DCN, no risk assessment was undertaken to determine if the ventilation system (as installed) was unsafe. The position, then, is that the expert evidence before the Inquiry, which was not available to the Scottish Government at the time, is being used to support the conclusion that the decision not to open the hospital, until there was full compliance with SHTM-03-01, was justified. The absence of a risk assessment makes that somewhat difficult to understand. As Counsel rightly go on to acknowledge in the final part of paragraph 458, mere non-compliance with recommendations/guidance will not always, automatically, equate to an unsafe environment. Multiplex therefore agrees that in future, an individual

risk assessment should be undertaken to ensure that appropriate decisions are taken, and that expensive remedial work is not instructed unnecessarily.

4.4 Whether or not they agree as appropriate Counsel's proposed recommendations and, if not, why not; and what alternative and/or additional recommendations they propose, identifying any lessons learnt to ensure that any past mistakes are not repeated in any future NHS infrastructure projects, all as specified in Term of Reference 13.

4.4.1 Multiplex agrees that Counsel's proposed recommendations are appropriate.

4.5 Whether they accept or do not accept Counsel's proposed material findings of fact; and in the event that they do not accept Counsel's proposed findings, what alternative and/or additional findings they propose, and reference to the evidence upon which they rely as supporting their position.

4.5.1 Counsel to the Inquiry invite the Chair to make findings in fact based on the analysis in sections 3 and 4 of their Closing Statement; in order to avoid duplication they do not include a separate section on findings in fact (see paragraph 3 of the Closing Statement).

4.5.2 Subject to the following points, Multiplex accepts the analysis set out in sections 3 and 4 of the Closing Statement of Counsel to the Inquiry.

The period up to submission of final tenders

4.5.3 For the reasons set out in its Interim Written Submissions dated 30 June 2023, in particular at paragraphs 6.1 6.34, and on the basis of the evidence referenced therein, Multiplex submits there was no ambiguity about the status of the Reference Design Environmental Matrix at bid stage. The Chair is invited to find that the Reference Design Environmental Matrix was intended by NHSL to be - and was - NHSL's briefing document in respect of room environmental criteria; and that it was understood by IHSL and Multiplex to be such.

Multiplex's submissions on this point are reinforced by the evidence of Mr Maddocks in his report for the February 2024 hearings at paragraph 2.1.5 (WS Bundle 1, pdf page 13), and in his oral evidence (2024 TD11,C32-33, pp.18-19), that there would be "no point" in issuing such a document unless it contained a client specific project brief, and no point providing a 'draft' environmental matrix that could not be relied on. Any suggestion that NHSL intended that the Reference Design Environmental Matrix was a document that could not be relied upon by tenderers (cf paragraph 425 of Counsel to the Inquiry's Closing Statement) should be rejected as improbable.

4.5.4 The Chair is also invited to find that bidders were required to comply with the Reference Design Environmental Matrix, but could propose changes on an exception basis. Notably, however, Bidder C's proposed changes to the Reference Design EM inexplicably did not ring any alarm bells with Mott MacDonald, despite the fact that Mott MacDonald were proceeding on the understanding that the Reference Design EM complied with SHTM-03-01. Reference is made in particular to paragraphs 7.1 7.9 and 11.3 of Multiplex's Interim Written Submissions.

Preferred Bidder Stage

4.5.5 The critical points about what occurred during the Preferred Bidder stage are (i) that NHSL and IHSL were still in a period of negotiation and were not yet subject to the contractual obligations of the Project Agreement, and (ii) changes to the EM during this period were instigated by NHSL/Mott MacDonald, not by IHSL/Multiplex/Wallace Whittle's development of the design. Reference is made to paragraphs 8.1 8.18 of Multiplex's Interim Written Submissions.

4.5.6 It was however during this period that the seeds of subsequent confusion were sown. The output of a meeting on 11 November 2014 between NHSL and its advisers to discuss the EM was a list of 7 bullet points, which were eventually included in Section 5 of Schedule Part 6 of the Project Agreement. At Financial

Close, those 7 points were the only elements of the EM that were subject to the RDD process according to the Project Agreement: the EM was not to be subject to RDD in its entirety. None of those 7 points was in respect of air changes per hour (whether in Critical Care areas or elsewhere).

4.5.7 Under the Project Agreement, the EM formed part of the Room Data Sheets (as defined) and IHSL was obliged to provide Facilities that met all the requirements specified in the Room Data Sheets. The Completion Criteria of the Project Agreement required commissioning to demonstrate compliance with the EM. Reference is made to 9.6 9.16 of Multiplex's Interim Written Submissions. The Project Agreement was clear on the status of the Environmental Matrix.

Post-Financial Close: RDD

4.5.8 The fact that the 7 points set out in Section 5 of Schedule Part 6 of the Project Agreement were subject to RDD may have led to the misconception that the EM in its entirety was subject to RDD. Contractually it was not, as explained above.

4.5.9 Once the 7 points were addressed, an updated version of the EM, namely Revision 2 dated 26 November 2015 (Bundle 13, Vol 5, pdf page 959), was submitted through the RDD process, which showed how the EM had been amended in line with NHSL's comments in relation to the 7 points in question. See the witness statement of Ken Hall at paragraph [22], WS Bundle Vol 2, pdf pages 43-46 and the 26 November 2015 EM at Bundle 13, Volume 2, page 99 at page 100.

4.5.10 NHSL returned Revision 2 of the EM through the RDD process on 9 February 2016 at Level C. It was accompanied by a second batch of 50 comments from NHSL/Mott MacDonald. None of those raised any questions over the air change rate or pressurisation in the singe or multi-bed wards in Critical Care. Notably, however, item 7 of this batch of 50 comments did however specifically mention in relation to room 1-B1-063 (which was a multi-bed room in Critical

Care): "Stated as supply air 4ac/h, extract via en-suite, this room does not have en-suite facilities" showing that specific consideration had been given to the entries in the body of the EM for at least one Critical Care room (see Bundle 13, Volume(2), pdf page 142).

4.5.11 By proceeding in this manner, the entire EM effectively became subsumed into the RDD process. As Mr Hall indicates (WS Bundle Vol 2, pdf pages 46, paragraph [23]) he was surprised to see the extent of the comments, given that a review had been carried out by NHSL prior to Financial Close which had resulted in only 7 points being included in the RDD process at Financial Close. One would normally expect to see a narrowing down of outstanding points as comments are addressed through RDD, not a widening out. NHSL was effectively doing a further review post Financial Close (see witness statement of Darren Pike, WS Bundle, Volume 3, at page 63, paragraph [19]; Transcript page 22 onwards). This led to a situation where Wallace Whittle created a table of comments for inclusion at the beginning of the EM, which sought to track those comments which were pre-Financial Close and those which were post Financial Close and therefore something which might give rise to a contractual change at the instance of NHSL (see e.g. Bundle 13, Volume 2, page 1116 and Ken Hall, Transcript Day 3, pages 135-136).

4.5.12 The second batch of 50 comments was addressed, and Revision 5 of the EM was then submitted through the RDD procedure on 18 March 2016. Revision 5 was returned by NHSL/Mott MacDonald marked as Level B on 15 April 2016, which contractually entitled (and indeed obliged) IHSL/Multiplex to proceed with procurement and construction. See the witness statement of Ken Hall at paragraphs [23]-[56], WS Bundle Vol 2, pdf pages 46-54.

4.5.13 Revision 7 of the EM was prepared, which addressed further comments by NHSL, and was issued through the RDD process on 19 September 2016. On 17 October 2016 NHSL returned Revision 7 of the EM, but downgraded it to Level C. The downgrade was reversed on 7 November 2016 when the EM was

upgraded back to Level B. See the witness statement of Ken Hall at paragraphs [57]-[67], WS Bundle Vol 2, pdf pages 54-56.

4.5.14 Later versions of the EM went through the RDD process, including revisions 9, 10 and 11. Updated comments on revision 9 were provided by Mott MacDonald on behalf of NHSL on 28 August 2017 (Bundle 13, Volume 2, pdf page 867 and following). Specific cells are highlighted in red (indicating inconsistencies) in relation to air change rates for two multi-bed rooms in Critical Care, namely 1-B1-063 and 1-B1-065 see page 884. The highlighted cells are those for "Extract ac/hr". The "Extract ac/hr" cell for room 1-B1-063 shows 0.5 ac/hr and the same cell for room 1-B1-065 shows 1.9 ac/hr. The cells for the "Supply ac/hr" for both rooms are not highlighted at all: they both indicate that 4ac/h is to be supplied. The printed copy of this version of revision 9 in the EM which is included in the Inquiry bundle does not however show certain features which are visible on the native Excel version of the spreadsheet (project document AXN EDN000075338). The native Excel version was provided to the Inquiry by Messrs Brodies by email dated 16 February 2024. The native Excel version shows that there are electronic yellow 'stickies' linked to both of the "Extract ac/hr" cells for 1-B1-063 and 1-B1-065 authored by Ross Southwell (of Mott MacDonald) which read "Please update to be in line with agreed design". The relevant cells were then updated in revision 10 of the EM (Bundle 13, Volume 2, page 867 at page 941), to be 3ac/hr in the case of room 1-B1-063 and 4ac/hr in the case of room 1-B1-065. Subsequently, in NHSL's response to revision 11 of the EM, attention was again drawn by Ross Southwell to the air change rates for room 1-B1-063 by the use of an electronic yellow "sticky" saying "Please confirm ventilation rates" (Bundle 13, Volume 2, page 1172 at 1188). Revision 11 of the EM was given Level B status (witness statement of Ken Hall, WS Bundle, Volume 2, page 62, paragraph 94)). Ultimately, an extract of the EM was produced and issued to NHSL on 5 July 2018 at the end of specific discussions on the multi-bed wards, which included four rooms in the Critical Care department, showing balanced pressure and 4AC for each of them (Bundle 13, Volume 2, page 1337 at 1340;

witness statement of Ken Hall, WS Bundle, Volume 2, paragraphs 95-102, pdf pages 62-63).

4.5.15 The point of all of this is that it illustrates that, regardless of the contractual significance of RDD documents gaining approval at Level B or above through the RDD process being restricted to Operational Functionality, NHSL/Mott MacDonald were in fact undertaking very detailed scrutiny of the EM and making comments on it, including down to the level of individual air change rates in certain Critical Care rooms. The RDD process therefore represents a missed opportunity for NHSL/Mott MacDonald to identify any "disconnect" (cf paragraph [7] of Counsel to the Inquiry's Closing Statement) between what NHSL wanted and what was contained in the brief. Instead, through the RDD process, as illustrated above, NHSL confirmed its requirement for 4AC and balanced pressure, at least in certain Critical Care rooms.

