SCOTTISH HOSPITALS INQUIRY

Provisional Position Paper 3

# The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

# Volume 2: The Period from Close of Competitive Dialogue to the Award of the Contract

# Purpose of the Paper

This Preliminary Position Paper has been produced to assist the Chair in addressing the terms of reference. It outlines the Inquiry Team's understanding of the procurement process for the award of the contract for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences (RHCYP/DCN) project (the Project). Volume 1 addresses the period from the commencement of the procurement exercise up to the close of competitive dialogue. Volume 2 addresses the period from the close of competitive dialogue to the conclusion of the contract. Gaps in the Inquiry Team's understanding are also identified in both volumes. These matters will require to be explored in greater detail at the hearing set to commence on 24 April 2023. Further papers have been produced in relation to the development of the Reference Design and the Environmental Matrix.

An earlier draft of this paper was circulated to Core Participants (CP) for consideration and comment. Those comments have been considered by the Inquiry Team and taken into account in finalising this paper.

In due course, the Chair is likely to be invited by the Inquiry Team to make findings in fact based on the content of this paper. The Inquiry Team does not presently intend to lead further detailed evidence on the matters outlined in it, except where there are gaps in the Inquiry Team's understanding of the procurement exercise. However, it is inevitable that some of the matters covered in the paper will be touched upon to a greater or lesser extent in the hearing set to commence on 24 April 2023. In addition, it is open to any CP – through evidence or submissions – to seek to correct and/or contradict it. It is therefore possible that the Inquiry's understanding of matters set out in the paper may change, and so the position set out in this paper remains provisional. If it is the case that the Inquiry's understanding does change significantly, a revised edition of this paper may be published in due course.

Definitions and abbreviations from Volume 1 are utilised in Volume 2.

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# 14. Submission of Final Tenders

14.1 On 16 December 2013, after the close of competitive dialogue, NHSL invited bidders to submit their final tender in accordance with the 'Invitation to Submit Final Tender' (ISFT).

14.2 The expectation for the design at final tender is set out in the Scottish Capital Investment Manual (SCIM), NPD Guide: Section 2, paragraph 5.67:

> "The design at Final Tender stage must be sufficiently developed to enable the best tender to be selected but does not need to be at the level of detail which would be expected at contract signature stage. The process of design development, provided it has no or minimal impact on overall cost, should be regarded as clarification of design which should still be permissible under competitive dialogue."

14.3 The design at this stage is expected to include 1:200 plans and 1:50 for key areas, cross sections, site plans, area schedule, and performance specifications to be used to provide a fixed price bid.

14.4 The expectation for the development of proposals generally is set out in paragraph 6.22 which states:

> "…It is important that the Body is happy that a number of participants have developed acceptable solutions which will require minimum development following submission of Final Tenders. No material changes can be made to bids following submission of final tenders, unlike the previous negotiated procedures approach adopted in many PPP projects."

14.5 The SCIM provides a table to show the 'Commitment expected at each stage of procurement from Participants on major projects'. For final tender stage:

| **Commitment expected at the end of final tender stage** | |
|---|---|
| **State of contract discussions at end of stage:** | Agreement on all key contractual issues affecting price and risk allocation, including payment mechanism and performance regime. |
| **Designer:** | 1:200 plans with key departments at 1:50 |
| **Design and construct sub-contractor:** | Confirmation of acceptance of draft contract, payment mechanism, performance regime and allocation of risks within consortium. |
| **Services sub-contractor:** | Confirmation of acceptance of draft standard contract, payment mechanism, performance regime and allocation of risks within consortium. |
| **Bidding consortium:** | Full financial model. Agreement on all points of principle on specifications. |
| **Financial and Economic Standing/Funding:** | Statement of support from funders/equity with draft term sheet and acceptance of standard contract terms, payment mechanism and performance regime, financial model and allocation of risks within consortium. |

14.6 Like the ITPD, the ISFT comprised of four volumes:

- Volume 1 set out the general requirements of the Board, this being background information on the project, final tender requirements and how NHSL intended to evaluate the final tender, award the project and communicate with bidders;
- Volume 2 set out the contractual requirements of NHSL, which included the final tender (bidder specific) NPD Project Agreement, the Articles of Association and the Payment Mechanism;
- Volume 3 set out the specific technical requirements of NHSL, these being construction (clinical and non-clinical requirements), equipment requirements and facilities management requirements;

- Volume 4 set out the Data Room (a cloud storage facility) available to bidders.

14.7 The ISFT was the same as the ITPD except for the following changes:

- Volume 1 was updated to reflect notifications issued during the course of Competitive Dialogue.
- Volume 2 contained the Final Tender (Bidder Specific) Project Agreement, which reflected amendments agreed between NHSL, SFT and each bidder during competitive dialogue. It was issued separately to each bidder.
- Volume 3 included the Final Tender (Bidder Specific) Service Level Specification that had been developed during Competitive Dialogue.

14.8 Volume 3 also includes the Environmental Matrix in appendix C. The Inquiry Team is unclear whether the version of the Environmental Matrix issued with the ITPD was replaced with a bidder-specific version at the ISFT stage for bidders that had suggested changes to the Environmental Matrix during competitive dialogue. This will require to be explored with witnesses at the hearing commencing on 24 April 2023.

14.9 A summary of the final tender requirements for the technical submission is as follows:

- an executive summary which would not be scored;
- ‘strategic and management approach’ proposals some of which were scored on a pass or fail basis and some given a mark;
- ‘approach to design and construction’ proposals, including design deliverables set out in Appendix AP1.1 of the ISFT, some of which would be scored on a pass or fail basis and some given a mark;

- ‘approach to facilities management’ proposals some of which would be scored on a pass or fail basis and some given a mark;

14.10 All technical submissions formed part of the ‘Quality Evaluation Mark’ for which forty marks were available. Of that mark, ‘strategic and management approach’ made up five percent, ‘approach to design and construction’ made up 23 percent and ‘approach to facilities management’ made up twelve percent. The remaining sixty marks out of a hundred were available for the price evaluation score.

14.11 As with the ITPD, Volume 1 set out general requirements. Section 2 was entitled ‘Technical Overview’. Paragraph 2.4.1 stated that the specific requirements were set out in the ‘Board’s Construction Requirements’ which were set out in section 3 of volume 3 of the ISFT. Innovation was encouraged but certain elements of the design, as they relate to Operational Functionality, were mandatory. This was described in Appendix E of volume 1 which was entitled ‘Reference Design Elements’.

14.12 Paragraph 2.5 was entitled ‘Reference Design and Mandatory Reference Design Requirements’. It outlined that a reference design had been developed which comprises mandatory and indicative elements. NHSL had spent time developing the reference design “…with significant clinical and stakeholder engagement…” prior to the commencement of the procurement exercise. The Mandatory Elements concerned Operational Functionality. In contrast to the ITPD, the ISFT contained new text explaining that NHSL would consider changes to the ‘Mandatory Reference Design Requirements’ (i.e. those elements relating to Operational Functionality) where a bidder considered that the ‘Mandatory Reference Design Requirements’ were not capable of meeting ‘the Board’s requirements’. The ISFT set out the process for bidders to notify NHSL of these changes. It also notes:

> “The Board confirms that the drafting in the ITPD around Operational Functionality is not intended to mandate elements of the Reference Design which demonstrably do not affect or impact Operational Use.”

14.13 Paragraph 2.5.2 addressed room layouts:

> "During Dialogue Bidders were required to develop 1:50 layout drawings for a selection of rooms. The Preferred Bidder will be required to develop 1:50 layout drawings for all remaining rooms prior to Financial Close."

14.14 Section 2.5.3 was entitled 'Room Data Sheets'. It narrated that standard form room data sheets have not been prepared by NHSL for the Project. The specific room requirements were set out in a combination of documents including 'The Board's Construction Requirements' and the 'Environmental Matrix'. Room Data sheets required to be developed for those rooms for which 1:50 layout drawings were prepared in dialogue as well as all Key Rooms and Generic Rooms. The ISFT stated that:

> "The Preferred Bidder will be required to complete Room Data Sheets for all remaining rooms prior to Financial Close."

14.15 The ISFT stated that Bidder's designs must achieve a "very good" BREEAM rating as a minimum.

14.16 Appendix K is entitled 'Certificate of Acceptance of Contractual Terms'. This was to give confirmation that the Board's Construction Requirements in volume 3 of the ISFT, and the NPD Agreement in volume 2, were acceptable to the tenderer.

14.17 Volume 3 of the ISFT, which set out the Board's Construction Requirements, did not contain changes to Section 2 'Project Wide Requirements' and Section 8 'Mechanical and Electrical Engineering Requirements' that are relevant to this paper.

14.18 Section 2 of Volume 3 sets out the general requirements of NHSL and lists the guidance to which the facilities must comply (including HTM and SHTM),

and explains the hierarchy of standards to use in cases of inconsistency or contradiction between standards contained in the guidance or the Board's Construction Requirements.

14.19 Section 8 states that "Project Co shall provide the Works to comply with the Environmental Matrix" and that Project Co shall ensure that the "design, construction and selection of components for the mechanical and electrical works" comply with the guidance listed in Section 2 as well as in Section 8.1. This includes SHTM 03-01 which provides guidance on ventilation for healthcare premises, and CEL 19 (2010) 'A Policy for Design Quality for NHSScotland', 2010 Revision published by the Scottish Government, which mandates the use of Activity Database (ADB) or an equivalent.

14.20 ADB referred to above is a computer software package developed by the Department of Health, England, that assists healthcare planners, architects and teams involved in the briefing, design and equipping of healthcare environments. Content for ADB is developed from technical guidance such as Health Building Notes and Health Technical Memoranda (HTM). SHTMs are the Scottish equivalent of HTMs. ADB can be used in the production of Room Data Sheets, which outline the environmental specifications for each room of the hospital.

14.21 Bidders submitted their final tenders on 13 January 2014.

14.22 IHSL's final tender for C8: Mechanical and Electrical Engineering Design Proposals included their ventilation strategy:

> "C8.2 (iii): Temperature Control:
>
> Internal design criteria have been demonstrated through thermodynamic modelling. The solution provides the benefits of natural ventilation supplemented by a mixed mode mechanical ventilation solution which when operating in conjunction with ceiling mounted radiant panel heaters provides an element of user adjustable control.

C8.2 (iv) Environmental Quality

Experiences from the adjacent RIE prove conditions are not acceptable when reliant on natural ventilation alone, a mixed mode ventilation approach has therefore been adopted which allows a maximum internal temperature of 25°C. Cooled air will be automatically delivered to the naturally ventilated spaces if the room temperature is sensed to be above 25°C to reduce the temperature. This 'peak loping' approach ensures the risk of overheating is minimized and thermal comfort is maintained while reducing energy consumption compared to a fully mechanically ventilated approach.

The ventilation, heating and comfort cooling strategy will ensure a good indoor air quality which together with the natural and artificial lighting strategy shall ensure comfort thus preventing sick building syndrome. Care shall be taken in the location of ventilation intakes to minimise the risk of external contaminants."

14.23 C8.2 (x) and C8.3 refer to the Environmental Matrix (EM). The requirement for C8.2 (x) was for bidders to provide an "environmental conditions/room provisions matrix" for both mechanical and electrical services for each room in the Facilities. C8.3 stated that a draft environmental matrix had been provided by the Board as part of the ITPD documentation, that bidders "must confirm acceptance of… highlighting any proposed changes on an exception basis". The EM was a spreadsheet that outlined the ventilation specifications for each room in the hospital. The development of the EM and potential inconsistencies between the EM and Scottish Healthcare guidance is the subject of the Inquiry's Provisional Position Paper 2.

14.24 IHSL's final tender submission for 'C8.2 (x) Environmental Conditions Room Matrix' stated:

> "The mechanical and electrical services shall be provided in accordance with the reference design environmental matrix and we shall provide an addendum matrix for any rooms on an exception basis highlighting any changes at preferred bid stage.
>
> Environmental Conditions:
>
> We have followed the reference design and have utilised the reference design matrix to compile the room environmental proposal drawings listed below…"

14.25 A list of drawings followed, including the ventilation strategy for the first floor, where B1 Critical Care is located: titled 'WW -SZ-01 – PL -524-001_FT – First Floor Plan – Ventilation Strategy'. The drawing only indicates ventilation type, it does not provide more detailed data on the exact air change rate or pressure regime for different rooms. Shading is used to indicate the type of ventilation for each room, specifically, whether a room required "central supply and extract", "central supply air", "central general extract", "central dirty extract", "HBN 4 Dependant", "In line with SHTM 03-01" or "natural vent" ventilation.

14.26 IHSL's response to C8.2 (x) continues: "The room temperature set points, air change rate and ands [sic] shall be in accordance [sic] SHTM 03 [sic] and lighting information as CIBSE guide LG2."

14.27 Also under C8.2 (x), a table is provided, indicating that HDU (High Dependency Unit) should have 10 air changes per hour of supply air (stated as 'Ac/hr'). Air changes per hour refers to the number of times the entire volume of air in a room is completely removed and replaced with fresh air. The ventilation type, in this case 'supply' refers to the provision of fresh air into a room when the air movement needs to be controlled. Ventilation 'extract' involves the removal of contaminated air from a room.

| Typical Room | Temperature | | Ventilation | | Lighting |
|---|---|---|---|---|---|
| | Design Maximum deg C | Design Minimum deg C | Supply Ac/hr | Extract Ac/hr | Normal Lux |
| Bathroom | 28 | 18 | 0 | 10 | 200 |
| Bedroom | 25 | 20 | 4 | 0 | 100 |
| Consulting Room | 28 | 18 | 3 | 3 | 300 |
| Clean Utility | 28 | 18 | 6 | 0 | 150 |
| Dirty Utility | 28 | 18 | 0 | 6 | 200 |
| HDU | 25 | 18 | 10 | 0 | 400 |
| Patient Accommodation Day | 25 | 18 | 4 | 0 | 100 |
| Multi-bed Wards | 25 | 18 | 4 | 0 | 100 |
| Treatment Room | 28 | 18 | 10 | 0 | 500 |
| Operating Theatre Suite | 28 | 18 | In line with SHTM03-01 in line SHTM03-01 | | 500 |
| Operating Theatre Recovery | 25 | 18 | 15 | 15 | 500 |
| Pantry | 28 | 18 | 6 | 8 | 300 |

Text below the table states:

> "Where comfort cooled fresh air is indicated, the mechanical ventilation systems shall be supplemented by the ability to open the windows"

14.28 Under section 'C 8.3 Environmental Matrix' IHSL's submission stated:

> "As indicated above no changes proposed at this time nor envisaged in the future but we will continue to review and advise back. The solutions are refenced on the Heating, Ventilation and Cooling strategy drawings, sequence 521, 524 and 525 recorded in AP1.1 Section 5.1 Mechanical Drawing Schedule."

14.29 IHSL did not submit a separate environmental conditions room matrix or a marked up version of the EM with their final tender submission for C8. The drawings referred to above include drawings for the ventilation strategy for each floor, discussed above.

14.30 Bidder C described the following ventilation strategy in their final tender for 'C8 Mechanical and Electrical Design Proposals':

"…In order to maximise energy efficiency, the air flow rate will be based on the calculated flow to suit occupancy and provide required cooling as required [sic]. As a result of our study, we have proposed a lower air flow of four air changes/hr (which have been agreed in dialogue meetings, despite being lower than those specified in SHTM 03), and the addition of terminal cooling to achieve the required environmental control.

Ventilation air flow rates for mechanical ventilation will be based on a typical occupancy:

- Single rooms: one patient and two others (visitors or clinicians)
- Multi-bed rooms: as above, three people per bed space

These will result in a similar air flow to the provision of four air changes/hr included in the reference design, though with the additional benefit of terminal heating / cooling via the beam."

14.31 Bidder C's response to the requirement under C.2 (x) for an 'environmental conditions/room provisions matrix' was:

"The [Bidder C] environmental matrices have been produced to reflect the design criteria used as the basis of the [Bidder C] proposals. The criteria contained within the matrices are intended to represent the standards and strategy of the engineering 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 [Bidder C] engineering strategy.

Refer to Appendix 1 - Environmental matrix."

14.32 Under C8.3, bidders were asked to "confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis". Bidder C's response was:

"It is noted that the design data contained in the reference design matrices is considered to represent the mandatory standards and should be adopted by bidders. It is also noted that any deviations from the reference design matrices should be identified.

It is [Bidder C]'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. All adjustments to the reference design criteria have been highlighted in red in the proposed matrices.

Some other criteria have been modified to enhance the proposed design criteria or adjust values based on the intended room use. Again all adjustments have been highlighted in red."

14.33 Bidder C's response to C8.3 included further detail on the changes they made to the EM due to their engineering strategies. They did not describe changes made to the air change rates in Department B1 (Critical Care). Bidder C replicated the guidance notes contained in the EM "for clarity". The guidance relating to HDU bed areas and Critical Care areas stated:

"HDU bed areas:

Design criteria contained in HBN 57 gives specific guidance as well as SHTM 03-01 – especially Appendix 1 for air change rates – 10 ac/hr supply, 18°C to 25°C control range. This capability shall be provided but not at the summer and winter external ambient design extremes against the internal maximum and minimum range conditions. The department should be air conditioned and controlled on a zonal basis."

"Critical care areas:

Design criteria contained in SHTM 03-01, especially Appendix 1 for air change rates – 10ac/hr supply , 18°C to 25°C control range. This capability shall be provided but not at the summer and winter external

ambient design extremes against the maximum and minimum range conditions. NHSL may require specific rooms to have a control range up to 28C"

14.34 Bidder C's EM contained changes to the specifications for Department B1 (Critical Care, HDU and Neo-Natal Surgery). In the PICU (Paediatric Intensive Care Unit) and Low Acuity department sub-groups the air changes for single bed cubicles and open plan bays have been changed from 4 to 10 air changes per hour. For Neo-Natal and High Acuity department sub-groups the air change rates have been changed from 4 to 6 air changes per hour.

14.35 IHSL's energy strategy was to minimise energy requirements by adopting passive design features, which included using natural ventilation. This would help them to achieve ENE 01 BREEAM compliance, compliance with building standards, and achieve 90% of the desirable requirements of the Edinburgh Council Standard for Sustainable Buildings.

14.36 The input data used for their operational energy model includes mechanical ventilation specifications for a number of different room types, as well as an indication of whether or not natural ventilation would be used for that room. The list of room types includes "bedroom" and "ward areas" with 4ac/hr mixed mode ventilation. It does not include "HDU", "Critical Care" or "Isolation".

14.37 IHSL's energy model and ventilation strategy is set out in their submission on Building Services Deliverables: Mechanical and Electrical Services. Paragraph 5.9.6 describes the Natural Ventilation Strategy:

"5.9.6.1 Purpose of Ventilation:

Ventilation in the healthcare environment can be naturally or mechanically driven and serves a number of purposes which can be summarised as follows:-

- Providing fresh air for normal respiratory purposes

- Diluting the level of CO2 in the space
- Removal of odours and pollutants
- Control of temperature and humidity
- Control of infection
- Specialist process requirements
- Occupants experience a feeling of wellbeing

The use of natural ventilation will minimise the need for energy to drive fans. However many clinical requirements, in for example Operating Theatres, necessitate the use of mechanically driven ventilation for close environmentally controlled spaces and departments having high equipment heat gains. Furthermore, despite carefully considered planning, building constraints invariably lead to spaces that do not have access to natural ventilation

…

Studies have been carried out into particular areas of the hospitals – wards, for instance, which make up a significant proportion of the hospital - to determine whether natural ventilation can be employed to achieve the purposes as set out above, within the targets set down by the Board in the ITPD documents."

14.38 The document notes, at paragraph 5.9.6.2, that "there are a number of situations in which natural ventilation may not be suitable or desirable" and states that local factors need to be taken into account which "include but are not restricted to", air permeability or air tightness of the building, outdoor air quality, indoor air quality, pollution and thermal comfort. The document states that while some departments or rooms within departments shall be mechanically ventilated "consideration has been given to naturally ventilating the maximum possible number of areas". It then refers to an analysis done on the "option of naturally ventilating the wards as they form a large proportion of the building". The document continues:

"5.9.6.3 Analysis of the ventilation strategy for the building

…

The thermal modelling has concentrated on the typical ward specifically considered two adjacent ward bedrooms located on each face of the main building. In association with the thermal modelling, daylight simulation calculations have been undertaken as part of a strategy to achieve a BREEAM 'Excellent' rating for ENE1 for the new hospital. These calculations determined the optimum window sizes required for the daylighting percentage.

Due to the low envelope air permeability mechanical make-up ventilation is provided to the bedrooms to match the extract from the adjacent bedroom en-suite toilet/shower rooms. This adds the benefit of being able to condition this air, particularly in warm weather, to assist in reducing overheating.

Below are two examples of simulations that were carried out to reach a final solution, however, these are the culmination of many other simulations carried out using differing design criteria and options.

Single Bedroom Ward, South Facing Exposed (Summer) with mixed mode ventilation

- Opening windows – restricted opening to 100mm.
- Supply air provided if the room air temperature is great than 25°C.
- External air 4 ACH cooled to 18°C.
- No reliance on uncontrolled infiltration for cooling.

…

5.9.6.4 Conclusion

The results show that in the wards a mixed mode, natural and mechanical ventilation combination…does provide the solution to meeting the overheating criteria in the rooms. It is proposed that all ward rooms adopt this mixed mode approach and are be provided with a means of cooling in

the form of tempered fresh air from central plant along with a restricted opening window.

It is envisaged that generally only small perimeter non clinical rooms with low occupancy and low heat gains will be solely naturally ventilated. Other similar but larger more densely populated rooms will employ a mixed mode system. Then as stated above the majority of the clinical spaces will be mechanically ventilated or mechanically or air conditioned."

14.39 The document goes on to outline IHSL's 'Mechanical Ventilation Strategy' at paragraph 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. Although the development has been designed to maximise the use of natural ventilation, it is intended that rooms will not be reliant on natural ventilation alone, unless they comply with maximum temperature limits listed in the RDS Environmental Matrices.

To obviate problems with overheating due to 100mm opening restrictions on opening windows, we have included for mechanical supply ventilation for the Ward Areas and to provide mechanical cooling to all tempered air supply air handling units to provide the ability to supply air temperature at a condition to ensure the internal temperatures in patient areas shall be maintained within comfort levels as illustrated within the separate Ward Bedroom Comfort Analysis Report."

14.40 Paragraph 5.9.10 describes the 'Specialist Ventilation Strategy', focusing on isolation rooms:

"Designated Isolation Rooms shall be provided with HBN4 positively pressurised lobby ventilation for isolation purposes along with

independent en-suite extract to roof mounted extract fans with discharge stacks or Hepa filtration as appropriate."

14.41 No further information is provided for any other rooms of the hospital which may require specialist ventilation for the control of infection or for other purposes. However, paragraph 5.9.14.1, which provides an overview of the 'Building Energy and Management System' states:

"The environmental conditions within the hospital spaces are controlled to ensure high levels of comfort to the occupants, overall energy efficiency of the system and also infection control needs and other clinical requirements as prescribed in the SHTMs."