5. <u>Other matters</u>

5.1 In the Executive Summary of Counsel to the Inquiry's Closing Statement at paragraph 8, it is said that the Environmental Matrix was included in the Project Agreement as a schedule and the Board's Construction Requirements *prima facie* required compliance with it. It is then said that "*An express derogation in the contract excused that compliance because the matrix was known to feature anomalies.*"

5.2 The point was not covered in the oral evidence to the Inquiry.

5.3 The same point was discussed in Multiplex's Interim Written Submissions at paragraph 10.6

5.4 It is understood that the derogation, which is to be found at April 2023, Bundle 5, Paper Apart, pdf page 3861) was drafted precisely because the EM was NHSL's brief, but NHSL had outstanding comments (the comments from the 11 November 2014 meeting) which were RDD and, from a contractual perspective, required to be dealt with in the context of the obligation to comply with the EM. In other

words, a way had to be found to excuse compliance with the EM to the extent of the 7 points which were to be included in Section 5 of Part 6 of the Project Agreement as RDD.

5.5 The underlying premise in relation to the derogation, whatever its scope, is plainly that IHSL was obliged to comply with the EM. Otherwise there would have been no need for any derogation.

5.6 If the derogation had released IHSL from the obligation to comply with the EM entirely, that would have been a hugely significant change to the risk profile of the project from both parties' perspectives. There is no evidence before the Inquiry that that is what was intended, or what was brought about. Such an interpretation would be inconsistent with the parties' decision to include and reference the EM in the Project Agreement and BCRs at Financial Close. The EM is defined in the Project Agreement BCRs (see 2023 Bundle 5, pdf page 194 at page 199) as:

"*Means the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department/unit/space/area as set out in Section 6 (Room Data Sheets) of Schedule Part 6 (Construction Matters) (as varied, amended or supplemented from time to time in accordance with the Project Agreement).*" (See further paragraphs 9.7 9.16 of Multiplex's Interim Written Submissions).

5.7 On a separate matter, at paragraphs 15 and 149 of the Closing Statement of Counsel to the Inquiry the point is made that a major commercial reason for the parties entering into SA1 was to alleviate financial pressures which had built up on IHSL. That is not disputed. However, for context, the evidence showed that the negotiations leading up to SA1 took place over a prolonged period from around Spring 2018 to February 2019 and both parties were represented by technical experts and legal teams. SA1 was not a knee-jerk reaction to a crisis which had suddenly emerged from nowhere.

6. Conclusions

6.1 Save to the fairly limited extent identified herein, Multiplex is in agreement with the approach taken by Counsel to the Inquiry to the questions posed in the Terms of Reference and in their proposed potential recommendations.

6.2 Counsel's suggestion of a symposium or round table meeting to discuss potential recommendations with stakeholders is welcomed by Multiplex. Multiplex agrees that this may best be done after the Chair has heard evidence in relation to the QEUH.

Alasdair McKenzie KC, Senior Counsel for Multiplex

28 May 2024

Scottish Hospitals Inquiry

Closing Statement by National Services Scotland

Re hearings commencing on 26 February 2024 (Royal Hospital for Children and Young People / Department of Clinical Neurosciences)

1. In this Closing Statement, National Services Scotland ("NSS") will respond to the Closing Statement by Counsel to the Inquiry dated 7 May 2024. The subheadings in bold (except for the first one) are taken from the Closing Statement by Counsel to the Inquiry. NSS will be happy to provide further input and clarification as required.

General points in response

2. NSS notes multiple references in the Closing Statement by Counsel to the Inquiry to SHTM 03-01 and SHFN 30. Whilst these are important documents to consider, NSS would emphasise that all applicable guidance should be considered holistically when briefing, designing, and constructing facilities. This reduces the risk of an over-reliance on, or incorrect application of, a single piece of guidance. Guidance should always be implemented by appropriately competent and experienced individuals.

3. NSS also notes that, whilst guidance is generally not mandatory, some guidance is underpinned by legal requirements in the Health and Safety at Work etc Act 1974, the Fire (Scotland) Act 2005, the Electricity at Work Regulations 1989, and the Building (Scotland) Regulations 2004. Compliance with guidance can also be achieved through a contract, or by way of Scottish Government policy such as the Single Rooms policy CEL 48 (2008).

2. Key Themes

4. Para. 55 of Counsel to the Inquiry submission states that: "There is no role specification as to what is required from IPC on projects." NHS Scotland Assure notes Professor Alex McMahon's evidence to the Inquiry regarding work being done on job descriptions [see the transcripts for the hearings commencing on 26 February 2024 at day 8, page 70]. The Scottish Government has now issued DL (2024) 11, titled "NHS Scotland Infection Prevention and Control (IPC) roles and responsibilities, including IPC Team (IPCT) and specialist IPC role descriptors". Even putting aside that recent publication, NSS considers it going too far to state that there is <u>no</u> role specification. Recommended infection prevention and control roles are described in various guidance documents, including SHTM 03-01 Part B and SHFN 30 Part B.

   SHFN 30 Part B (2014) states:

   "2.9 The main responsibilities of Infection Prevention and Control specialists are:

   - advising the Project Team on the principles of infection prevention and control of infection as applied to the built environment;

- contributing to risk assessment and providing advice on infection risk to susceptible patients;
- contributing to advice and guidance on control measures to be implemented;
- advising Project Manager/Estates Manager as to the need to stop work where infection prevention and control measures have not been adequately implemented or have failed;
- providing education on infection prevention and control measures to relevant staff involved in the project where required;
- determining with the Project Team and Health & Safety representatives a suitable and sufficient dust monitoring methodology for each project;
- assisting in the review of all HAI-SCRIBE assessments within agreed timescale."

SHTM 03-01 Part B (2011), which has now been superseded, stated:

"Infection Control Officer

2.11 The Infection Control Officer (or consultant microbiologist if not the same person) is the person nominated by management to advise on monitoring the infection control policy and microbiological performance of the systems.

2.12 Major policy decisions should be made through an infection control committee. The infection control committee should include representatives of the user department and estates and facilities or their nominated representative (that is, the Authorised Person).

The latest version of this guidance, SHTM 03-01 Part B (2022), states:

"Infection Prevention and Control Person

2.11 The Infection Prevention and Control Doctor or consultant microbiologist is the person nominated by management to advise on monitoring the infection control policy and microbiological performance of the systems."

NSS notes that in July 2023 the 'Key Stage Assurance Review (KSAR): Notes for Board Infection Prevention and Control Teams' was added to the National Infection Prevention and Control Manual. This document sets out support that NHS S Assure can give to local project teams. NHS S Assure will look at who is providing IPC advice, what experience or qualifications they have in the IPC role with respect to the built environment, and how they receive the technical/advisory support they need (for example from mechanical, electrical, and plumbing specialists or more experienced members of the IPC Team).

3. List of topics

5. Para. 277 states that: "HFS were content with the proposed solution (Bundle 3, page 797; 944) albeit HFS were not taking design responsibility itself." NSS respectfully submits that HFS was not "content" with the proposed solution, except perhaps in the narrow sense that it did not take fundamental issue with it. For example, in the response of David McNeill (HFS) on 5 May 2020 [Bundle 3 for hearing commencing 26

February 2024 at page 944] he stated: "At this stage the design is not completed and we await both corrected information and the outstanding elements which we have still to see (revised Stage 4 report, revised drawings, revised equipment schedules, architectural details, coordination details, etc.)."

6. Para. 311 states that NHS S Assure is a "division" of NSS. It is actually a Directorate within NSS.

4. The questions posed in Terms of Reference 1 - 12

7. Para. 396 states that:

> "HFS was fully involved in relation to reviewing NHSL's proposed permanent solution for the ventilation and the "…contracting, design, installation, commissioning and setting to work processes as well as assurance around the appropriate advice on infection control." (Bundle 3, pages 16, 17). All topics were to be reviewed from Estates and IPC perspectives and an assessment made against the published guidance."

NSS notes that Paragraph 396 references a draft briefing document outlining what HFS's role would be. However, HFS's formal role in relation to commissioning and validation was, in fact, very limited. In the Oversight Board's Technical Assurance report dated 19 November 2020, for example, appendix 1 set out 'Technical Assurance for HVC 107 – ventilation works in haematology/oncology and critical care self-delivered by IHSL' [Bundle 3 for hearing commencing 26 February 2024 at page 1,057]. HFS's input at the commissioning/validation stage was stated to be: "None".

5. Potential recommendations

8. Paragraphs 429 to 430 raise the possibility of a standard form for derogations from guidance. It is the intention of NHS S Assure to produce a "Once for Scotland" derogation standard process, which will be put out to stakeholders for consultation within the next six months.

9. Paragraphs 431 and 432 cover "Duplication of Procedures". NHS S Assure is currently progressing work on this with stakeholders. The work will review opportunities to enhance, and integrate our existing services and processes provided by NHS S Assure across all capital processes including for example KSAR, NDAP and SDAC. This is being done in order to provide an updated framework that encompasses and guides users through the key mandated and recommended stages of projects. This is expected to enhance clarity and streamline communication and resource use as part of our wider process of continual improvement.

10. Paragraphs 433 to 435 cover "Information about common errors". Paragraph 435 considers whether the "lessons learned" process introduced by NHS S Assure adequately addresses the issue of common project errors being repeated. NSS has been asked to address the question in these closing submissions. With regards to the 2007

and 2014 versions of SHFN 30, NSS notes that Guidance should be viewed as a suite of documents. HFS were asked to review the Healthcare Associated Infection System for Controlling Risk In the Built Environment (HAI-SCRIBE) process by the HAI Task force in 2012. The Scottish Executive Health Department set up the HAI Task force HAI Task Force to improve the prevention and control of HAI across the NHS in Scotland. The Task force was initially chaired by the Chief Medical Officer to enhance Infection Prevention and Control through the progression of the Healthcare Associated Infection (HAI) Action Plan. From 2005 the Task Force was led by Chief Nursing Officer. The request to review HAISCRIBE was via the April 2011 delivery plan in which area 2.8 requested a Review HAI System for Controlling Risk in the Built Environment (HAI-SCRIBE). This revision was requested to ensure that the guidance remained current and ensured that relevant staff understand it's application and use. The output of this was the 2014 version of the guidance.

11. Prior to updating the 2007 version of SHFN 30, there were several questionnaires and focus group studies to gain insight on what areas needed review. Feedback included a request for greater clarity on roles, and for expansion of the questions within HAI-SCRIBE to enable more discussion on risks. The expansion of the questions was intended to proactively facilitate discussions, which would reduce the risk of common errors being repeated. The question set in the 2014 version of SHFN 30 was expanded to achieve that, and so to generate a more informed design choice.

12. With regards to paragraphs 334 and 335, it may be helpful for NSS to expand on para 300 ("Assure has introduced procedures to seek to ensure that lessons are learned from previous projects."). On 13 December 2022, NSS published a paper on its website identifying lessons learned by HFS and ARHAI from significant healthcare construction projects ('NHS Scotland Assure Lessons Learned: Overview for the Interim Review Service'). Work is underway (to be published this financial year) to both update this publication and refine the mechanisms for sharing lessons learned. Escalation of any immediate risks identified through the KSAR process would take place via either Incident reporting and Investigation Centre (IRIC) alerts, the Scottish Government, or the National Strategic Groups.