14.42 Paragraph 5.12 refers to 1:50 drawings of 'mechanical and electrical services sections'.

14.43 IHSL's final tender for 'Specification for Ventilation Systems' included a section entitled 'Applicable Standards'. It states that: "The Ventilation System shall accord with all appropriate Hospital Technical Memoranda, Codes of Practice and Relevant British and European Standards and Appendix A". Under section 6.0 'Design Criteria' it states, "For ventilation/air change rates used in the design, the Sub-contractor shall refer to the ADB sheets."

14.44 Paragraph 8.1 is entitled 'Background to Ventilation and Air Conditioning Installations'. It states that the building is based on a mixed mode solution. Under 'U10 Ventilation systems', detail is provided regarding 'All Air Systems':

"…

Areas shall be controlled in zones or as individual rooms as necessary to achieve the conditions required by the ADB Sheets.

Supply plants shall incorporate panel type coarse pre-filters followed by high efficiency bag filters. Absolute HEPA (high efficiency particulate air)

terminal filters shall be provided only for 'ultra clean' areas such as UCV Theatres for Orthopaedic and Neurosurgical and isolation rooms. Some isolation rooms incorporate HEPA filters on the extract system.

Full humidity control, including humidification and dehumidification, shall be provided only in critical care clinical areas, such [as] operating theatres, recovery, radiology and MRI Scanner or wherever close control of humidity is required for the successful operation of sensitive equipment, e.g. computers, as advised by the ADB Sheets. Steam shall be provided by dedicated gas fired steam boiler plant and direct injection humidifiers.

Air pressure regimes for theatre suites shall be designed in accordance with the guidance provided in SHTM 03-1 employing wall mounted pressure stabilisers.

Air volumes have been established by consideration of heat gains or losses and also the air change rate necessary for comfort and safety as appropriate for the activity carried out in each area. Relative air pressures between rooms shall be maintained to suit the activity concerned, by design of the supply and extract air volumes, and use of pressure relief equipment where necessary to prevent cross infection or transfer of unpleasant odours between areas, as required by the ADB sheets.

Heat recovery shall be provided between the supply and extract systems. The hospital ventilation systems shall be in accordance with SHTM 03-01 Ventilation in health care premises, DW 144 and DW 143…"

14.44.1 DW 143, referred to above, is titled, 'A practical guide to ductwork leakage testing. HVCA Publications, 1998.' DW 144 is 'Specification for sheet metal ductwork, low, medium & high pressure/velocity air systems. HVCA Publications, 1998.'

14.45 Information is provided regarding different room types, specifically, wards, isolation rooms, outpatient type departments, operating theatres, critical care departments, comfort cooled areas. Details regarding exact air change rates,

pressure regimes and other technical information is not provided. The section on Critical Care states:

> "Critical care departments such as ITU/HDU shall be provided with dedicated ventilation systems.
>
> The supply air ventilation plant shall heat and cool the air as required by the control system to provide the correct condition in the various rooms/zones.
>
> Final temperature control to the spaces shall be achieved by terminal reheaters controlled from user adjustable sensors within each space. Heater batteries shall be located wherever possible in plant areas, but where heaters can only be provided in the ceiling void of the occupied space they shall be located away from patient occupied spaces, i.e. bed spaces.
>
> Heat recovery shall be provided between the supply and extract systems."

14.46 For final tender submissions for section C2 'Robustness and Quality of Approach to design quality' bidders were asked to:

> "submit proposals setting out how the design will be developed to integrate the architectural, mechanical, electrical and civil and structural engineering aspects of the design to present a cohesive innovative design which meets all the Board's construction and stakeholders' requirements (including infection control and HAI-SCRIBE requirements). The submission shall utilise all Mandatory Reference Design Requirements to deliver a solution across all disciplines."

14.47 HAI-SCRIBE referred to above stands for Healthcare Associated Infection System (for) Controlling Risk In the Built Environment. The system was developed to ensure that infection prevention and control risks are identified and managed in the built environment (a hospital or other healthcare facility). The Infection Prevention and Control measures are put in place and

maintained for the lifetime of the healthcare facility by HAI-SCRIBE. The potential risks related to the proposed site development, design and planning, construction or refurbishment and ongoing maintenance of the healthcare facilities can be identified and managed by the HAI-SCRIBE system.

14.48 Infection control risks are identified at each of the following stages of the lifecycle of the healthcare facility using HAI-SCRIBE.

- Development Stage 1 – considers the initial brief and proposed site for development.
- Development Stage 2 – Design and planning
- Development Stage 3 – Construction and refurbishment
- Development Stage 4 – Pre-handover check, ongoing maintenance and feedback.

14.48.1 There are three key parts in respect of implementing the HAI-SCRIBE system:

Part A: Assembling the project team and ensuring that HAI-SCRIBE forms part of its responsibilities.

Part B: Assessing the risk by the use of question sets (1) – (4).

Part C: Gathering the information to inform dialogue. This is set out in the planning and design manual (SHFN 30, Part A).

14.48.2 IHSL's tender contained the following information in relation to 'Integrated Approach', 'Design Reviews', and 'HAI-SCRIBE':

"Integrated Approach:

Our whole team has pursued an integrated approach from our site wide master planning through to design development, detail design and clinical planning for all elements of the new RHSC & DCN facility. This has

involved coordinating the skills of the many specialist consultants together with input and feedback from NHS Lothian's team during the dialogue process...

Design Reviews

The Design Team have been meeting regularly through the detail design stages to ensure that all aspects of the structure, fabric and building services are fully integrated. We have also held three full 'Design Reviews' chaired by Chris Liddle our Design Champion to ensure that all aspects of the design including the clinical planning presents a cohesive design based upon function, clarify and the creation of a high quality environment for patients, staff and visitors.

…

HAI-Scribe

Throughout our development of the design we have taken cognisance of the requirements of HAI-SCRIBE and have designed in measures that will eliminate or minimise the effect of healthcare associated infection. We have ensured that infection control principles are incorporated into our design, drawing on national guidance particularly 'infection control in the built environment: design and planning (SHFN30 version 3).'

We have carried out internal HAI-SCRIBE reviews, however we are aware that it will require further reviews with NHS Lothian representatives (particularly infection control) as we continue to work through Preferred Bidder, Financial Close and construction on the live hospital campus and on-going maintenance.

IHS Lothian have undertaken a HAI-SCRIBE review as part of the ITPD stage and we will continue this throughout the whole project as we know that it is more cost effective to achieve management of infection at the planning stage. Such assessments and records will also assist the Board Infection Control Risk Management Group.

The building services installation has been designed in line with HAI-SCRIBE and the building services shall be reviewed at each of the stages in the HAI-SCRIBE risk assessment process.

We have also taken cognisance of the following and have developed designs to accommodate control of infection issues taking into account the following…"

14.49 What follows is a long list which includes en-suite toilets, isolation rooms, suitable ventilation systems, use of natural ventilation Critical Care areas are not mentioned.

14.50 In Section C2.2 "Site Analysis/Analysis of Board's Requirements" IHSL stated under "Mechanical and Electrical Engineering Requirements", that the engineering systems have been designed to comply with the list of SHTM's, HBN's and HTM's applicable to the facilities and listed within the BCRs. IHSL also stated that they had reviewed design guidance documents and principles set out in the BCRs and CEL 19 (2010), "A Policy for Design Quality for NHS Scotland".

14.51 Section C3, "Clarity and Robustness And Quality of Architectural And Landscape Design" contains a section C3.1 viii on how the design will fully address control of infection and HAI Scribe. IHSL's tender stated:

"We have taken cognisance of the requirements of HAI-SCRIBE and have integrated them throughout all aspects of the design. We have carried out internal HAI-SCRIBE reviews however are aware that it will require a comprehensive review with NHS Lothian representatives (particularly infection control) as we continue to work beyond Preferred Bidder towards Financial Close.

We have worked on the assumption that Development Stage 1 of the HAI-SCRIBE process has already been implemented and completed by NHSL and their technical advisory team and the following comments are therefore restricted to any design issues relevant to the current status of the scheme, which equates to part completion of Development Stage 2.

It is at this stage that we are required to identify any hazards associated with potential HAI risks and consider any measures which might be required to mitigate and manage them…"

14.52 IHSL included a copy of the HAI-SCRIBE "checklist for Development Stage 2: HAI-SCRIBE Applied to Planning and Design Stage of Development", which IHSL had completed. Under question 3.1 "Does the design and layout of the healthcare facility inhibit the spread of infection?", there is a tick under "yes". Under question 3.2 "Is the ventilation system design fit for purpose, given the potential for infection spread via ventilation systems", there is a tick under "yes".

14.53 IHSL's submission on 'Acceptable Post Preferred Bidder Stage Design Development Proposals and Design Programme' described how they would manage the design process to financial close should they be selected as preferred bidder. It included development of room data sheets and use of Activity Database:

"Room Data Sheets (RDS) Design Deliverables and Equipment Schedule – Enhancement and Improvement of the Design.

The PBS [Preferred Bidder Stage] Launch Meeting will be utilised to discuss the project set-up and project protocols. This is when the following items will be reviewed, to ensure that the RDS Work stream can progress to programme:

- Agree which Design Group will lead (assume Project Technical Design Group Lead). Possible detailed further review of rooms in appropriate Clinical Group – Key rooms and Generic rooms.
- Review Project Equipment Standardisation, including Equipment Unions.
- Project Database Set-Up.
- Review RDS already produced for the Rooms and agree proposed amendments based on above.

- Room Type Schedule – Review Room Types/ADB room briefing codes – agree number of types (encourage as much standardisation as clinically possible ie possible increase to Generic Rooms within the 31 types already established). Note this discussion will continue during the Technical Design Group/Equipment Design Workshops

  …
- Agree strategy for design development of Specialist Equipment (e.g. Imaging Equipment). Note this discussion will continue during the Technical Design Group / Equipment Design Workshops.

The RDS for the Generic and Key Rooms will be targeted for review in DDM 1 and remaining Room Types will be targeted for review in DDM 2 and agreed in principle in DDM 3 to allow the release [sic] the ADB database for commencement of the main 1:50 Design Programme. A summary of the initial RDS Production Programme (in ADB) is as follows:

- Generic Rooms – RDS brief agreement and release for 1:50 Design in DDM 1.
- Key Rooms – RDS brief agreement and release for 1:50 Design in DDM 1
- Remaining Room Types – RDS brief agreement and release for 1:50 Design in DDM 2 and DDM 3 (if required)…"

14.54 In their tender submission for 'C21: Compliance', IHSL confirmed compliance with the Board's Construction Requirements subject to any derogations scheduled in their submission for Section C30. Their submission C30 'Assumptions and Derogations from the Board's Construction Requirements' does not contain any derogations from SHTM 03-01, NHSL's mechanical and electrical requirements, or the Reference Design Environmental Matrix.

14.55 Bidder C's final tender Submission for C30 "Assumptions and Derogations" states:

"We confirm that our design solution complies with the Board's Construction Requirements, however, where there are specific areas of this document that we wish to clarify, our clarifications are set out below."

14.56 One of the clarifications is with respect to Section 8: Mechanical & Electrical Engineering Requirements: "Project Co shall provide the Works to comply with the Environmental Matrix". Bidder C's clarification is "Refer to [Bidder C] response C8.3 for comments on environmental matrix." Further clarifications are made regarding thermal requirements and internal air quality, the latter including reference to meeting requirements in SHTM 03-01.

# 15. Evaluation of Final Tenders

15.1 Evaluation of final tenders took place in the period from 13 January 2014 to 28 February 2014. This was a shorter period than initially programmed. In November 2012, after discussion between NHSL, SFT and SGHD, it was unanimously agreed to adopt a compressed programme with tender evaluation duration shortened from 75 days to 39 days.

15.2 The evaluation of each criteria set out in the final tenders was led by a member of the Core Evaluation Team and included members of NHSL's project team and external advisers.

15.3 In terms of the Quality Evaluation Criteria, which comprised of evaluating Section B (Strategic and Management), Section C (Approach to Design and Construction) and Section D (Approach to Facilities Management), this was arranged as follows:

- Iain Graham led the evaluation of Section B (Strategic and Management) and was supported by MM [Mott MacDonald], MacRoberts LLP and Ernst & Young. This was a scored and pass/fail evaluation;

- Brian Currie (NHSL) led the evaluation of Section C (Approach to Design and Construction) and was supported by MM. This contained a mixture of 'scored' and 'pass/fail' evaluations. Evaluation team members included:

  From NHSL:

  - Brian Currie (Project Director)
  - Janice Mackenzie (Project Clinical Director)
  - James Steers (Clinical Director)
  - Fiona Halcrow (Service Project Manager)
  - Janette Richards (Infection Control)
  - Neil McLennan (Capital Project Manager)
  - Ernie Bain (Estates Manager)
  - Charlie Halpin (Energy and Environment Manager)

  Advisers:

  - Richard Cantlay (Lead Technical Adviser)
  - Graeme Greer (Technical Adviser)
  - David Stillie (Technical Architectural Adviser)
  - Colin Macrae (Technical M&E Adviser)
  - Andrew Duncan (Technical Construction Adviser)
  - Fraser Littlejohn (Technical Planning Adviser)
  - Rod Shaw (Technical Cost Adviser)

- Jackie Sansbury led the evaluation of Section D (Approach to Facilities Management) and was supported by MM. This was a scored and pass/fail evaluation.

15.4 The price evaluation was led by Iain Graham, supported by Ernst & Young.

15.5 The document 'Competitive Dialogue Project Plan and Final Tender Evaluation' includes guidance on quality scoring for the technical submissions:

> "Using the Final Tender Evaluation Proforma in Appendix E, the Evaluation Group members will each undertake individual evaluation of the relevant evaluation criteria within each Bidders' Final Tender Submissions against the prescribed scoring criteria before meeting with their Group in a workshop, chaired by the Core Evaluation Team member leading that Group, to agree the final consensus scores for each of the evaluation criteria for which that Group is responsible.
>
> Once the evaluation has been completed for each Bidder the Core Evaluation Author and CET [Core Evaluation Team] Lead will be responsible for preparing the final scoring report using the Final Tender Evaluation Scoring Matrix at Appendix F, with associated commentary, as appropriate. The completed scoring report will be submitted to the Core Evaluation Team to allow the final scores to be checked and verified and the selection of the Preferred Bidder to be made."

15.6 The Inquiry Team understands that this guidance was followed in the assessment process with a consensus score being allocated.

15.7 Brian Currie and Ernie Bain (Estates Manager) from NHSL were responsible for evaluation of 'C8 M&E engineering design proposals' and 'C10: energy management proposals'. They were advised by Kamil Kolodziejczyk and Colin Macrae, technical advisers from MM.

15.8 IHSL's submission for C8 'M&E engineering design proposals' received an overall score of 5, meaning 'satisfactory'. This meant the evaluation team assessed that IHSL's approach:

- demonstrates a satisfactory understanding of all aspects of the Board's requirements; and/or

- proposes a solution which performs satisfactorily in complying with the Board's requirements.

15.9 According to the Reviewers' comments many of the components of IHSL's tender "lacked detail", were "basic" or "minimal", and some were not provided. Examples included:

- In terms of the requirement that "Bidder's **must** submit proposals setting out the engineering services design for each element of the scheme in sufficient detail to demonstrate compliance with the Board's Construction Requirements." the Reviewers determined that the brief was achieved. The comment provided is:

  "Lacking detail on design philosophy and BCR compliance".

- [The] "environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities" section records that the brief was achieved. The Reviewers comment is:

  "No matrix provide, (sic) but environmental layout drawings provided."

- The section on "Major plant life cycle statements… to support the lifecycle costing analysis completed in the technical costs proforma." records that the brief was achieved. The Reviewers comment is:

  "Basic statement referring to CIBSE guidance for life cycles. No costs provided."

- C8.3 stated that "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 acceptance basis." IHSL did not provide an a marked up environmental matrix, but in their submission had noted that "no changes proposed at this time nor envisaged in the

future." The Reviewers concluded that the brief had been achieved. The Reviewers commented:

"Good response."

15.10 It is not clear to the Inquiry Team why the Reviewers considered that IHSL's response in relation to the EM was "good". The Inquiry Team has identified potential discrepancies between values for environmental conditions in the EM and published guidance. These potential discrepancies are covered in greater detail in the separate papers on the Reference Design and the Environmental Matrix. The basis for assessing IHSL's response as "good" will require to be explored with witnesses at the diet of hearings commencing on 24 April 2023.

15.11 The proforma report for C10, energy management proposals, was scored 7, meaning "good". The Reviewers comments record that "Naturally ventilated room depths minimised to ensure effectiveness of single sided ventilation".

15.12 A document was prepared comparing the strengths, weaknesses and evaluation summaries of the three bidders final tender submissions for 'Design and Construct'. Both bidder A and bidder C scored higher than Bidder B (IHSL) for C8 "mechanical and electrical engineering". The weakness of IHSL's submission was: "Many sections do not have detailed descriptions or explanations. Two CHP proposed, three would be ideal." The 'strength' was "Good level of drawings provided". Bidder B received a score of 5 and the "evaluation summary" was "Satisfactory response, covering the required criteria". Bidder C received a score of eight and the evaluation summary was "Very good narrative descriptions on most elements providing a good level of detail to demonstrate compliance."

15.13 IHSL received the lowest score out of the three bidders for C8.

15.14 IHSL received the highest score out of the three bidders for C1, "meeting the stakeholders requirements", C3 "architectural and landscape design", C6 "Way finding and signage", C7 Interior Design Proposals, C9 "natural and

artificial lighting" and C24 "construction methodology". IHSL were the only bidder to receive scores above eight, including a score of nine for "Wayfinding and signage proposal", and 10 for "architectural and landscape design" and "interior design".

15.15 The submission for C21: "Compliance with Board's Construction Requirements" was assessed on a pass or fail basis, and C30: "Assumptions and Derogations" was not scored. David Stillie (MM) provided comments on all three bidder's responses to C30. With respect to IHSL, it was noted:

> "As IHS Proposals are compliant with a mandatory reference design requirements, we assume that all derogations which would have been required in construction of the reference design will be acceptable to NHS Lothian…
>
> This bidder has adopted the Reference Design and has accepted compliance with the Board's core requirements. The above represents those responses that I feel need further discussion with the Board or amongst ourselves before we can be happy with them."

15.16 In their submission for C30 Bidder C, had referred to their modified environmental matrix with respect to NHSL's requirement in Section 8 of the BCRs that "Project Co shall provide the Works to comply with the Environmental Matrix". David Stillie commented: "I assume Colin has looked at M&E content" but made no further comment with respect to Bidder C's proposed changes to the Environmental Matrix.

15.17 The scores for quality and price were compiled to complete the assessment of tenders. IHSL's combined score was the highest of the three bidders.

15.18 Sorrel Cosens prepared a paper for the PSB on 28 February 2014 confirming completion of the evaluation of final tenders. At this meeting, the evaluation of the three tenders was discussed. Brian Currie stated that the evaluation was "robust" and that a consensus had been reached. Brian Currie and Iain

Graham highlighted that the three bids were extremely close “which was a testament to the success of the competitive dialogue in ensuring that all three bids met NHSL's requirements”. The project team’s recommendation for appointment of the preferred bidder was approved for sharing with the NHSL’s Finance and Resources (F&R) Committee.

# 16. Key Stage Review 3: Pre-Preferred Bidder

16.1 Key Stage Review 3: Pre-Preferred Bidder Appointment was finalised on 28 February 2014. In Section 2 “Project Requirements”, Question three, states “Is the Procuring Authority, and are its advisers, satisfied that any further development of technical information required from the preferred bidder appointment to financial close is achievable within the current project timetable?”. The response is “yes” with the comment:

> "The Board has confirmed that all bidders have provided detailed programmes to cover the activities for the period until FC and that the development of the technical information is at least as advanced as the Board anticipated at this stage.
>
> The Board and its advisers are satisfied that any further development of technical information from PB appointment to FC is achievable within the current project timetable"

16.2 Section 5 was entitled “Commercial”. Question 29 stated: “Please describe the risks that the Procuring Authority considers to be most significant to the preferred bidder stage and the strategy for managing these risks”. The comment provided was “The key risks in the Updated risk register are as listed in Annex B”. The risk register in Annex B set out ‘key risks. “Programme delay in reaching Financial Close” was noted as a risk. Its status was ‘red’. The “Adequacy of Controls” was stated, in bold, as “**Not satisfactory at present**”. The risk register recorded that the project team “…continue to be

sceptical regarding delivery of financial close in less than six months from the appointment of Preferred Bidder".

# 17. Selection of the preferred bidder

17.1 Two papers were prepared for the (F&R) Committee meeting on the 5 March 2014. Brian Currie shared a paper detailing the tender evaluation process and selection of preferred bidder. It noted that the consensus of all evaluation meetings was that all three bidders passed the pass/fail criteria. The key risk highlighted was a potential challenge to the preferred bidder appointment by an unsuccessful tenderer. A report by Sorrel Cosens provided an overview of the assessment scores and an anonymised recommendation for the preferred bidder. The scores for the three tenders were assessed as: 86.11, 87.43 and 88.08.

17.2 NHSL also received updates from Ernst & Young, MacRoberts and MM. Mr Orr, of MacRoberts, stated that the procurement process had complied with the 2012 Regulations and best practice. The processes and procedures of SFT had also been followed. In terms of a letter dated 4 March 2014, Mr Cantlay of MM advised that he believed that from a technical perspective, the evaluation had been carried out in a manner consistent with the evaluation methodology. Mr Cantlay stated that from a technical perspective, it was appropriate for NHSL to conclude the evaluation process and appoint the preferred bidder.

17.3 The minute records that Mr Cantlay stated that the scores awarded for the technical evaluation criteria seemed correct and it appeared appropriate for the preferred bidder to be appointed. Mr Cantlay is recorded as stating that "…the scores were all appropriate and he was happy with the evaluation and satisfied that the preferred bidder was in full accordance with the requirements". Mr Currie stated that all three bids had been of an acceptable quality. The minute records, at paragraph 61.16, that:

"Everything possible had been done to mitigate the risk of poor quality facilities and/or poor services being provided to NHS Lothian."

17.4 At the meeting, the Chair sought confirmation that the price in the contract would be fixed. Mr Orr, MacRoberts, confirmed that there would be a fixed price contract in place subject to any variations or agreed increases.

17.5 The Finance and Resources Committee agreed to note the outcome of the scored evaluation and the assurance statements provided by the legal, technical and financial advisers along with the completion of the KSR (appointment of preferred bidder) by SFT. The Committee unanimously approved the selection of IHSL as the preferred bidder.

17.6 Following authorisation by the Finance & Resources Committee, the Board of NHSL issued a preferred bidder appointment letter to IHSL on 5 March 2014 (the PBA Letter). Standstill letters were issued to the unsuccessful tenderers on 5 March 2014.