13. Paragraph 463 suggests that research might address "emerging areas including "equivalent air changes per hour" and new technologies (such as ultraviolet light) for which there is no national guidance in Scotland (cf. England: Bundle 13 – Miscellaneous, Volume 10, page 297)." NHS S Assure was part of the NHS England working group responsible for the production of guidance on portable HEPA devices ('NHS Estates Technical Bulletin (NETB 2023/01A): application of HEPA filter devices for air cleaning in healthcare spaces: guidance and standards') and UVC air cleaning devices ('NHS Estates Technical Bulletin (NETB 2023/01B): application of ultraviolet (UVC) devices for air cleaning in occupied healthcare spaces: guidance and standards'). This guidance was published by NHS England. NHS S Assure have not yet published equivalent Scottish guidance, but health boards can utilise the NHS England

guidance as required. NHS S Assure, in conjunction with the Scottish Engineering and Technology Advisory Group and the National Heating & Ventilation Advisory Group, are currently updating SHTM 03-01. The updated version will make reference to the NHS England guidance documents. NHS S Assure aims to publish this in 2024.

14. As agreed, NHS S Assure will provide a supplementary statement further addressing paragraphs 462, 463, and 464 of the Closing Statement by Counsel to the Inquiry. This will provide information to the inquiry on ongoing and future research topics, the approach taken to research, and research on new and emerging technologies.

15. Paragraphs 478 to 480 discuss "The role of NHS S Assure". NSS received a commission from the Scottish Government in 2019 to support the creation of Quality in the Healthcare-Built Environment. NHS S Assure was developed from this aspiration. The aim of NHS S Assure was to provide assurance to the Scottish Government that current new builds and major refurbishment projects were being delivered in line with extant NHS Scotland guidance, were fit for purpose, and were free from avoidable risk of harm (e.g. healthcare associated infections, burns, electrocution, ligature injuries, and medical gas intoxication). The Scottish Government stated that: "To ensure patient safety we will create a new national body to strengthen infection prevention and control, including in the built environment. The body will have oversight for the design, construction and maintenance of major infrastructure developments within the NHS and also play a crucial policy and guidance role regarding incidents and outbreaks across health and social care." (Hearing Commencing 26 February 2024 – Bundle 9 – Documents relevant to NHS Assure - A32341688 – Page 6). Hospital builds are complex, once in a lifetime event for most Health Boards. The people who sit on the Health Boards or the capital and estates teams may not ever have experienced that type of a build. It was considered useful to have a central resource to support that process and minimise risk in healthcare buildings. Throughout the development of NHS S Assure it was not proposed that NHS S Assure take responsibility for healthcare build compliance or risk mitigation.

16. Paragraph 481 concerns "A review of NHS S Assure". The paragraph states that NHS S Assure has "created a significant burden, particularly for IPC professionals." It is important that this be put into context. To the extent that the burden comes from having IPC staff involved in the design and build phases of projects as part of a multi-disciplinary approach, these are not new requirements (albeit that they may not always have been followed in practice). For example, the role of the IPC Team in new builds and refurbishments was set out by Scottish Government in 2007 when CEL 18 (2007) 'Healthcare Associated Infection: SHFN 30 and HAI-SCRIBE Implementation Strategy' was issued. It stated that: "Use of the Implementation Strategy, SHFN 30, HAI-SCRIBE and the Contractor Endorsement Document is a mandatory requirement for all NHS Scotland capital projects and maintenance/refurbishment projects. This requirement takes immediate effect." NSS also notes that the resourcing of local health boards is not a matter that it has any role in.

National Services Scotland
28 May 2024

Scottish Hospitals Inquiry

Royal Hospital for Children and Young People/ Department of Clinical Neurosciences

Closing Submission for Scottish Futures Trust

Comment on closing submission by Counsel to the Inquiry

1. Scottish Futures Trust (**SFT**) has considered the content of the Closing Submission made by Senior Counsel to the Inquiry and Junior Counsel to the Inquiry (**CTI**) dated 7 May 2024, regarding the oral evidence on the design of the ventilation systems, the decision-making and governance around the opening of the hospital, and whether the hospital provides a satisfactory environment for the delivery of safe and effective care.

2. SFT broadly adopts the contents of CTI's Closing Submission so far as it relates to the context of the project and the role and involvement of SFT in relation to the project (in particular CTI's Closing Submission paragraphs 191, 349 and 378), subject to the following submissions made on behalf of SFT, which the Chair is invited to take into account when making findings and framing recommendations in relation to this phase of the Inquiry.

Risk transfer

3. Paragraph 62 of CTI's Closing Submissions states:

   "*The substantial risk transfer to the private sector under a revenue funding model includes a large element of design risk, but this transfer may transpire to be more theoretical than real*".

   SFT are of the view that this conclusion is difficult to reconcile with the evidence and conclusion reached in relation to the problems with the specification and clarity in the brief (as set out at paragraph 22 of CTI's Closing Submissions).

4. SFT notes the conclusion at paragraph 194 of CTI's Closing Submissions, which states:

   > "*The NPD model seeks to place most design risk onto the private sector. That is an understandable aspiration given the private sector is financing the hospital. However, the effectiveness of the risk transfer relies on two factors: (1) the clarity of the brief; and (2) the solvency of the special purpose vehicle. The project highlights problems with both aspects.*"

5. The problems encountered by the project in respect of both issues identified above, relate to the lack of clarity in the specification rather than the nature of the risk transfer

intended in the contract. In respect of part (1) of the above statement, as the Inquiry has concluded that the specification was unclear, SFT considers that there is no basis for the Inquiry to reach conclusions regarding risk transfer (whether theoretical or otherwise) to the contractor. In respect of part (2) of the above statement, had the specification been clear then (a) completing the works in accordance with the specification to achieve practical completion; and (b) the financial consequences of failing to do so; is a risk taken by the construction contractor, the SPV and ultimately its senior debt providers, should the SPV become insolvent.

The Suitability of the NPD Model

6. Paragraph 195 of CTI's submissions states that:

   "*Any changes to the Project agreement have implications for these associated agreements. Witnesses gave evidence of NHSL effectively having to negotiate with ISHL's contractor (Multiplex) despite there being no contract between the parties. Therefore, any changes are problematic and result in complicated negotiations to resolve the issues.*"

7. SFT agrees that there are additional parties under the NPD arrangement as compared with a traditionally funded design and build contract which adds complexity, but it submits that Clause 33 and Part 16 of the Schedule to the standard form Project Agreement comprise a workable change protocol. Under the circumstances of this project, that protocol was not used during the construction phase and the preceding circumstances make it difficult to draw wider conclusions from its application in the post-2019 rectification works. Accordingly, it is not possible to conclude whether, under other more normal circumstances of a change being required, it would have been effective or not.

8. SFT agrees that it is a consequence of the financing and life-cycle maintenance included in an NPD contract that:

   a. Any change required by the contracting authority during the construction phase which leads to a requirement to extend the construction contract duration (delay practical completion) will be more expensive than under traditionally funded design and build contract due to the additional rolled up interest and cost of finance incurred.

   b. Any change required by the contracting authority during the operational phase of the contract will be more complex than under a traditionally funded contract as life cycle maintenance is included in the contract. There will be both life cycle cost and risk considerations associated with any change that would not be there at all under a traditionally funded approach. However, it might be

considered a benefit that an authority is required to consider up-front the whole life-cycle cost of any changes it proposes to implement.

9. The Inquiry may consider that these factors are relevant to the appropriateness of the NPD model for acute hospitals.

10. More broadly, the Inquiry may also wish to consider paragraph 5.1 of SFT's document titled "Revenue Financing Opportunities for Infrastructure Investment" (Bundle 3, vol.1, doc 25, p.1,082) which states:

> "*Scotland has a long and successful history in the delivery of PPP healthcare projects, including acute; community; mental health and ACADs, 31 in total*."

11. There was an active and mature market for PPP healthcare in Scotland, including the £293m Forth Valley Royal Hospital PFI project and the NPD structure had been market tested in health via the Tayside Mental Health Development Project. In parallel with the development of the RHSC / DCN project, the £213m Dumfries and Galloway Royal Infirmary was being delivered as an NPD project and did not face similar issues.

12. In respect of the RHCYP / DCN project itself, SFT's view is as set out in Peter Reekie's witness statement dated 28 April 2022 at paras. 71 – 84 which states that the switch to the NPD programme was the only option available in terms of enabling the hospital to be built at that time.

Addleshaw Goddard LLP

May 2024

SCOTTISH HOSPITALS INQUIRY

CLOSING STATEMENT

on behalf of the

SCOTTISH MINISTERS

relating to the hearing commencing on 26 February 2024

1. The Scottish Ministers are grateful for the Chair's invitation to submit this closing statement. They have no areas of disagreement, other than points of detail noted in paragraph 2, to express with the closing statement of Counsel to the Inquiry as regards:

   (1) the themes that emerged from the evidence, so far as relevant to the Terms of Reference of the Inquiry;

   (2) the proposed explanations of and answers to each of the topics listed in the List of Topics;

   (3) the proposed answers to the questions posed in Terms of Reference 1 to 12.

2. The Chair is invited to note the following points of detail in relation to topics 4.10 and 4.14:

   (1) Topic 4.10, and paragraph 218 of the closing statement of Counsel to the Inquiry—NHSL's escalation to level 3 was for a number of reasons as set out in the letter to it dated 12 July 2019 (bundle 7, Vol 1, p339).

   (2) Topic 4.14, paragraph 226 of the closing statement of Counsel to the Inquiry—any such consideration suggested by Counsel would require to be undertaken in the context of the existing statutory framework and the respective functions, powers and duties of the Scottish Ministers and Health Boards respectively.

3. The Scottish Ministers wish to highlight the following additional points, framed by reference to the potential recommendations suggested by Counsel to the Inquiry.

A) General

4. The Scottish Ministers welcome the suggestion of a symposium or round-table meeting, and agree that it is best considered after the Inquiry has heard all of the evidence in relation to the QEUH.

5. The Scottish Ministers also welcome Counsel to the Inquiry's acknowledgment of the significant reforms since the RHCYP/DCN opened, and the large extent to which they have addressed problems. In that regard, the Scottish Ministers invite the Chair to note that NHS Scotland Assure is in its infancy and that it has set up robust processes for continuing improvement, learning, and challenge.

B) Recommendations considered suitable for an interim report

6. **Risk assessment** The Scottish Ministers agree that the rationale for decisions as to the suitability of existing work following a change of funding model or procurement route should be formally recorded. So far as it is suggested that that should take any particular form, they would respectfully suggest that the decision and form of record should be context-sensitive: it may be unwieldy—and, even to the extent successful, create a false sense of certainty—to attempt to capture all of the possible relevant aspects of existing work in a single format.