17.7 This PBA Letter states that:

a) "IHSL's Final Tender submitted on 13 January 2014, as clarified and amended by Schedule Part 5 (Clarifications in respect of IHSL's Final Tender) of the Preferred Bidder Appointment, has been evaluated as the most economically advantageous Final Tender; and

b) Subject to IHSL and each member of its consortium accepting the conditions set out in this Preferred Bidder Appointment…

the Board has approved the recommendation to appoint IHSL as the Preferred Bidder for the Project on the basis of its Final Tender…"

17.8 The PBA Letter formed the basis for the preferred bidder appointment. Schedule Part 1 (Terms of Preferred Bidder Appointment) set out the terms of IHSL's appointment as preferred bidder. The terms included the following:

- IHSL was required to use its best endeavours to diligently progress the Project to Financial Close on 2 October 2014 and thereafter use its best endeavours to achieve a completion date of 17 February 2017.
- IHSL was required to work with NHSL to develop, agree, and finalise the outstanding issues set out in Schedule Part 3 and Schedule Part 4.
- Section 4.4 of Schedule Part 1 required IHSL to develop certain technical schedules of the Final Tender NPD Project Agreement, including room data sheets. Section 4.5 states that: “IHSL shall further develop their Design included within their Final Tender to the level set out in the Invitation to Submit Final Tender (as a minimum).”
- Schedule Part 2 (Preferred Bidder to Financial Close) set out the timetable to reach financial close of the Project.
- Schedule Part 3 (IHSL’s outstanding issues to be addressed in respect of the Project) set out the issue to be resolved, including legal and contractual issues, interface issues, strategic and management issues, design and construction issues, facilities management issues and planning issues.
- Schedule Part 4 (IHSL’s gaps in relation to the Final Tender (Bidder B) NPD Project Agreement) set out any gaps in this Project Agreement. This included “Schedule Part 6 (construction matters) Section 4: Project Co’s Proposals” and “Schedule Part 6 (construction matters) Section 6: Room Data Sheets” to be provided by Project Co.
- Schedule Part 5 (Clarifications in respect of IHSL’s Final Tender) sets out the clarifications raised by the Board in respect of IHSL’s Final Tender. These clarifications clarified or amended IHSL’s Final Tender.

- IHSL required to use its best endeavours to diligently develop the "IHSL technical Schedules of the Final Tender (Bidder B) NPD Project Agreement) including Schedule Part 6, section 6 (room data sheets)."

17.9 Paragraph 4.5 stated that:

> "IHSL shall further develop their Design included within their Final Tender, with the minimum level of design requirements being those set out in the ISFT."

17.10 NHSL and MM have advised the Inquiry that it is not unusual to have a number of outstanding issues, gaps and points for clarification at this stage of the procurement process.

17.11 IHSL returned a signed Preferred Bidder Letter to the Board on 7 March 2014. From this point onwards, IHSL was the preferred bidder. However, no formal contract had been concluded for the project itself.

# 18. Development of design during the post-preferred bidder stage

18.1 Further design development took place from March 2014 to financial close. The first meeting between representatives of NHSL and IHSL was held on Thursday 13 March 2014. Members of NHSL's project team, NHSL's advisers and IHSL moved into project offices together to facilitate regular engagement. Wallace Whittle/TUV SUD were responsible for progressing the design of the mechanical and electrical building services, including the ventilation system. Wallace Whittle/TUV SUD were consultants subcontracted to Brookfield Multiplex, the member of IHSL's consortium responsible for the design and construction of the hospital.

18.2 A number of meeting groups were set up including the Project Delivery Group (PDG), Project Management Group (PMG), Design Steering Group and other workstreams. Attendees included representatives from NHSL, NHSL's advisers, and IHSL. Additional meetings were set up to progress different workstreams. The RHSC and DCN Steering Board Commercial Sub-Group was set up following a Special Steering Board meeting on 22 August to address slippage with the programme to financial close. Attendees included representatives from NHSL, SFT, IHSL and Scottish Government Health and Social Care Department.

18.3 Patrick MacAulay from HFS was invited, and agreed, to attend meetings with NHSL on detailed design development, specifically for the more complex departments such as theatres, radiology, critical care and emergency department.

18.4 The scope of the expected development of design had been set out in the Preferred Bidder Letter sent in March. MM later provided additional feedback on IHSL's M&E final tender in a feedback report, dated 23 May 2014. The report stated the following with respect to engineering services and ventilation in particular:

| Criteria | Feedback on IHSL's response |
|---|---|
| Engineering services design and compliance with BCRs | IHSL response was lacking detail on design philosophy and compliance with BCRs. |
| Temperature, ventilation and comfort of occupants | More detail required. |
| Quality of the environment and sick building prevention | Lacking detail description on prevention of sick building syndrome and quality of environment.<br><br>Only basic statement focusing on ventilation issues provided. |

| | |
|---|---|
| An environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities. | Environmental drawings provided but no matrix. |
| General comments | Many sections do not have detail description or explanation. |

18.5 At the PSB Meeting of 20 June 2014 Brian Currie reported that "Technical schedules (Project Co proposals) development is behind programme but now well underway". Change management was discussed at this meeting. There was a distinction between design development and a change to the design. A 'Change' refers to instances where NHSL's requests for further development of the design was a change to the stated requirements to the extent that costs need to be revised. The process for dealing with a Change were set out in Schedule Part 16, "Change Protocol". The action notes of the PSB meeting record:

> "The design process is logging any requested changes to the final tender design. IHSL and NHSL then agree whether these can be classified as design development or should be treated as a change. BC hopes that the genuine changes will be small in number and value, to be confirmed after completion of design at the end of July.
>
> …PR acknowledged that change would always be a factor at this stage in a project, and that the aim for all parties was to manage this within the cap…."

18.6 On 9 July 2014, the F&R Committee were informed that design development was progressing on target, and "An intense period of developing the detailed design of the building with staff and users is well underway, scheduled to complete by the end of July 2014."

18.7 In July and August 2014, IHSL prepared revisions of their proposal "Section 4.23 Specification – Building Services" for financial close. The document was checked by Stewart McKechnie, (Director, TUV SUD/Wallace Whittle). The only mention of the environmental matrix is in relation to lighting.

18.7.1 The majority of the information in the section on specification for ventilation systems is the same as that provided in the final tender and described in section 14 of this paper: "Submission of Final Tender": Under section 5.0 "Applicable Standards" 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 Practice and relevant British and European Standards…"

18.7.2 Section 6.0 on design criteria contains one difference, stating that for ventilation air change rates used in the design, it was "Project Co" (i.e. IHSL), rather than the sub-contractor, who "shall refer to the ADB sheets".

18.7.3 Section 8.1 "Background to Ventilation and Air Conditioning Installations" states:

> "The building is largely sealed with limited openable windows in order to control the internal environment within the spaces.
>
> The building ventilation is based on a mixed mode solution where it permits, utilising openable windows together with mechanical vent and a peak lop cooling solution.
>
> The Hospital shall be mechanically ventilated:-

- Throughout all internal rooms that have no access to natural ventilation
- Perimeter areas where mechanical ventilation is required for clinical reasons
- Perimeter areas where mechanical ventilation is required for operational and environmental control reasons…
- Ward areas throughout

The various departments to match their function shall be served by a number of ventilation air handling systems..."

18.8 U10 "Ventilation Systems: All Air Systems" states that:

"…Areas shall be controlled in zones or as individual rooms as necessary to achieve the conditions required by the ADB Sheets.

…

Air pressure regimes for theatre suites shall be designed in accordance with the guidance provided in SHTM 03-1 employing wall mounted pressure stabilisers.

Air volumes have been established by consideration of heat gains or losses and also the air change rate necessary for comfort and safety as appropriate for the activity carried out in each area. Relative air pressures between rooms shall be maintained to suit the activity concerned, by design of the supply and extract air volumes, and use of pressure relief equipment where necessary to prevent cross infection or transfer of unpleasant odours between areas, as required by the ADB sheets.

…The hospital ventilation systems shall be in accordance with SHTM 03-01 Ventilation in health care premises, DW 144 and DW 143."

18.8.1 Additional information is provided in relation towards, isolation rooms and critical care departments along with some other room types, but does not go into detail regarding ventilation specifications such as air change rates. The section on critical care departments states:

> "Critical care departments such as ITU/HDU shall be provided with dedicated ventilation systems.
>
> The supply air ventilation plant shall heat and cool the air as required by the control system to provide the correct condition in the various rooms/zones.
>
> Final temperature control to the spaces shall be achieved by terminal reheaters controlled from user adjustable sensors within each space. Heater batteries shall be located wherever possible in plant areas, but where heaters can only be provided in the ceiling void of the occupied space they shall be located away from patient occupied spaces, i.e. bed spaces.
>
> Heat recovery shall be provided between the supply and extract systems."

18.9 A Special Steering Board meeting was held on 22 August 2014 involving NHSL, Mike Baxter from the Scottish Government Health Department, Peter Reekie from SFT and Richard Osborne and Ross Ballingall from IHSL. The purpose of the meeting was to raise NHSL's "significant concern" about the project programme and give IHSL an opportunity to discuss progress. The NHSL project team presented a revised programme with slippage of eight weeks, and IHSL tabled their own programme.

18.9.1 The production of room data sheets was discussed at the meeting. The minutes record that:

> "…NHSL and the PB [preferred bidder] had reached agreement on the content of the room data sheets (RDS) the day before, and so the production of RDS could begin and that this was on track for completion

by 05/09/14. BC noted that NHSL are comfortable that 100% will not be completed for financial close, although the prioritisation of what was definitely required was still to be agreed."

18.9.2 It is not clear to the Inquiry Team why NHSL was comfortable that all room data sheets would not be completed by financial close. Both the ITPD and the ISFT stated that the preferred bidder would be required to complete all room data sheets before financial close. It is also not clear what was agreed in relation to the content of the room data sheets. These issues will require to be explored with witnesses at the diet of hearings due to commence on 24 April 2023.

18.9.3 At the meeting, Brian Currie noted that technical information which would be captured in Project Co's Proposals – which would form part of the Project Agreement and which constituted IHSL's response to the Board's Construction Requirements and extensive design development - "are not yet completed, with some way to go in certain areas."

18.9.4 Brian Currie also noted "that in dialogue and the invitation to submit final tenders NHSL had been clear on the requirements and deliverables for the programme and that IHSL had been slow to get started." Susan Goldsmith was concerned that the updated programme "would also prove impossible to deliver."

18.9.5 Ross Ballingall of Multiplex stated that "…there was a genuine mismatch in NHSL's and IHSL's expectations, where IHSL were being asked to deliver much more than on other projects, and considerably more than was required for comfort of operational functionality.' He felt that this "demonstrated a 'paranoia and lack of trust' in IHSL."

18.9.6 Peter Reekie noted that "changes in design development would always happen, and asked if IHSL had responded with costs to progress discussions."

18.9.7 Iain Graham "noted that the revised programme proposed shows what information NHSL requires to have sufficient information to have comfort of operational functionality of the design, in order to provide the LTA with sufficient confirmation to proceed to credit."

18.10 On 25 August 2014, the register of 'Technical Risks to Financial Close' recorded as an issue:

> "Project Co proposals insufficiently developed to required level for FC".

18.11 The risk impact was rated as "high". Current mitigation measures included providing feedback on the Project Co Proposals (PCPs) structure, and draft one of the PCPs, and setting out the NHSL's expectations in a PCP workshop and setting out NHSL's expectations on individual workstreams. A proposed further mitigation post financial close was to:

> "increase the length of the RDD [Reviewable Design Data] list.
>
> Focus on specific design risks.
>
> Fast track the legal review".

18.11.1 Additional issues given a high risk impact were "lack of review time" for the PCP strategy documents and drawings. Mitigation measures were not recorded.

18.11.2 The risk register also recorded that "due to the current status of the PCPs. The RDD list could be extensive". This was classed as having a medium risk impact. In the column "potential further mitigation required post FC" it was recorded:

> "Long list of RDD due to further iterations of drawings etc. to be made etc. Board require to both resource the requirements for review and

understand the rights of comment they have within the Review Procedure (which is where RDD is reviewed). This should then mitigate risk of Project Co claiming changes."