7. Relatedly, as to paragraph 458, the Scottish Ministers welcome Counsel to the Inquiry's recognition that the decision not to open the RHCYP/DCN was based on the evidence and justifiable. Indeed, as Counsel to the Inquiry submit at paragraph 170, it was rational, reasonable, appropriate, and in line with a consensus agreed by experts.

8. They agree, in line with the above remarks, that any decision should be context-sensitive. Noting, however, the importance of patient safety, they would

respectfully disagree with any suggestion that in urgent and sensitive situations there ought to be any prescribed form of risk assessment.

9. Rather, as Counsel to the Inquiry acknowledge at paragraphs 313–15, plans for the creation of NHS Scotland Assure were formed immediately so as to enable future decisions by the Scottish Ministers to be given robust assurance about healthcare construction projects from an early stage, reducing the likelihood that they will be identified at a later, costlier point in the process. They respectfully endorse the suggestion at paragraph 322 that the manner and scope of NHS Scotland Assure's involvement represents 'a reasonable compromise on grounds of cost and practicality', and as to paragraph 325 note that a project must come to CIG for approval when the cost exceeds a board's delegated limit.

10. **Derogations** The Scottish Ministers do agree that it would be workable and desirable to have a standard form for derogation from guidance, as that concerns an inherently circumscribed decision.

11. Relatedly, the Scottish Ministers would endorse what appears to be implicit in Counsel to the Inquiry's Closing Statement at paragraph 155: it would not, in their view, have been necessary or proportionate to have stalled the project at the stage of SA1 to require a full technical audit by a third party of all of the aspects concerned (of which there were around 80, as noted at paragraph 183).

12. They welcome Counsel to the Inquiry's recognition at paragraph 184 that any suggestion to the contrary would be made with hindsight, and as regards paragraph 226 would add (consistently with their observations above) that decisions of the sort concerned raise important and multi-faceted issues of resources which must take account of the possibility that greater demands on resources may occur if other routes are pursued.

13. The Scottish Ministers agree with the proposals as to timing in paragraph 186. They have provided documentation to the Inquiry and will be happy to assist the Inquiry further at the hearings yet to come in relation to the QEUH.

14. **Duplication of procedures** In line with the observations above, the Scottish Ministers agree that procedures should exist (and co-exist) to ensure patient safety with the minimum of duplication. They are neutral as to how any streamlining is best achieved, which appears to be for other Core Participants to consider in the first instance and refer to their observations above as to the benefits of the creation of NHS Scotland Assure.

15. **Information about common errors** The Scottish Ministers would welcome observations from NHS National Services Scotland as to any ways in which the 'lessons learned' process might usefully be supplemented.

16. In that regard, they recall that the Strategic Facilities Group ('SFG') has now been running for many years. It consists of NHS Directors of Facilities and Estates (several of whom oversee the delivery capital projects and manage ventilation systems and other critical building systems) and allows for informal discussion of a wide variety of estates and facilities issues across NHS Scotland. Mr Morrison would update the SFG on what was happening and share learning on development of Health Facilities Scotland/NHS Scotland Assure as one of many routes to sharing that learning across the NHS throughout Scotland.

17. **Role specifications and skills** On 2 May 2024, the Chief Nursing Officer issued a Directors' Letter outlining the main responsibilities for health boards in relation to their infection prevention and control ('IPC') services (a copy of the letter is produced at Appendix A to these submissions). The letter includes role specifications for IPC specialists across Scotland. These role specifications are recommended rather than mandatory. They were developed from an initial draft created by NHS Education for Scotland ('NES'), based on current job descriptions for IPC posts across Scotland and England, following consultation with NHS Scotland IPC staff representatives, Healthcare Associated Infection (HAI) Executive Leads and professional advisers to the Scottish Ministers. It is envisaged that the membership, structure, and scope of an IPC team should reflect the geography, function, size, and complexity of the health board it serves, in the

context of workforce planning in line with the requirements of the Health and Care (Staffing) (Scotland) Act 2019.

18. The Chief Nursing Officer Directorate commissioned NES, as part of the Strategic Plan for an Infection Prevention Workforce for 2022–2024, to create an Antimicrobial Stewardship generalist education framework and an IPC specialist education framework. These frameworks will map the training requirements of IPC staff as they progress through their IPC careers by providing guidance as to available and appropriate training. The Healthcare Associated Infection and Antimicrobial Resistance Policy and Strategy Unit, a policy division within the Chief Nursing Officer Directorate constituted by civil servants, IPC professional nurse advisers and an Associate Chief Nursing Officer, meets 6-weekly with NES. At these meetings NES provide updates as to, amongst other things, the development of the NES framework and all other tasks and workstreams associated therewith.

19. In line with Objective 7.1 of the Scottish Ministers' Scottish Healthcare Associated Infection Strategy for 2023–2025, NES are also working with NHS Scotland Assure to continue the delivery and implementation of the National Learning and Development Strategy for the Specialist Healthcare Built Environment Workforce (2021–2026). This includes a Learning and Development Knowledge and Skills Framework for the healthcare built environment, which is reviewed annually.

C) Recommendations considered suitable after the evidence about the QEUH

20. The following are preliminary observations which the Scottish Ministers reserve the right to revisit following the evidence about the QEUH.

21. **Legislative intervention** As Counsel to the Inquiry acknowledge, the decision not to open the RHCYP/DCN because of its non-compliance with safety guidance was correct. Whether in a particular situation patients' interests are best furthered by opening a hospital or postponing that opening must depend on the particular guidance in question and the ways in and extent to which there is a departure from

it. It does not appear to the Scottish Ministers that it follows from the fact that not opening the RHCYP/DCN was correct that guidance should always have the force of law.

22. Account must also be taken of the difficulties posed by transposing guidance into even secondary legislation, which is inherently less adaptable, less readily amended, and (by its binding nature) less apt to allow for nuance in the degree to which it requires to be followed. As Counsel to the Inquiry observes at paragraph 489, NHS guidance is (in the Scottish Ministers' view, justifiably) neither mandatory nor definitive in all circumstances, and they refer to their endorsement of Counsel to the Inquiry's proposed response to the Remit at paragraph 334.

23. The Scottish Ministers are also conscious of health boards' needs to develop context-sensitive and cost-effective projects, which need must entail their being afforded discretion (subject to risk assessment and appropriate oversight) as to the particular technical specifications to be adopted in a given case.

24. In addition, and with paragraph 242 of Counsel to the Inquiry's closing statement in mind, the Scottish Ministers would observe that in the case of the RHCYP/DCN it was relevant that compliance with the guidance had ostensibly been contractually—and so legally—required. As Counsel to the Inquiry observe at paragraph 231, NHS Lothian fully agreed with the Scottish Ministers' decision to postpone the opening of the hospital.

25. **NHS Scotland Assure** The Scottish Ministers would welcome the perspectives of Counsel to the Inquiry and other Core Participants following the close of evidence.

26. **Funding models** The Scottish Ministers welcome and adopt Counsel to the Inquiry's submission at paragraph 191 that the revenue-funding model was not an operative cause of the delay in opening the RHCYP/DCN, for the reasons they give. They would further observe at this stage that no hospital is currently being developed on the revenue-funding model. They agree that the choice of funding model is important and its benefits must be considered in relation to its drawbacks

in a given instance. They would also observe that those benefits and drawbacks engage acute questions of macroeconomic policy and the (in)ability of Scottish Ministers to fund capital-funded projects which questions are likely to exceed the Inquiry's Terms of Reference.

Ruth Crawford K.C.

Stephen Donnelly, Advocate

Counsel to the Scottish Ministers

Directorate of the Chief Nursing Officer, NHS Scotland
Anne Armstrong, Interim Chief Nursing Officer

Scottish Government
Riaghaltas na h-Alba
gov.scot

Dear Colleagues,

NHS SCOTLAND INFECTION PREVENTION AND CONTROL (IPC) ROLES AND RESPONSIBILITIES, INCLUDING IPC TEAM (IPCT) AND SPECIALIST IPC ROLE DESCRIPTORS.

This letter replaces the previous HDL (2005) 8 and builds on evidence and lessons learnt following: The Vale of Leven Hospital Inquiry Report (2014), The Queen Elizabeth University Hospital Review (2020) and The Queen Elizabeth University Hospital/ NHS Greater Glasgow and Clyde Oversight Board: Final Report (2021) . It outlines the main responsibilities for Boards in relation to the infection prevention and control (IPC) service and introduces the team and specialist IPC role descriptors.

The Role of the Chief Executive

The Chief Executive is ultimately responsible for ensuring successful prevention and control of infections within their NHS Board area. This accountability requires that the Chief Executive:

- Is aware of their legal responsibilities to identify, assess and control risks of infection in the workplace,
- Appoints an Executive Lead to be the Healthcare Associated Infection (HAI) Executive Lead,
- Appoints either a Clinical Lead and/or Infection Control Manager to have responsibility for the IPC service with sufficient resource to provide IPC support and advice and is able to demonstrate clear lines of governance throughout the organisation, and
- Ensures that prevention and control of infection is a core part of their organisation's clinical governance and patient safety programmes.

From the Interim Chief Nursing Officer

Anne Armstrong

02 May 2024

DL (2024) 11

Addresses

For action

NHS Scotland Chairs,
NHS Scotland Chief Executives,
Chief Officers Health and Social Care Partnerships,
Local Authorities,
HR Directors,
Medical Directors,
Nurse Directors,
Primary Care Leads,
Directors of Pharmacy,
Directors of Public Health,
Directors of Dentistry,
Optometric Advisors,
All Independent Contractors (Dental, Pharmacy, General Practice and Optometry),
Infection Control Managers,
Infection Control Doctors,
Infection Control Nurses.

Further Enquiries

Scottish Government Directorate for Chief Nursing Officer

Email: cno@gov.scot

Role of Healthcare Associated Infection (HAI) Executive Lead

The HAI Executive Lead holds delegated accountability for the IPC service function within their portfolio answering directly to the Chief Executive in line with the Board's internal scheme of delegation. HAI Executive Leads are responsible for:

- Annual workforce planning to establish an IPCT appropriate to the size and complexity of the Board, in line with the requirements of the Health and Care (Staffing) (Scotland) Act 2019,
- Responsible for the management of any IPC associated risks which have been escalated to ensure appropriate mitigation steps are taken,
- Ensure the IPC service can provide the function required and have an appropriate work programme which supports provision and continuous improvement, and
- Responsible for chairing the NHS Healthcare Associated Infection Executive Committee (HAIEC)/ Infection Control Committee (ICC)
- Oversee and ensure relevant and required IPC/ healthcare associated infection (HCAI) reports are published and/or sent to the appropriate National Board/Scottish Government.

Infection Control Manager and/or Clinical Lead

The Infection Prevention Workforce: Strategic Plan (2022-2024) and accompanying CNO letter states that both the complexity and size of the Board should be considered when determining whether there is a need for a dedicated IPC Clinical Lead.

The Clinical Lead role **may not be required in all boards** and is distinct from the role of the HAI Executive Lead which will retain the delegated accountability within the Board for HAI.

Team and Specialist IPC Role Descriptors:

The Infection Prevention and Control Team (IPCT)

The function of the IPCT is to advise on the prevention,

surveillance, investigation, and control of infection across health and care settings in collaboration with other key service partners. The IPCT works collaboratively with microbiology, virology and other services and departments, including operational and senior management teams, health protection teams, care home providers and the health and social care partnerships , to provide infection, prevention, and control (IPC) subject matter expertise, safe, effective, and person-centred communications and advice and support to help reduce the risk of infection to patients, service users, staff and visitors.

The membership, structure, and scope of an IPCT should reflect the geography, function, size, and complexity of the NHS Board it serves.

A descriptor of an IPCT can be found in ANNEX A.

IPC Specialist Role Descriptors

Since the publication of the Infection Prevention Workforce Strategic Plan 2022- 2024 in December 2022, the Healthcare Associated Infection (HCAI) and Antimicrobial Resistance (AMR) Policy Unit has been engaging with national and territorial Boards to produce a Clinical Lead role descriptor for Scotland and update the existing Infection Control Manager (ICM) descriptor within HDL(2005)8.

During the first stage of engagement with IPCTs from across Scotland, the HCAI/AMR Policy Unit was asked by key stakeholders to develop role descriptors for Infection Control Doctors, Nurses/Practitioners and Infection Control Support Workers.

ANNEX B holds role descriptors for all of the aforementioned team members. It is recognised that some staff may have additional responsibilities based on local need which would not necessarily be considered as a core responsibility for that role across Scotland, and therefore such responsibilities are not included within the descriptors.

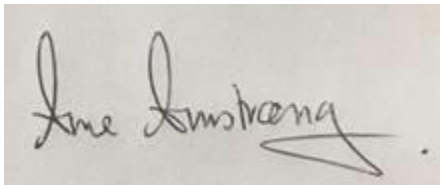
The individual role and team descriptors outline the main responsibilities for IPC specialists across Scotland. The individual role descriptors were developed with an initial draft created by NHS Education for Scotland, based on current job descriptions for IPC posts across Scotland and England, which was followed by consultation with

NHS Scotland IPC staff representatives, HAI Executive Leads and Scottish Government Professional Advisors**.**

All descriptors emphasise that IPC teams are responsible for the provision of IPC advice to other areas and departments, noting that this does not mean they are accountable for IPC practice in those areas.

The IPCT and team member descriptors **are not mandatory**. They have been developed as a support tool and guide for Boards to refer to when reviewing local roles or IPCT structures as part of workforce planning in line with the requirements of the Health and Care (Staffing) (Scotland) Act 2019.

Yours sincerely,



Anne Armstrong
INTERIM CHIEF NURSING OFFICER

Annex A – IPCT DESCRIPTOR

IPC Team Descriptor ANNEX A.docx

Annex B – SPECIALIST ROLE DESCRIPTORS – CROSS READ TABLE

Role Descriptors - Cross Read Table ANI

Scottish Hospitals Inquiry

Royal Hospital for Children and Young People/ Department of Clinical Neurosciences

Submission on behalf of Wallace Whittle/TÜV SÜD Limited

in respect of the Hearings covering the period

from Financial Close

Introduction

1) These submissions are made on behalf of Core Participant, Wallace Whittle/TÜV SÜD Limited (WWTS) as represented by Laura Donald Solicitor Advocate of BTO Solicitors LLP.

2) The Inquiry has previously examined the theory and practice of ventilation in hospital along with the background and chronology of events in relation to the project for the procurement and construction of the Royal Hospital for Children and Young People/ Department of Clinical Neurosciences (RHCYP/DCN), covering the period from the start of the procurement exercise to Financial Close. Closing submissions were provided to the Inquiry in respect of that period, and this submission is intended to be read alongside those previously submitted and published by the Inquiry given the overlap in evidence on the design of the ventilation system. In particular, paragraphs 2.1 - 2.7, 3.5 and 7.1 – 7.5 are relevant.

3) In writing these submissions we have had regard to the Closing Statement by Counsel to the Inquiry (7 May 2024) (the Closing Statement). For the avoidance of doubt, where this submission makes no specific comment on a particular aspect of the Closing Statement no inference should be drawn that that WWTS either agrees or disagrees with that Statement.

4) These submissions do not seek to review and comment on all of the evidence heard by the Inquiry in the hearings which took place in February and March 2024 but to focus on the key matters which are considered potentially relevant to the Terms of Reference (TOR) and which relate specifically to WWTS. In these submissions we intend to highlight for the Inquiry only those areas where WWTS:

   a) wish to place particular emphasis;
   b) seek to draw a different conclusion from Counsel to the Inquiry;
   c) wish to identify areas where valuable lessons might be learned for the future and suggest further potential recommendations.

5) Accordingly, for ease of reference, these submissions follow the same chapter headings and sequence as the Closing Statement namely:

1. ***The task of the Chair and the approach to the evidence***
2. ***An overview of the themes which emerge from the evidence***
3. ***The list of topics***
4. ***The questions posed in the Terms of Reference 1 – 12***
5. ***Potential Recommendations***

6) WWTS will apply for permission to provide supplementary oral submissions to allow them to consider and respond or adopt (as appropriate) the submissions of other Core Participants. For the avoidance of doubt, where this submission makes no specific comment on the submissions of other CPs, no inference should be drawn that that WWTS either agrees or disagrees with those submissions.

1. The task of the Chair and the approach to the evidence

7) WWTS agrees with that which is set out in the Closing Statement. In particular, WWTS agrees that the Chair should consider all views provided by witnesses objectively. Where opinion is provided it should be assessed against the factual evidence available. In particular, we submit that where there are assertions in the Closing Statement that a particular witness "would have" responded in a certain way, such assertions should be treated very carefully. In those cases the questions had not been put to the witness and the Chair should deal carefully, whilst recognising that a witness may very well have responded as characterised in the Closing Statement, we cannot know whether any commentary, or a rider, would have been added by the witness in evidence.

2. Key Themes

The lack of a clear brief set by NHSL

8) WWTS agrees that the lack of clarity in the brief and the contradictory provisions in relation to NHSL's requirements set the scene for the later confusion and ambiguity in the process followed during the period from financial close whilst the reviewable design data process was underway.

The status of published guidance

9) WWTS agree that the interpretation of SHTM 03-01 is a key document and Mr McKechnie gave a great deal of evidence on this, and the way in which SHTM 03-01 has been revised, updated and extended.

The interpretation of the published guidance

10) We consider the submission in the Closing Statement (paragraph 35) that Mr McKechnie's interpretation of SHTM 03-01 is "difficult to reconcile with the natural meaning of the words used in the guidance" to be unfair, and indeed subjective. The very thing Counsel to the Inquiry ask the Chair to guard against. Suggesting Mr McKechnie to be an "outlier" is equally unfair. That

proposition was one which was put to Mr Maddocks by Counsel to the Inquiry and not something he came up with himself. (transcript 13 March 2024 page 45). It appears to have been done on the basis that Mr McKechnie's interpretation was not in line with that of Mr McLaughlin of Health Facilities Scotland whose email with his interpretation was read to Mr Maddocks. Mr McLaughlin gave no evidence on that point and could be considered in 2019 to have had a vested interest in that interpretation. Counsel to the Inquiry records in paragraph 174 that Mr Maddocks characterised Mr McKechnie as "an outlier" but as submitted, it was Counsel to the Inquiry who put that term to Mr Maddocks. Mr Maddocks had simply disagreed with Mr McKechnie's interpretation. In our submission there is a difference of opinion between two experts.

11) Mr McKechnie has a great deal of experience in working in the healthcare setting (see paragraph 6 of his statement). He has worked across Scotland and had he not been involved in the WWTS work in RHCYP/DCN then he might have been considered as an appropriate expert to assist the Inquiry – he is no less qualified than Mr Maddocks. Why then should his interpretation of the guidance be considered any less valid?

12) In terms of number of hospital projects Mr McKechnie named in his witness statement (paragraph 6) these are all relevant to the current Inquiry and in Scotland. Thus subject to SHTM 03-01. None of these hospitals were designed (or built) with the 10 a/c 10Pa regime for ventilation in the critical care areas.

13) Contrast that to Mr Maddocks who named, with some difficulty, three hospitals where his recollection was that 10 air changes at 10Pa were specified. Of note none of the three of those he mentioned (transcript page 42) are subject to SHTM 03 – 01 (Scottish Health Technical Memorandum). Given Mr McKechnie's experience in the Scottish healthcare sphere, we asked the Inquiry team if it would be possible to see the technical drawings for the three hospitals named by Mr Maddocks but unfortunately they are not available.

14) We invite the Chair to find that the guidance is reasonably open to different interpretations, in our submission as is obvious from the conflicting evidence.

15) In further support of that submission, the newer version of SHTM 03-01 which was updated in 2022 is now very clear as to the appropriate air change regime within critical care. This was not just a re-draft, or revision of existing text, but a whole new "block" of guidance in respect of critical care was added as follows:

Applications: Level 2 and 3 critical care areas, bone marrow transplant (BMT), oncology, organ and tissue transplant units

Table 3: Airborne protective facilities

Area/zone	Reason for ventilation	Typical design factors
Note: Level 2 and 3 Critical care areas should be treated identically in terms of service provision as their only difference is the staff to patient ratio.		
Level 2 or 3 critical care individual room	Protection of patients from airborne organisms and fungal spores	Supply only in patient's room and cascade air out via door undercut, transfer grille or pressure stabilizer through rooms of a lower classification.
Level 2 or 3 critical care open bays	As above	Design parameters Air change:≥10 per hour Pressure regime: +10 Pa to general area Noise Level; 35 d(B)A Temp range: 20 to 25°C must maintain any selected set point in the range via BMS Humidity; Floating; max 60%RH Final filter; BS EN 1822 – EPA10

16) Counsel to the Inquiry makes several other references to the WWTS interpretation of SHTM 03-01. On each occasion no cognizance is taken of the guidance added to SHTM 03-01 which took effect in 2022 (above), perhaps in recognition of the difficulties which had arisen in both Edinburgh and Glasgow – a silent recognition of the fact that the guidance could be read in different ways?

17) We do agree with the assertion at paragraph 94 of the Closing Statement where it is submitted that "if one proceeds (as Mr McKechnie did) on the basis that the environmental matrix set out NHSL's preferences it is, perhaps, legitimate to say that SHTM 03-01 did not compel a change from them even if they were not consistent with the recommendations which it made." It is relevant to note here that the NHSL preferences did comply with the alternative calculation of 10 litres per second per person.