18.11.3 RDD referred to above means "reviewable design data". Reviewable design data included design deliverables and Project Co Proposals that had not yet been approved by NHSL. A design deliverable or Project Co Proposal that was approved by NHSL was given level A status meaning construction could commence based on that design document or proposal. Level B status meant that Project Co could proceed on the basis of the document subject to comments that NHSL had made against that item. Level C status meant that Project Co could not proceed with construction in terms of that item until it had been amended in accordance with the NHSL's comments and had undergone the review procedure outlined in Schedule Part 8 of the Project Agreement. Level D status was given to items that were rejected by NHSL and required resubmission. The schedule of Reviewable Design Data was included in the Project Agreement, Schedule Part 6 (Construction Matters) Section 5 (Reviewable Design Data).

18.12 At the F&R Committee meeting of 27 August 2014 Susan Goldsmith stated that following IHSL failing to achieve the deadline for the RIE interface documentation, financial close for this project would be delayed until November 2014. The minutes record that progress would be closely monitored through monthly meetings to ensure that financial close remained on target for November 2014.

18.13 On 23 September 2014, Brian Currie emailed Susan Goldsmith and copied in Iain Graham and Moira Pringle to outline his concerns about the Project. He noted that the PCPs continue to be a struggle for IHSL. Difficulties identified included a lack of technical information and outstanding design issues. These included the extensive list of derogations. Mr Currie noted that: "There is a potential risk that under strict procurement rules this extended list could be considered so different from IHSL's tender that another bidder may challenge

fairness". Mr Currie stated that the list of derogations was considerably longer than that submitted at final tender. Mr Currie note that IHSL would not be provided all the Room Data Sheets as had been expected:

> "Operational Functionality
>
> Debate continues with IHSL over a caveat that we are insisting on given IHSL are unable to deliver all 1:50's and Room Data Sheets prior to FC as they committed to at final tender.
>
> Room Data Sheets
>
> IHSL have promised 123 RDS's (less than 50% of rooms) prior to FC. Given we will be some way short, our operational design notes will not be evidenced and hence require to be added to our BCR's as a contractual obligation.
>
> We have yet to receive IHSL's environmental matrix promised some time ago"

18.14 Mr Graham responded to this email on 24 September 2014. Mr Graham noted that IHSL had "expended their pre FC funds". He did not consider that the position would be significantly different with another bidder. Mr Graham stated that:

> "Brookfield Multiplex have maintained the 'trust us we will build what you want' and not evidenced the engagement with the NPD requirements. This is a matter of us (Brian principally) to judge the risk on the design development versus potential for delivering what we expect. It appears to me that they are commercial; have not delivered drawings and design development to programme and are introducing new items or caveats "under the radar" throughout the design development. This is either because the designers are not up to speed because they have expended fee allowances or that BM are controlling the position for commercial effect or combination of both."

18.15 A number of options, which included the option to reject IHSL as preferred bidder, were set out by Mr Graham. Mr Graham's recommendation was to "accept the position" to try to "nearly meet" the proposed programme.

18.16 During September and October 2014 IHSL submitted revisions of the Environmental Matrix. NHSL, following advice from MM, provided feedback. An issue was identified with the ventilation design for single bedrooms, specifically around their proposal of four air changes per hour, openable windows and positive pressure. It was noted that SHTM 03-01 says six air changes per hour and recommends a balanced or negative pressure regime. The development of the Environmental Matrix during this period is described in detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.16.1 On 21 October 2014, Brian Currie reviewed IHSL's drawing showing the ventilation distribution for Department B1 where Critical Care/HDU was located. The drawing was given RDD level C status. This meant that it was "subject to amendment as noted". The drawing was included in the RDD Schedule Part 2 "Non Approved RDD Items" with detailed comments provided by NHSL, including: "Drawing significantly lacks detail in order to provide a suitable review" and: "Full design to be in line with all PCPs, BCRs, manufacturer's guidance and SHTM requirements."

18.17 On 31 October 2014 the Commercial Sub-group of the Project Steering Board discussed the programme to achieve the revised target for financial close, which was set to 12 December 2014. There was a concern that "failure to meet this third attempt at FC would make all parties look foolish," that slippage into 2015 "would cause significant problems for both the Board and IHSL" and that there was reputational risk. NHSL proposed that any further delay to financial close be "absorbed in the construction period" and discussed cost implications of the delay. NHSL raised concern that IHSL had not yet provided a full and realistic programme to the hospital opening date. The development of technical information was discussed:

"Funders…require certainty and line drawn in the sand as technical information would surely continue to develop post-FC…

… PR [Peter Reekie, SFT] asked JB [John Ballantyne, Commercial Director, IHSL] if, in his opinion the Board had changed what it is asking for since the invitation to tender. JB replied that there was a difference of opinion over the level of detail expected in Project Co's Proposals (PCPs), but the open-ended requirement that 'the Board has to be satisfied' was difficult to achieve. JB acknowledged that the Board had agreed latitude on signing off operational functionality where 100% technical info not yet produced. Also, the Board's Construction Requirements had been updated in dialogue with IHSL, which reduced the extensive list of derogations that would be required of IHSL. These were examples of Board/IHSL negotiation to reach a pragmatic position in technical documentation for FC.

BC [Brian Currie, Project Director] noted that if the design development had generated key technical information for review earlier in the process then areas of challenge… could have been addressed and resolved earlier. JB noted that sign-off of the 1:50 design buy [sic] the Board had delayed the programme; BC acknowledged this, but that this could only account for two weeks of slippage and all had previously agreed that this particular activity has gone well. The production of the supporting architectural and engineering information has not been as successful...

…

SF [Sean Ferm, Commercial Manager, Macquarie Capital Group Ltd] confirmed that most PCPs [Project Co Proposals] had been issued to the LTA, with the exception of civil and structural, BREEAM, and acoustics. JB pointed out that the deadline to close PCPs had been 31/10/14 and that they were unlikely to meet this by the end of the day. BC confirmed that the Board has some technical queries outstanding on PCPs but have advised that these should not be material and therefore should not delay issue to the LTA. PR advised the Board and IHSL to resolve these issues

or to ensure that they were captured as reviewable design data post-FC. BC undertook to review the Board's outstanding PCP queries with their technical adviser and collate any such non-material issues into a schedule to be addressed post-FC.

The final list of derogations from the BCRs to be provided by IHSL later that day; the Board will review and respond to these on 03/11/14.

BC noted that while drawings feedback had been provided, IHSL had challenged some of these and the Board had met with them to discuss and confirm the position. All outstanding drawings comments are to be issued by the Board on 03/11/14. It was noted that IHSL may want to meet to confirm some of these before they were fully concluded, and this would need to be prioritised in w/c 03/11/14.

Conclusion of the energy strategy requires a meeting between the Board and IHSL as soon as possible in the w/c 03/11/14.

…

The group agreed that, regardless of the FC date, IHSL and the Board should proceed to agree finalised technical documentation by 12/11/14 at the latest."

18.18 The F&R Committee was updated on the programme to financial close at their meeting on 12 November 2014. Brian Currie and Iain Graham prepared a paper explaining the factors affecting the programme. These included technical issues, issues with CapEx (capital expenditure), as well as revenue consequences for Facilities Management and Life Cycle maintenance, the funder (the European Investment Bank) and Consort interface. With respect to technical issues the paper noted, "the production of the necessary legal documentation (Project Company Proposals or PCPs) and plans have been slower than necessary to avoid impacting on the critical path."

18.18.1 With respect to key risks, the paper noted:

- "The IHSL consortium members have both a cost and reputational imperative to see early Financial Close. However, the terms have to be acceptable.

- It is the Project Directors view that FC will not be achievable before February, 2015 and that there is limited scope to shorten the construction programme without significant risk to quality. As such, an operational date in September, 2017 should be anticipated at best.

- It is also hoped that the reasons for the slippage in programme to conclude FC is not repeated post FC. These are principally:

    1. Lack of appreciation and experience of the process to FC by the constructor element of the Preferred Bidder
    2. A "design [and] build" mentality prevailing by the constructor i.e.., determination to keep design intent as open as possible to maximise commercial advantage post FC.
    3. Poor management by the Preferred Bidder.

- Mitigation measures include seeking a compensating shortening of construction programme; removal of an inflationary uplift due to the period of time since tender."

18.19 The paper was discussed at the F&R Committee meeting on 12 November 2014. The Committee "expressed disappointment and concern at the delays" and the Chair "commented that the Committee was not reassured by the process and it would be important to demonstrate that risk management was in place before the Committee could be reassured." Brian Currie advised that "NHS Lothian was managing the project as best as it could but that many of the present issues were outwith NHS Lothian's control…NHS Lothian's legal

adviser had stated that NHS Lothian was going above and beyond what they were legally required to do in order to expedite the process." The Committee agreed to note the financial close programme and the governance in place to support NHSL's requirements.

18.20 By 18 November 2014, the risk register recorded that "Programme delay in reaching Financial Close" was "red". The programme was delayed due to delayed delivery of detailed design "sufficient to proceed to financial close". The "Adequacy of controls to minimise risk and achieve programme" were recorded as:

> "**Not satisfactory at present**
>
> …Close management of progress ongoing, including engagement at most senior level in IHSL by Steering Board Commercial sub-group…"

18.20.1 Performance of Building (described as "Building does not operate to specification…") was noted to be "Green". The risk register recorded that:

> "Board requirements stated clearly in procurement documentation and competitive dialogue"

18.20.2 The risk register recorded that the risk of Scottish Government approval was "green". There was a £50 million contingent liability at final business case should the project not proceed. Despite the green rating, the comment was:

> "**Not satisfactory at present**; FBC presented to SCIG on 05/08/14 and considered 26/08/14…"

18.21 On 18 November 2014, NHSL prepared a paper entitled "Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL". The paper records that notwithstanding the

requirement in the ISFT for the preferred bidder to complete all room data sheets by financial close, NHSL had agreed to reduce this to approximately 40% of rooms. NHSL also agreed to suspend the development of 'Project Co Proposals' and create an additional category of RDD. The paper noted that the quality of information submitted by IHSL was "not in line with the level expected". The paper concluded that:

- "The level of information requested by the Board and accepted by IHSL has been clearly documented;
- The level of information requested is considered reasonable and in line with other projects;
- The Preferred Bidder has been late in providing information at each stage;
- The quality of the information submitted has not been in line with the level expected."

18.22 The Inquiry Team understands that on 19 November 2014, a HAI-Scribe (Healthcare Associated Infection - Systems for the Controlling Risk in the Built Environment) report identified a risk with the ventilation system, specifically due to air pressure in single bedrooms. On 12 January 2015, TUV SUD/ Wallace Whittle submitted a revised single bedroom ventilation strategy. On 13 January 2015, Janette Richards, NHSL's lead HAISCRIBE Infection Prevention and Control Nurse, consulted Ian Stewart (Consultant within HFS' Engineering and Environment department) regarding IHSL's strategy. Ms Richards was concerned that IHSL's proposal for openable windows would affect the pressure regime in the room and have implications for infection control. HFS advised against the use of openable windows in the design, and recommended sealed windows which would allow air flow patterns to be controlled. On 29 January 2015, NHSL advised IHSL that:

- "The single room with en-suite ventilation design shall comply with the parameters set out in SHTM 03-01.

- The design solution should not rely in any way with the opening windows as these will be opened or closed by patient choice.
- The critical factor from SHTM 03-01 for infection control will be the resultant pressure within the room being balanced with or negative to the corridor.
- Isolation room ventilation shall comply with SHPN 04 Supplement 1."