18) However, more pejoratively, at paragraph 118, Counsel to the Inquiry characterises the interpretation of the guidance to have resulted in a "failure" to apply the SHTM recommendation to the critical care rooms. In light of our submission above, that the WWTS interpretation of guidance was a reasonable approach used in many other hospitals, then not applying a particular recommendation is a choice, not a "failure", as the solution complied with other alternative guidance contained within SHTM 03-01.

19) In paragraphs 327 – 330 of the Closing Statement, Counsel to the Inquiry sets out the changes and additional guidance introduced by the most recent version of SHTM 03-01. The Chair is invited to consider whether the issue with "non-compliant" (we do not accept it was non-compliant given Mr McKechnie's evidence and submissions above) ventilation would have arisen had the 2022

guidance been in place at the relevant time. This is of relevance to our submission that the updating of SHTM 03-01 in 2022 cured the lack of guidance available in the earlier (2014) version. It is, we submit, an important point to bear in mind when considering whether different interpretations of the guidance were quite appropriate and understandable. We agree that the 2022 guidance manifestly improves the guidance as to what the specifications should be in the critical care areas as well as making explicitly clear what is referred to as the critical care areas.

20) One comment we wish to make about evidence around the guidance is the apparent contradictions in evidence. We have some concern about the evidence on the levels of servicing suggested as appropriate for the critical care areas. Mr Maddocks, in his report (bundle of witness statements page 5) and in his evidence (transcript page 4), stated that in his opinion the critical care areas are now designed and functioning in compliance with the guidance (SHTM 03-01). In response to questioning during his evidence (transcript page 39) he stated that 10 air changes per hour at 10 Pa was an "all-encompassing requirement" for the critical care area appearing to reference the whole department. Indeed, he then went on to say that the critical care area he had been involved in (transcript page 42) had 10 air changes at 10 Pa "For the whole area, yes." Then when referred to Mr McLaughlan's email (transcript page 43), he appeared to agree with Mr McLaghlan's position, which in turn appeared to reference only ward areas. A contradiction to his earlier evidence. His report at paragraph 2.3.2 (bundle 1 of witness statements page 17) appears to exclude what may be termed "common areas" from the 10 air changes at 10 Pa. It is, in our submission, not at all clear what Mr Maddocks' position in evidence actually was.

Compliance with the published guidance

21) We respectfully agree with that which is set out in the Closing Statement (paragraphs 37 – 43).

The role of advisers

22) We respectfully agree with that which is set out in the Closing Statement (paragraphs 44 – 51).

Adequacy of Governance

23) We respectfully agree with that which is set out in the Closing Statement (paragraphs 56 – 58)

3. The list of topics

We propose only to address those topics identified as involving WWTS

The development of the design of the ventilation system for critical care rooms and isolation rooms in the period after financial close (February 2015) – The Development of the environmental matrix in relation to guidance note 15

24) The Closing Statement notes that Mr McKechnie was "unfamiliar with the concept of Operational Functionality" (paragraph 76) and goes on to note that Mr McKechnie interpreted NHSL's approval

under the RDD process as confirming the proposals were accepted. Given the RDD process was operating as a conventional RDD process with comments being fed back on various elements of the design, it is in our submission reasonable for WWTS to rely on that. This was the understanding of MPX as well as WWTS. Whilst the Closing Statement suggests that NHSL and MML approached the RDD process with a different attitude, this is not the position which was adopted in the evidence provided by Mr McKechnie or the MPX witnesses, Mr Pike or Mr Hall. Nor was their approach commented upon (by NHSL or MML) in meetings at the time.

25) Particular criticism is made of the WWTS approach to updating of the EM in respect of the guidance note 15. In effect an update was made but was not highlighted. It is suggested that by highlighting other changes but not the change to guidance note 15, NHSL and MML were prevented from knowing about it. With respect, this document was a "living document" and one in respect of which changes were regularly being made on a daily basis. Mr McKechnie gave evidence (transcript pages 8 – 9) of elements of the EM which had previously been approved, being marked at a later date as "rejected" (marked "C") or "Accepted – subject to noted comments being addressed" (marked "D") (see also statement paragraphs 21 – 27).

26) Counsel to the Inquiry submit that there is nothing in the correspondence to justify a conclusion reached by both Mr McKechnie and Mr Hall that NHSL were content with the interpretation of the guidance applied by WWTS and MPX. Again this is a subjective criticism for which there is little foundation.

27) The one change made, but not highlighted, was only to a guidance note. It is important in our submission to reflect on the actual design criteria, all of which was still tabulated and available for review. Counsel to the Inquiry themselves note (paragraph 87) that NHSL and MML were aware of the air change parameters and there was no active disagreement over that. The "scrutiny" applied by NHSL and MML is commented upon, and in our submission this is correctly focused on and supports our submission that the change in guidance note 15 is not as key as is being suggested. The actual parameters suggested were available and not commented upon, nor was explanation sought. Of particular note, the air change rates remained the same as the original values contained within the original Hulley and Kirkwood values (see page 135 of Bundle 4) in the original brief.

28) The air change parameters were not changed and there was no further review made. No efforts were made to ensure the EM parameters complied with NHSL's preferences. Mr McKechnie explained that he had twice offered a line-by-line review of the EM with MML in an effort to draw a close to the constant revisions and queries. On one hand the EM was NSHL's reference design and formed a key part of the Project Agreement, and on the other hand they maintain the EM was not their brief.

29) The Closing Statement makes reference (paragraph 126) to the haematology/oncology ward being a neutropenic patient area. Whilst this may be the case it is relevant to note that in the original Clinical Output Specification (COS), it was not made clear that it was intended to be exclusively neutropenic.

30) In considering the issue of the multi-bed wards in the critical care area, and how best to achieve the change from positive pressure to negative or balanced pressure, WWTS came up with options as to how to achieve that – in our submission, the Closing Statement over emphasises the suggestions made by WWTS as "proposals". WWTS were asked how the change in pressure might be achieved and one of those options was to reduce the air change rates. The original design for all multi-bed rooms had resulted in a positive pressure within those rooms and had applied the original EM air change rates.

31) Of note, in the IOM commissioning report which states that 10 air changes at 10 Pa is being provided but it would appear that the HEPA filters were only provided in the Isolation Rooms, not in the multi-bed areas. The position adopted by Counsel to the Inquiry (that WWTS should have adhered to the guidance in SHTM 03-01 throughout Critical Care) does not appear to be critical of the lack of HEPA filters, which we submit ought to have been included in the multi-bed areas also if the referenced Critical Care guidance is being applied as being suggested by Counsel. This position contrasts with their position on the WWTS evidence.

Changes in Policies, Procedures, Protocols and Governance Arrangements after the project

32) The issue of the updated SHTM 03-01 is dealt with in paragraphs 327 – 330 of the Closing Statement. We have addressed this above.

4. The questions posed in Terms of Reference 1 – 12

33) We comment only on the Terms of Refence (TOR) of relevance to WWTS.

TOR 1

34) The Chair requires to examine the issues in relation to the adequacy of ventilation in respect of the RHCYP/DCN adversely impacting on patient safety and care. He requires to consider whether the ventilation system was defective in the sense of not achieving the outcomes or being capable of the function of purpose for which the system was intended and not conforming to the relevant recommendations, guidance and good practice.

35) We have set out our position in relation to the relevant guidance. It is our submission that the WWTS design did conform to guidance, and it was only later in the project when NHSL changed their parameters, moving away from that which had originally been in their own EM, as part of the BCRs that the ventilation system was redesigned. If the original specification was not in line with SHTM 03-01 "as NHSL had intended that it should" (para 341 of the Closing Statement) then that is something for which NHSL must answer.

TOR 3

36) In our submission whilst there may have been governance procedures in place, there was a failure on the part of NHSL and their advisers MML to provide a clear and unambiguous brief, and to

monitor the ongoing design issues with rigour. Had MML accepted a line-by-line review of the EM when offered by Mr McKechnie in the face of his frustration at the moving goal posts, or suggested to NHSL that such a review would be in line with good practice, then it would have become clear at a much earlier stage where parties were acting at cross-purposes. Of note, in 2021, prior to final handover, just such a line-by-line review was carried out (Lindsay Guthrie statement paragraph 185 and transcript page 132)

Potential Recommendations

37) The Closing Statement contains several suggestions for recommendations that would be suitable for an Interim Report. We respectfully agree with those set out in paragraphs 425 – 458. They are sensible and straightforward in terms and appear to reflect the evidence heard.

38) We submit that it is essential to have “one source of truth” as suggested in Mr Maddock’s evidence. In designing hospitals we agree it is essential, to have one clear brief with one encompassing document the design parameters will be clear to all at all times. The client brief will be met. WWTS would go further than that and suggest that all design parameters must be capable of being cross-checked against an audit trail of applicable design guidance. WWTS provided an Report on the Review of the Critical Care Briefing Review (Bundle 1 page 757) in which they recorded each area of where they considered the guidance applied or did not apply. Such an approach on audit, taken by all, will provide more certainty that a design is compliant and consistent with the client brief and guidance, and more importantly will flag where the guidance has been set aside and why.

THE SCOTTISH HOSPITALS INQUIRY

ROYAL HOSPITAL FOR CHILDREN AND YOUNG PEOPLE/ DEPARTMENT OF CLINICAL NEUROSCIENCES

Closing Statement for the affected Core Participants: the parents and representatives of the children affected by their treatment at QEUH

Hearing commencing on 26 February 2024 covering the period from financial close to the Opening of the Hospital

1. The Core Participants represented before this Inquiry by Messrs Thompsons, Solicitors are patients, family members of patients and parents of child patients who were, or are still being, treated on the children cancer ward, the neo-natal unit and the adult wards at the Queen Elizabeth University Hospital in Glasgow ('QEUH') and at the Royal Hospital for Children and Young People in Edinburgh ('RHCYP').

2. Following the previous hearings in 2023 we set out our comments about the fact that a fundamental error by one individual in the design process was never picked up by anyone involved in the procurement, design and construction of the new RHCYP. The responsible parties were the health board NHSL, their technical advisers Mott MacDonald Limited MML and the main contractors IHSL. We were very critical of the failure by NHSL to make clear the requirements for the ventilation system, an essential feature for the safety of the young patients to be treated there. The guidance documents for the Health Board were straightforward for them to apply in relation to the critical care rooms. We reiterate following the further hearings that we continue to find it "astonishing" that patient safety was dealt with "in such a slack and haphazard fashion" without any proper system of review in place by the health board or their technical advisors. The evidence at the latest hearings continues with the theme of failures by the Health Board and their technical advisors along with what

appears to be failures by the Scottish Government to question what was happening with the hospital until it was almost too late.

3. The fact that there were major problems with the ventilation system at the new QEUH in Glasgow were well known to the Scottish Government and the fact that the same main contractors were involved ought to have resulted in far closer scrutiny by the government during the period prior to intervention by the Health Minister, which was only a matter of weeks before the hospital was due to open in July 2019.

4. In our previous statement we asked how such an obvious error was allowed to occur and be missed in a high cost project involving significant public expense and the key safety of young patients. The further evidence we heard has failed to explain why that happened and has made it plain that there were further failures and errors made by many of those involved. As we described in our previous submission these failures continue to be "both remarkable and inexcusable". In addition, there appears to have been a complete lack of acceptance of responsibility by any of the main parties involved.

5. Perhaps the worst example of this is the fact that the Health Board failed to follow their own procedure by not carrying out something called stage 4 of HAI- SCRIBE before they accepted the hospital as complete from the contractors, IHSL. In addition, they failed to consult with their own Infection Prevention Control (IPC) specialists. **This resulted in the Health Board accepting and paying for a hospital that it could not use**.

6. The Health Board accepted practical completion and handover of the hospital when it was incomplete. This triggered the Health Board's obligation to start paying for a hospital, which it was unable to use. The core participants and members of the public are no doubt going to question this quite remarkable decision of a public body, which has led to a significant waste of public money and delays in treatment.

7. The HAI- SCRIBE procedure stands for "Healthcare Associated Infection System (for) Controlling Risk in the Built Environment". The procedure was developed to

identify, manage and mitigate issues in the built environment impacting on infection and prevention control risks. The stage 4 check referred to above requires to be completed before a hospital is handed over to a Health Board. As we have said this was not done. When the Health Board eventually proceeded with stage 4 of the HAI-SCRIBE assessment with the assistance of the Board's own Infection Prevention Control specialists the problems and deficiencies in the ventilation system were identified. They identified that certain parts of the new hospital ventilation system were potentially unsafe - this new hospital that the Health Board had previously accepted as completed without following standard safety procedures and without involving their own IPC staff. The actions and failures of the Health Board in this regard were frankly irresponsible. The seemingly cavalier disregard for patient safety in a hospital for the treatment of children, often those who are most vulnerable, seems hard to comprehend. We shall return later to the issue of what the Scottish Government ought to have done and failed to do at this stage.

8. The Health Board's IPC team were heavily involved at the early stages of the project. For reasons which were not clear the Health Board involved the IPC team less and less as the project progressed. Reasons for this from the Board witnesses remained rather opaque. In any event, the IPC team were not consulted on the final technical solution for the multibed rooms or the other ventilation solutions in the settlement agreement. This failure to use their own specialist IPC team remains a mystery and one that should simply not have happened in any Health Board involved in detailed technical discussions about ventilation and patient safety.

9. Turning now to the roles and relationship of the Health Board and Mott MacDonald Limited, who were the Board's technical advisers. The confused state of the nature of the relationship and responsibilities between the two of them ought to be embarrassing for both of them, as neither appeared to know what the other one was doing. This was much more than a lack of clarity as described by Counsel to the Inquiry. The Health Board considered that it was getting technical advice and assurance from MML whereas MML considered that it was not providing any such assurance. Quite how that has transpired was not explained properly by any of the witnesses and neither party appeared to accept any responsibility for the confusion,

which contributed significantly to the problems and why the original error was not rectified until shortly before the hospital was due to open.

10. An example of the failures by the Health Board and Mott MacDonald is that after the contractors IHSL issued a letter on 31 January 2019 stating, incorrectly as it turned out, that the ventilation system was compliant with the guidance in SHTM 03-01, neither of them checked or verified whether that statement was accurate. Firstly, no adequate explanation was provided by any of the witnesses for either the Health Board or for Mott MacDonald as to why that statement was not checked for its accuracy. Secondly, if it was not possible to check or verify the statement, which seems to us unlikely, they could have instructed an independent company to do the check as happened later with IOM Limited. IOM carried out testing of the ventilation system in critical care rooms shortly before the hospital was due to open and found that the ventilation in some of the rooms did not meet the required standard for the safety of the patients. Again, none of the witnesses appeared to take responsibility for this failure, which was a common theme throughout the hearings.

11. The Scottish Government provided the finance for the hospital project. They provided significant further funds to complete the project when it started to go off the rails. What sort of oversight was being carried out by the Government during the project and particularly in late 2018 and early 2019? The answer appears to be very little based on the evidence we have heard. The Government were aware of the major problems with the new Queen Elizabeth hospital in Glasgow in 2018. The same contractors were responsible for building both hospitals. Surely it should have occurred to someone in the Government that a major problem was developing at the new children's hospital in Edinburgh? Yet nothing appears to have been done until the very last minute.

12. The Health Minister was asked about the additional funding provided by the Scottish Government for the settlement agreement in January 2019 at a time when the stage 4 HAI-SCRIBE procedure had not been completed. It was clear that the Scottish Government had failed to check whether this obvious procedure had been complied with before they handed over the money for a hospital, which could not

be used. The public are entitled to ask how on earth could that happen? When questioned the Health Minister failed accept any responsibility for this clear and obvious oversight and placed all the blame onto the Health Board. The general theme of the Scottish Government's evidence was that the Health Board were solely responsible for all errors that occurred along with their advisors. In our view this amounts to an abrogation of responsibility by the Scottish Government. They paid for a hospital which could not be used and failed to ensure that the required safety checks had been carried out by the Health Board before they handed over the money.

13. There has been little evidence of any substance about term of reference 12, which was for the Inquiry: "To examine whether NHS Lothian had an opportunity to learn lessons from the experience of issues relating to ventilation, water and drainage systems at the QEUH and to what extent they took advantage of that opportunity." It appears that NHS Lothian had the opportunity, but failed yet again to act. Indeed Tracey Gilles, provided an example of a "formal meeting" that was held between individuals at the QEUH and RHC to try and learn lessons from the QEUH project, where it appears to have been deemed that no meeting minutes would need to be kept. Equally the Scottish Government were aware of the problems with the ventilation system at QEUH when they wrote to all the Health Boards in January 2019 asking them to inspect all critical ventilation systems for compliance with the guidance: SHTM03-01. Did this result in greater scrutiny of what was happening at the new children's hospital by the Scottish Government? The answer to that appears to no. No proper explanation was given as to why the Government appeared unaware of what was happening until 2 July. In our view this failure lies at the door of the Scottish Government, again, for which no responsibility was accepted.

14. The evidence as to whether this will not happen again in the future was unconvincing. A new body called NHS Assure has been created by the Scottish Government, no doubt at significant cost, to assist with new construction projects. If there had been proper scrutiny, checks and oversight by the Health Board, their advisors and the Scottish Government this whole series of events would not have happened. Significant additional public funds have been used to rectify the problems, which should never have occurred in the first place. It appeared to us

from the evidence we heard that NHS Assure would probably not have prevented the mistake from being identified.

RESPONSE BY MOTT MACDONALD LIMITED

in relation to

Note of request by the Chair of the Scottish Hospitals Inquiry

in respect of hearing of submissions on 17 June 2024

1. In this document, Mott MacDonald Limited ("MML") seeks to respond, so far as it is able, to the Note of request by the Chair of the Scottish Hospitals Inquiry in respect of the hearing of submissions on 17 June 2024.

Question 1: *At CTI para 14 it is suggested that the chair should consider whether independent advice should have been sought on the technical resolutions in SA1 in relation to ventilation design (a technical audit) or whether to have done so would have been unnecessary and/or disproportionate (see also CTI paras 58, 155 and 182). The parties who might have instructed a technical audit are NHS Lothian (NHSL) and/or Scottish Government (SG). In their closing statement, the parents and representatives of children are critical of NHSL and SG in not instructing a technical audit or something like it. It is understood that NHSL confirmed to Project Co that it wanted 14 multi-beds at 4ach and bal/neg pressure in March 2018, and that by October 2018 Multiplex (MPX) had completed the agreed ventilation works to the multi-bed rooms and other disputed issues addressed by SA1. The NHSL Finance & Resources Committee gave its support to the proposed agreement to resolve disputed issues at its meeting on 23 May 2018 and it approved a Business Case (BC) for SA1 on 25 July 2018, SG approved NHSL's BC on 8 August 2018. By letter of 25 January 2019 Paul Gray, the Chief Executive of NHS Scotland asked for confirmation that all critical ventilation systems were "inspected and maintained in line with [SHTM 03-01]". By letter of 31 January 2019 Project Co advised NHSL that "all ventilation systems have been designed, installed and commissioned in line with SHTM 03-01 as required". The Board of NHSL approved the terms of SA1 on 6 February 2019. SA1 was signed on 22 February 2019. CPs are invited to indicate their positions on necessity, proportionality, appropriate nature and timing (having regard to the above summary of relevant dates) of a technical audit (if such audit is considered to have been appropriate), and likely outcome if an audit had been carried out.*

1.1 In June 2018, in light of concerns about risk allocation in SA1, MML did offer NHSL an enhanced level of checking. Option one was for MML to carry on as before; option two was for MML's scope to increase to give additional assurance; and option three was for MML to do the design itself. NHSL chose option one. This matter is discussed more fully at paragraph 224 of MML's closing statement.

1.2 With the benefit of hindsight, a technical audit may seem to be an attractive option as it may have brought the issue to light at an earlier stage. However, at the relevant time, NHSL's decision to choose option one was a reasonable choice. A technical audit, or any enhanced level of checking, would have had significant implications in terms of cost and timing. It ought not to have been a necessary step: the design was supposed to comply with SHTM 03-01. But for Mr McKechnie's anomalous interpretation of SHTM 03-01, the design would have complied with SHTM 03-01 and the issue would not have arisen. In these circumstances, MML considers that a technical audit would have been unnecessary and disproportionate.

Question 2: The HAI SCRIBE process set out in SHFN 30 Part B in its October 2014 version has been mandatory since 14 July 2015 in terms of DL (2015) 19. Stage 2 (planning and design stage of the development), as mandated by the previous 2007 version of SHFN 30, was completed in respect of the project on 19 November 2014. However, the agreement formalised as SA1 effected in relation to items 4, 7 and 13 of the Technical Schedule what it is understood NHSL considered to be changes in the design of the ventilation system. CTI para 152 raises the question as to whether that triggered an obligation to complete a stage 2 question set anew. CPs are invited to comment on this question and, more generally, as to whether during the course of a healthcare construction project stage 2 of the HAI SCRIBE process is mandated to scrutinise all (or, alternatively, all material) design changes with the potential to impact on infection control risks with a view to minimising hazards and managing these risks.

2. MML does not consider itself to be best placed to comment on this issue. MML was not involved in the HAI SCRIBE process.