18.23 The discussion between relevant parties regarding the perceived issues with TUV SUD/Wallace Whittle's ventilation strategy for single bedrooms is described in further detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.24 According to a document entitled 'Design risks to the Board at Financial Close', the risks at 28 January 2015 included ventilation. The issue is not described, but it is given a 'high' risk impact. The current mitigation measures were stated to be:

- "The single room with en-suite ventilation design shall comply with the parameters set out in SHTM 03-01.
- The design solution should not rely in any way with the opening windows as these will be opened or closed by patient choice.
- The critical factor from SHTM 03-01 for infection control will be the resultant pressure within the room being balanced with or negative to the corridor.
- Isolation room ventilation shall comply with SHPN 04 Supplement 1."

18.25 The final position was stated as "TBC". No person was specified as being responsible for the closure of this risk.

18.26 The document contained an entry for "Design" where the issue was stated to be "Review of RDS content". The risk impact was stated to be "closed". The

comment given was “RDS have been submitted for Board Review”. No details are provided in relation to the review procedure or whether the room data sheets were deemed acceptable to NHSL. The final position was stated as “TBC” notwithstanding the fact that the Risk Impact was described as “closed”.

18.27 The document contained a further entry for “Design” where the issue was stated to be “RDS omitted by Project Co at FC”. The risk impact was stated to be “closed”. The comment given was “Board reviewing operational design notes to confirm if there are gaps for the omitted RDS”. The Final Position was stated as “TBC”.

18.28 A document titled ‘Technical Risks to the Board at Financial Close’, dated 30 January 2015 listed “…the principal high, medium and low technical risks…” for the project. It highlights a number of risks related to the unexpected and ‘significant’ quantity of RDD.”

18.28.1 One of the highlighted risks was “Less well defined proposals, therefore less certainty by the Board. Lack of design”. The mitigation measures employed up to financial close were “IHSL pushed very hard to achieve maximum information during PB stage. Further developed RDD schedule for Board”.

18.28.2 Another risk arising from the significant quantity of RDD was that “Board may not be able to respond in the allocated 15 days. Therefore the RDD item is deemed accepted.” The mitigation measures employed up to financial close were stated to be “Informal non-contractual design review meetings being held with IHSL. Process confirmed in Part 3 of Section 5 of Schedule Part 6 limiting Project Co’s ability to add RDD items with less than 4 weeks notice.” as well as “Internal resourcing/management meetings ongoing.” Required mitigation measures post financial close include, “The Board and Motts to resource RDD appropriately.” and “Manage Project Co’s rolling programme in accordance with Part 3 of Section 5 of Schedule Part 6.”

18.28.3 The document did not state whether the risks set out were high, medium or low.

18.29 A risk register report was shared with the PSB for its meeting on 30 January 2015. The risk register report does not mention the RDD items recorded in the document "technical risks to the Board at Financial Close" or the ventilation item recorded in the document "design risks to the Board at Financial Close" as risks. The risk register report contains an item nine 'Specification Changes post Financial Close' with the description: "Programme is delayed due to Board changing service and accommodation requirements." Risk 25 and 45 are identical and relate to "service change", specifically: "Planned function of a room/area becomes obsolete or priorities change due to changes in practice/advances in technology and requires updating before opening". The controls in place for all three items included putting in place governance structures to manage the approval of change.

18.30 The risk register noted "programme delay in reaching Financial Close" as an amber risk. The controls in place included "Rigorous and resourced user group engagement and technical adviser input to progress detailed design and technical schedules…" The adequacy of the controls to minimise and achieve programme were described as:

**"Not satisfactory at present…"**

18.31 It is not clear to the Inquiry Team why the risk status had reduced given that the controls in place were still deemed to be unsatisfactory. This will require to be explored with witnesses at the diet of hearings commencing on 24 April 2023.

18.32 At the PSB meeting on 30 January 2015 Brian Currie introduced the risk report. He noted that "post-FC change would be inevitable", that any changes would have cost and revenue implications, would lead to delay, and that "a governance process to manage the impact is required." The decision-making

process for dealing with change was discussed. NHSL were working towards completion on 5 February 2015. Mr Currie noted that there was a requirement for the contract to be signed by 13 February 2015 due to the project sponsor's leave.

18.33 By financial close the issues that had been identified with the Environmental Matrix and TUV SUD/Wallace Whittle's design for single bedroom ventilation were not resolved. Room data sheets were incomplete, although draft room data sheets for generic and key rooms had been prepared. The ventilation specifications outlined in the Environmental Matrix as well as the Room Data sheets for Department B1 (Critical Care, HDU, Neonatal Surgery) were potentially inconsistent with SHTM 03-01, but this had not been identified by MM, NHSL or IHSL. This and other potential inconsistencies are described in further detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.34 Room data sheets were included in Part 3 of Section 5 (Reviewable Design Data) and Schedule Part 6 (Construction Matters) of the Project Agreement (RDD Schedule). Part 3 included "Reviewable Design Data not provided to the Board nor approved by the Board at Financial Close" and was subject to the Review Procedure in Schedule Part 8 of the Project Agreement, "before such Reviewable Design Data is incorporated into the Facilities and/or the Site by Project Co". Furthermore, according to Part 3 of the RDD Schedule:

> "Following the date of this Agreement:
>
> - Project Co shall submit a programme of issue dates for Reviewable Design Data set out in this Part 3;
> - Project Co shall ensure that such programme shall show the items of Reviewable Design Data forecast to be submitted to the Board within the next 3 months;
> - Project Co shall revise and reissue the programme on a monthly basis so as to maintain a rolling 3 month look ahead from each date of issue

Project Co recognises this aspect of the Reviewable Design Data process is still to be agreed and further acknowledges the practicalities for the Board co-ordinating and undertaking the reviews of Reviewable Design Data. Project Co shall ensure that no changes to the first month of each revised 3 month programme shall be made without the prior approval of the Board, and the Board shall approve or reject any Project Co proposal for such a change within 5 Business Days of receipt of the Project Co proposal, failing which the Board shall be deemed to have approved the change.

Project Co shall take reasonable endeavours to sequence the release of information in a manner so as to mitigate the volume of parallel reviews required to be undertaken by the Board pursuant to the Review Procedure."

18.34.1 Also included in Part 3 of the RDD schedule were ventilation drawings: "1:200 Primary distribution for all areas indicating main distribution routes and plant locations with respect to…ventilation" and "1:50 Detail layouts for all areas for… ventilation", described previously.

18.34.2 The Environmental Matrix and Schedule of Accommodation were included in Part 4 of the RDD Schedule, which contained "Non-Approved Project Co's Proposals Design Data comments". They were subject to the review procedure under Schedule Part 8 of the Project Agreement. In relation to the Environmental Matrix, a number of Board comments were set out. These included a comment noting that a detailed proposal was awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.

18.34.3 Part 4 of the RDD Schedule stated that:

"If Project Co considers that the comments below on any of the items listed in this Part 4 amount to a Change, Project Co shall, before complying with the comments and resubmitting the Endorsed RDD, notify the Board of the same and, if it is agreed by the parties or determined

pursuant to Schedule Part 20 (Dispute Resolution Procedure) that a Change would arise if the comments were complied with, the Board may, if it wishes, implement the Change and it shall be dealt with in accordance with Schedule Part 16 (Change Protocol)."

18.34.4 Part 4 contained a table which included a number of comments, the details of which are described in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.34.5 Part 1 of the RDD Schedule contained "endorsed" RDD items that had been given Level A or Level B status, meaning that they could proceed subject to comments NHSL had made against each item. No items related to ventilation were included in Part 1.

18.34.6 As noted previously, IHSL's ventilation strategy drawings were included in Part 2 of the RDD schedule, which included "Non-Approved RDD Items" that had received Level C or Level D at financial close, meaning that Project Co could not proceed with construction in terms of that item until NHSL's comments had been incorporated and the drawing submitted to NHSL through the review procedure outlined in Schedule Part 8.

# 19. Full Business Case

19.1 The Full Business Case (FBC) required to be approved by both NHSL and the Scottish Government in order for the Project to achieve funding.

19.2 The purpose of the FBC is to:

- "identify the 'market place opportunity' which offers optimum Value for Money
- set out the negotiated commercial and contractual arrangements for the deal
- demonstrate that it is 'unequivocally' affordable

- put in place the detailed management arrangements for the successful delivery of the scheme"

19.3 The FBC includes:

- "Strategic Case: Strategic Case confirmed/updated
- Economic Case confirmed or updated
- Commercial Case:
  - Detail each procurement selection process
  - Confirm scope of procured works & services
  - Confirm main contractual arrangements
- Financial Case
  - Confirm financial implications of project and project & affordability
  - Stakeholder sign-off
- Management Case:
  - Confirm details of management arrangements outlined in OBC to demonstrate that organisation is ready & capable of proceeding to contract award & implementation"

19.4 According to the Scottish Capital Investment Manual NPD Guide Section 2: OJEU to Contract Award, the following commitments are expected at the end of the preparation of the FBC:

| | |
|---|---|
| State of contract discussions at end of stage: | Fully developed contract drafts |
| Designer: | 1:200 plans with key departments at 1:50 |
| Design and construct sub-contractor, services sub-contractor and bidding consortium: | Final sign-off on draft contract, payment mechanism, performance regime and allocation of risks within consortium |
| Financial and Economic Standing/Funding: | Due diligence commences prior to submission of Full Business Case |

19.5 Paragraph 7.9 states that:

> "It is expected that while the FBC is being considered for approval, the NHSScotland body and private sector partner will continue to work up the detailed contractual documentation and that due diligence on behalf of the financiers will be continuing. NHS bodies will be required to demonstrate that schemes are sufficiently close to financial close before FBC approval will be given."

19.6 The FBC was circulated in advance of the meeting of the Finance and Resources Committee on 9 July 2014. At the meeting, the committee agreed to approve the submission of the FBC with the recommendation that it would proceed to the Capital Investment Group of the Scottish Government Health and Social Care Directorate. SFT.

19.7 Version 1 of the FBC was approved by the Board of NHSL on 6 August 2014. The Capital Investment Group (CIG) was due to consider the FBC at their meeting on 26 August 2014.

19.8 The strategic context set out in the FBC had not changed since the Outline Business Case. The expected benefits of the new hospital included a reduction in healthcare associated infection through modern design, particularly single rooms with en-suite accommodation (paragraph 2.10.2). The FBC stated that design risk for the Project was allocated to Project Co and not NHSL (paragraph 4.1.3):

> "1) Design risk sits with Project Co, subject to the Project Agreement (Clause 12.5) and agreed derogations identified within the Board's Construction Requirements."

19.9 The FBC included the letters from MacRoberts and MM in relation to the conduct of the procurement exercise. The report by Ernst and Young was also included.

19.10 Paragraph 6.4.1 stated that:

> "Commissioning arrangements are outlined in the Project Agreement with IHSL, to ensure all aspects of construction conform to the relevant standards and comply with contractual requirements"

19.11 Paragraph 6.6 addressed risk management. Programme delay in reaching financial close was the only risk highlighted as red. No risks in relation to the design of key building systems, including the ventilation system, were recorded in this section of the FBC.

19.12 The FBC stated that the hospital was scheduled to open on 15 May 2017.

19.13 The Inquiry Team has been advised by NHSL that the process for approval of an FBC requires NHSL to submit the FBC several weeks in advance of the CIG meeting. The FBC is then circulated to members for review and comment. Questions from members are collated and sent back to NHSL, usually the week before the meeting. NHSL would then seek to respond to each question raised. This is not a resubmission of the FBC, but a process of clarification in response to specific points raised by members of the CIG.

19.14 For the Project, correspondence indicates that comments from the CIG members were passed to NHSL on 20 August 2014, and NHSL responded to those comments on 25 August 2014. None of the comments related to mechanical and electrical engineering..