Question 3: *At CTI para 303 Counsel draws attention to the email from Dr Inverarity dated 4 January 2019. That email refers to provisions in chapter 8 of SHTM 03-01 which makes recommendations as to the validation of specialised ventilation systems. At the beginning of chapter 8 there is a Note which includes: "It is unlikely that 'in house staff' will possess the knowledge or equipment necessary to validate critical ventilation systems …Validation of these systems should therefore be carried out by a suitably qualified independent Authorised Person appointed by the NHS Board". That is what appears to have been done by NHSL when it instructed IOM. However, CPs are requested to comment on the proposition that, in a situation where testing and commissioning has been carried out on behalf of Project Co by its contractor, albeit to the satisfaction of an Independent Tester appointed pursuant to clause 15.1 of the Project Agreement, in order to comply with the recommendations in SHTM 03-01, it was incumbent on NHSL to instruct an independent validation of the specialised ventilation systems.*

3. MML does not consider itself to be best placed to comment on this issue.

Question 4: *CTI para 179 notes the resolution of item 4 in the Technical Schedule as an agreed derogation from guidance. Looking to NHSL's response to PPP8 it would appear that MPX had designed and constructed the ventilation system of department C1.4 (Lochranza ward) to the specification in the Reference Design EM of 31 October 2014. CPs are invited to comment on that understanding and, further, as to whether, on a proper construction of the guidance, they accept that specification in Table A1 of SHTM 03-01 in relation to "neutropenic patient ward" applied to the whole of department C1.4 and that therefore in this respect what appeared in the EM of 31 October 2014 represented a departure from guidance.*

4.1 So far as MML is aware, the ventilation system of department C1.4 (Lochranza ward) was designed and constructed to the specification in the Reference Design EM dated 31 October 2014.

4.2 MML considers that the provisions in Table A1 of SHTM 03-01 in relation to "neutropenic patient ward" did not apply to the whole of department C1.4. It applied only to those rooms within the department that could properly be called neutropenic patient wards - those areas that housed neutropenic patients.

4.3 Whether the provisions in the EM dated 31 October 2014 represented a departure from guidance depends entirely on the use to which the rooms in department C1.4 were to be put. If neutropenic patients were to be housed only in isolation rooms, then the EM was not a departure from guidance (see paragraph 9.6.35 of PPP8). However, if neutropenic patients were to be housed in single and multi-bed rooms as well (as had been NHSL's original intention) then the EM was a departure from guidance (see paragraph 9.6.29 of PPP8). Ultimately a pragmatic solution was reached whereby NHSL would manage patients so that neutropenic patients were to be housed only in isolation rooms in department C1.4 (see paragraphs 9.7.31 and 9.10.42 of PPP8). NHSL changed its intended use of the rooms within department C1.4 rather than requiring IHSL to change the design in order to ensure compliance. By managing patients in this manner, the EM essentially became compliant with SHTM 03-01.

Question 5: Mr McKechnie was the team leader of the M&E engineers sub-contracted to MPX with responsibility for ventilation systems. Mr McKechnie's interpretation of Table A1 of SHTM 03-01 was not shared by any other witness. However, Mr McKechnie's interpretation is understood to be supported by Wallace Whittle/ TUV SUD (WW), his employer (WW paras 10 and 11). It is not repudiated by MPX which at para 2.3 state that the relevant guidance is open to different interpretations. IHSL at para 2.18 describe the EM as in error but that WW did not recognise this as it was not inconsistent its interpretation of Table A1. CPs are invited to comment on the contention of NHSL at paras 24 and 79 that had it not been for Mr McKechnie's interpretation of the relevant guidance what, on a proper construction, was an inconsistency between the specification for Critical Care contained in the EM and the terms of SHTM 03-01, would have been identified earlier. Similarly, CPs are invited to comment on the contentions of MML to similar effect at paras 2.1 and 2.2, as developed at paras 101 and 261, in support of the proposition that any lack of a finalised document clearly setting out the technical requirements for ventilation at Financial Close, rather

than being the root of the problems, had no causal connection to the delay in the opening of the hospital.

5. MML agrees with the contentions at paragraphs 24 and 79 of NHSL's closing statement, which are consistent with the position it takes.

Question 6: *IHSL, MPX and WW are invited to comment on the contentions developed by NHSL in sections 4 and 5 of its closing statement (paras 20 to 29), and in particular at paras 20.2, 20.3, 20.4, 23, 24, 25 and 28, to the effect that: any ambiguities in the Board's Construction Requirements or derogations from guidance should have been brought to NHSL's attention regardless of what was perceived to be the client's brief; flagging non-compliance was a contractual obligation on IHSL under the Project Agreement (albeit I recognise that it is not for the Inquiry to determine the correct interpretation of the contractual provisions); and IHSL, MPX and WW should have had in place their own processes for design review and audit, whereas Mr McKechnie's outlier views on the interpretation of SHTM 03-01 were not apparently reviewed internally or otherwise challenged throughout the entire duration of the Project, thus allowing Mr McKechnie to become a single point of failure.*

6. MML agrees with the relevant contentions in NHSL's closing statement.

Question 7: *Following the points made at CTI paras 44 to 50, Counsel suggest at CTI para 51 that there was a lack of clarity in the role of MML as technical adviser. That is not accepted by NHSL: its position is that the role was comprehensively set out in the Contract Control Order of 26 February 2015 and understood by NHSL (NHSL para 44). MML is invited to comment on what is set our in NHSL para 47 to the effect that it was involved in advising NHSL on compliance with guidance and that is accordingly implicated in the ventilation errors that formed part of the technical schedule to SA1. MML is further invited to comment on the proposition advanced by MPX (at MPX para 4.5.15, set out in more detail in paras 4.5.10 to 4.5.15) that in the RDD process NHSL/MML were in fact undertaking "a very detailed scrutiny of the EM…including down to the level of individual air change rates in certain Critical Care rooms."*

7.1 MML has been asked to comment on a submission made at paragraph 47 of NHSL's closing statement. Paragraph 47 starts by stating that MML was "deeply involved" in drafting and negotiating the technical elements of what came to be included in the technical schedule to SA1. MML does not accept this characterisation of its role. MML's position regarding its role in the preparation of the technical schedule to SA1 is summarised at paragraph 221 of MML's closing statement. Its particular role in relation to the four bed rooms is set out in detail starting at paragraph 178 of MML's closing statement.

7.2 So far as the salient passage of paragraph 47 of NHSL's closing statement is concerned, it is not entirely clear what NHSL means when it describes MML as being "implicated" in the ventilation errors. If it is being suggested that MML was one of the parties which was involved on occasions when the errors could have been spotted, then MML agrees with that proposition. However, if it is being suggested that MML ought to have identified the errors and that it acted unreasonably and/or in breach of its contract with NHSL in not spotting the errors, MML does not accept that proposition. The reasonableness of MML spotting the errors is addressed at length in MML's closing statement, starting at paragraph 107 (MML's Role in Reviewing the Design).

7.3 Turning to the proposition advanced by MPX at paragraph 4.5.15 of its closing statement, MML does not accept the suggestion that it undertook "very detailed scrutiny" of the EM. There is no doubt that MML did review the design submissions made by IHSL and did pick up on matters that went beyond operational functionality. This is addressed at paragraph 147 of MML's closing statement. However, any such reviews were conducted for the purposes of the RDD process: that was the limit of MML's contractual responsibility in conducting these reviews. These reviews were not conducted for the purpose of checking that all parameters in the design complied with the applicable guidance (albeit any obvious issues would be flagged up if they were spotted). Contractual responsibility for ensuring that the design complied with the applicable guidance remained with IHSL and its sub-contractors throughout. Even if MPX formed the view that MML was scrutinising the design, that did not absolve it of its own responsibilities regarding the design.

Question 8: *CPs are invited to comment on the points put forward for consideration at CTI paras 329 and 330 in relation to the 2022 interim revision of SHTM 03-01. Additionally, CPs are invited to identify whether they consider, in relation to the matters canvassed in evidence, there to be any weaknesses or drafting deficiencies in the interim 2022 version which would merit further revision.*

8.1 Paragraph 329 of CTI's closing statement invites consideration of whether the ventilation issues would have arisen had the updated version of SHTM 03-01 been in place. MML considers that it is unlikely that the ventilation issues would have arisen if the updated version of SHTM 03-01 had been in place. Had the updated version been in place, Mr McKechnie would presumably no longer have considered that the requirement for enhanced ventilation applied only in relation to isolation rooms in the Critical Care department. He would presumably have ensured that the EM reflected the updated guidance, which would have involved consideration of the levels of care being provided in the relevant rooms. On the assumption that the levels of care being provided in the relevant rooms were levels 2 or 3, he would presumably have ensured that there were 10 air changes in accordance with the updated guidance.

8.2 Paragraph 330 of CTI's closing statement invites consideration of whether the changes to SHTM 03-01 would be sufficient and proportionate to address the ventilation issues without the need for Assure's KSAR process. MML does not have enough experience of Assure's process to be able to provide an answer to this.

8.3 MML has not conducted a full review of the updated guidance for the purpose of identifying any weaknesses or drafting deficiencies. As matters presently stand MML is not aware of any weaknesses or drafting deficiencies.

Question 9: *At CTI para 425 onward, counsel sets out a series of potential recommendations that they consider that the Chair could make in an interim report. The CPs which have made express comment on the potential recommendations are understood to agree with all of them, subject to the qualifications noted by NHSL in Appendix D to its closing statement and Mott MacDonald Ltd (MML) at paras 271 and 276. CPs are invited to confirm that understanding. MML is invited to expand on its explanation at para 271.*

9. MML's response at paragraph 271 of its closing statement arose out of an uncertainty about what is meant by the phrase "output parameters" used at paragraph 428 of CTI's closing statement. In particular, it is unclear to MML whether the phrase "output parameters" is to be understood as including the ventilation rates for individual rooms. MML notes that NHSL appear to have understood "output parameters" as not including such ventilation rates. At Appendix D of its closing statement, NHSL refers to "output parameters by way of the Clinical Output Specifications, departmental adjacencies, room adjacencies and rooms layouts". If that is what is meant by "output parameters", MML agrees that the health board is best placed to identify them, and therefore agrees with paragraph 428 of CTI's closing statement. However, if "output parameters" goes beyond this and includes such things as the actual number of air changes required in any space, it is questionable whether the health board is the party best placed to stipulate those. However, NHSL is best placed to comment on this issue, and MML would defer to its views.

Question 10: CPs are invited to confirm whether or not they take issue with Counsel's assessment at CTI paras 322, read with what is set out in CTI paras 323 to 326, that the arrangements put in place by NHSS Assure represent a robust challenge to help improve boards' governance and compliance with guidance.

10. MML has limited experience of dealing with Assure. It does not feel able to comment on this.

Question 11: As a point of detail, NHSL is requested to respond to MML's suggestion at para 111.5 that NHSL instructed an Authorising Engineer in respect of the project (prior to the instruction of IOM). MML reference Dr Inverarity's evidence but that seems to phrased in terms of what, in general terms, he would expect rather than a reference to a specific instruction.

11. MML has no further comment on this issue.

Question 12: Separately from the above matters, NSS is invited to provide a brief written report, by 28 June 2024, on the progress of the work referred to by Ms Grant at

paragraphs 34 to 38 of her statement for the hearing in 2023 and noted by Counsel in his first Closing Submission at para 70.

12. MML has no comment on this issue.

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