19.15 The CIG meeting to discuss the FBC, including the points of clarification, took place on 26 August 2014. According to the minutes, the FBC for the RHCYP/DCN "was not approved at the meeting due to a number of outstanding comments." The comments that followed related to costs and unutilised space. The minutes then state, "Formal approval of this project to follow once queries had been resolved."

19.16 According to action notes of the PSB meeting held on 30 January 2015, "Finalisation of the financial model on 02/02/15 will trigger FBC approval by SGHSCD and key stage review completion by SFT – both are needed for financial close, and therefore critical to be completed by 04/02/15."

19.17 Funders required a letter confirming that the Scottish Government had agreed an award of revenue funding. SFT have advised the Inquiry Team that such a letter is a normal condition precedent set by funders to reach financial close. On 6 and 7 February 2015, Alan Morrison (Health Finance, SGHSCD), Iain Graham (Director of Capital Planning and Projects, NHS Lothian), Kerry Alexander (NPD Programme Director, SFT) and Andrew Orr (legal adviser, MacRoberts) discussed the content of the letter. At this point, the Pre-Financial Close Key Stage Review had not yet been completed, and the FBC had not yet been approved.

19.18 Mr Orr advised that if the letter stated that SG's approval of revenue funding "is subject to all issues highlighted in the Key Stage Review being satisfactorily concluded", funders would need something showing that these issues had been concluded. Mr Graham, was concerned to "get the balance right" in this letter by confirming approval of funding while not raising further questions about the Key Stage Review. Mr Graham suggested to use the wording "We will separately confirm the requirements for the Board to ensure satisfactorily conclusion of the Key Stage Review".

19.19 In terms of a letter dated 10 February 2015, Paul Gray (Director General for Health and Social Care at the Scottish Government) confirmed that the CIG had considered the FBC and had agreed an award of funding for the Project, and that "We will separately confirm the requirements for the Board to ensure satisfactorily conclusion of the Pre Financial Close Key Stage Review."

# 20. Key Stage Review 4: Pre-Financial Close

20.1 The Pre-Financial Close KSR was completed on 11 February 2015.

20.2 The KSR could only be completed once some issues in relation to ESA10 were resolved. Ernst & Young produced a report for the Board to satisfy SFT. Brian Currie commented on an earlier draft of the KSR and advised SFT that it was generally an accurate record of the project's status subject to some minor comments being provided.

20.3 Within the Key Stage Review report, under "Section 3: Project requirements" the following questions are asked:

> "Question 2: Is the Procuring Authority satisfied that the preferred bidder's solution satisfies its operational and functional requirements and delivers the project objectives, benefits and outcomes?"
>
> The answer provided was: "yes."
>
> The following comment was included in the KSR:
>
> "The detail of the design has been discussed with user groups to ensure clinical support and the Board confirms that it has received appropriate internal sign off."
>
> "Question 3: Please confirm the status of the technical documentation (i.e. design, construction and FM requirements). Is the Procuring Authority, and are its advisers, satisfied that further development/document production (if any) is achievable within the current project timetable?"
>
> The answer should have been answered with either "yes" or "no". The relevant box is left blank. The following comment was included in the KSR:

> "The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site. The Board has also confirmed that the FM Service Level Specification is agreed and that the FM Method Statements have been completed and agreed."

20.4 It is not clear to the Inquiry Team why this statement was made. By financial close, the preferred bidder should have produced room data sheets for every room in the hospital. It is not clear why this requirement was waived by NHSL. This issue will need to be explored with witnesses at the hearing diet that commences on 24 April 2023.

20.5 SFT has advised the Inquiry Team that it did not undertake a design or technical assurance role and this element of the KSR was intended to prompt NHSL to reflect, with its advisers as necessary, on the stage of development of the technical solution and documentation at this critical stage.

20.6 NHSL has advised the Inquiry Team that they provided the above affirmative answers based on letters of support from its legal, financial and technical advisers.

# 21. Financial Close

21.1 Financial close is the end point of procurement when contracts are signed. After financial close, NHSL required to start making payments and construction could begin.

21.2 The target date for financial close was 3 October 2014 at tender stage. Financial close took place on 12 to 13 February 2015.

21.3 On 21 January 2015, in accordance with the minute of the Board of NHSL dated 6th August 2014, the Finance and Resources Committee formally resolved to delegate authority to the Chief Executive or Director of Finance of the Board of NHSL to approve the final terms of the NPD Project Agreement subject to:

> "(a) the approval of the final business case for the Project by the Scottish Government; and
>
> (b) the first full year Annual Service Payment at financial year 2014 prices not exceeding £17 million (excluding the effect of any movement in interest rates between now and financial close)."

21.4 Upon approval of those terms, there was formal authority to approve, sign, seal, execute, deliver and/or initial (as required) the documents required to reach financial close of the project.

21.5 Contract documents including the project agreement and all of the contracts setting out the financial arrangements, were signed on 13 February 2015 and 14 February 2015, marking financial close. After this date the Board began making payments to IHSL and IHSL required to commence construction.

# 22. Business Case Addendum

22.1 An addendum to a FBC can be required if there have been key movements in any material information about the project between FBC approval and contract signature. It is a practical process by which the financial position as identified in the FBC is updated. It does not require further consideration and/or recommendation by the CIG and the addendum is not referred for approval to the DGHSC.

22.2 An addendum to the FBC was approved by the NHSL on 1 April 2015. It was submitted to CIG on 7 April 2015, for noting. This was after the contract was signed and financial close had taken place.

22.3 The addendum notes that the project proceeded to financial close having adopted the contractual adjustments recommended by SFT to address the ESA 2010 accounting treatment to remain off balance sheet. ESA10 refers to the European System of National and Regional Accounts, new rules of which had implications for the accounting treatment of projects procured under the NPD model. Changes were made to the role of the public sector director with the introduction of an independent expert. The amendment was principally to the articles of association of the SPV with consequential minor changes in the Project Agreement. There was no change in the strategic case or the economic case for the Project as set out in the FBC. The financing arrangements are addressed in the addendum. Completion and handover of the new hospital was estimated at 25 July 2017 with the hospital due to open on 16 September 2017.

# 23. Provisional Conclusions

23.1 As outlined at the start, this paper seeks to set out the Inquiry Team's current understanding of the procurement process for the project. It is provisional in nature. The paper does not constitute any findings of the Chair of the Inquiry. It is open to any CP to seek to correct and/or contradict the contents of the paper. However, unless that is done, in addition to such other findings in fact that Counsel considers appropriate, the Chair is likely to be invited by Counsel to the Inquiry to make the following findings in fact at the conclusion of the hearing diet scheduled for April 2023.

23.1.1 NHSL conducted market testing prior to the commencement of the procurement exercise.

23.1.2 NHSL was satisfied that there was sufficient interest in the market for a new hospital that was to be funded by way of a NPD funding model.

23.1.3 The procurement exercise required to comply with the 2012 Regulations.

23.1.4 NHSL was the contracting authority for the purposes of the 2012 Regulations and had overall responsibility for the conduct of the procurement exercise and the content of documentation issued to prospective tenderers.

23.1.5 NHSL was assisted by technical advisers, including MM, in the production of the tender documents.

23.1.6 HFS was not called upon to advise on, or review, technical information related to the requirements of the ventilation system proposed for the new hospital prior to a preferred bidder being identified by NHSL.

23.1.7 SFT provided assistance to NHSL during the procurement process. Their role involved providing advice on the NPD procurement process and an 'oversight' role.

23.1.8 Concerns were raised by the Scottish Government as to whether it was appropriate for SFT to have this dual role. However, the procurement proceeded with SFT adopting this dual role.

23.1.9 The contract opportunity constituted a “particularly complex contract” for the purposes of the 2012 Regulations and NHSL was entitled to adopt the competitive dialogue procedure.

23.1.10 Three entities were invited to participate in dialogue. They were issued with the ITPD.

23.1.11 The ITPD followed the structure recommended by the SCIM.

23.1.12 The ITPD set out NHSL’s requirements, including the technical requirements for the ventilation system, and the procedure for assessment of tenders.

23.1.13 The assessment criteria adopted by NHSL was the “most economically advantageous tender”. The assessment was based on an assessment of price and quality. There was a 60/40 split in terms of price and quality.

23.1.14 A number of technical requirements were assessed on a pass/fail basis. The remainder were scored as part of the 40% weighting accorded to quality.

23.1.15 The available marks for mechanical and electrical engineering proposals were less than those available for interior design and architectural and landscaping design.

23.1.16 The competitive dialogue procedure involved a series of discussions taking place with prospective tenderers before tenderers were invited to submit final tenders.

23.1.17 During the competitive dialogue phase, NHSL required to clarify what it meant by ‘Operational Functionality’.

23.1.18 The project was assessed at various stages of the procurement process by way of ‘Key Stage Reviews’ (KSR). KSR were carried out by SFT.

23.1.19 KSR were aimed at ensuring the financial viability of the project. While technical issues were touched on in the KSR, it was not the purpose of the KSR process to undertake a detailed technical review of the specifications for the building systems in the new hospital.

23.1.20 NHSL and SFT had a desire to keep the procurement process as short as was reasonably practical.

23.1.21 NHSL utilised a reference design approach. This was made clear to prospective tenderers in the procurement documents including the ITPD and the ISFT.

23.1.22 CEL 19 (2010) made it a mandatory requirement for all NHS Bodies in Scotland engaged in the procurement of both new-build and refurbishment of healthcare buildings to use and properly utilise the England Department of Health’s Activity DataBase (ADB) as an appropriate tool for briefing, design and commissioning.

23.1.23 If ADB was deemed inappropriate for a particular project and an alternative tool or approach is used, the responsibility is placed upon the NHS Body to demonstrate that the alternative is of equal quality and value in its application.

23.1.24 NHSL did not produce ADB room data sheets and issue them to prospective tenderers.

23.1.25 An Environmental Matrix was produced which sought to set out NHSL’s technical requirements for the ventilation system.

23.1.26 Prospective tenderers required to submit some room data sheets as part of their tender. These were for key and generic rooms.

23.1.27 Both the ITPD and the ISFT stated that the entity appointed as preferred bidder would require to develop room data sheets for all spaces in the hospital before financial close.

23.1.28 ITPD Volume 1, Section 2.5.3 stated that tenderers were required to use the Environmental Matrix, and other 'Room Information' documents, to form the basis of Room Data Sheet production.

23.1.29 ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs.

23.1.30 There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the Environmental Matrix; and (ii) whether compliance with the Environmental Matrix was mandatory.

23.1.31 Following the close of competitive dialogue, three tenders were submitted. These included tenders by IHSL and Mosaic.

23.1.32 All three tenders were assessed as valid tenders that complied with all the technical requirements set by NHSL.

23.1.33 IHSL stated in its tender submission that its technical solution complied with SHTMs, HBNs and HTMs.

23.1.34 IHSL did not propose any changes to the Environmental Matrix.

23.1.35 One tenderer (Bidder C/Mosaic) did propose changes to the Environmental Matrix including to air changes per hour in critical care rooms.

23.1.36 Bidder C had stated during competitive dialogue that it would make changes to the Reference Design in a variety of situations, including where there was non-compliance with relevant design guidance.

23.1.37 Both IHSL's tender and Mosaic's tender were assessed by NHSL as complying with NHSL's published requirements. This assessment was made notwithstanding the fact that IHSL and Bidder C/Mosaic were offering to provide different technical requirements in terms of the Environmental Matrices submitted.

23.1.38 Given the disconnect between the values in the Environmental Matrix (issued with the ITPD) and SHTM03-01, it is not clear why IHSL's tender was deemed by NHSL to comply with the published requirements.

23.1.39 The assessment panel noted that IHSL's tender:

> "lacked detail on design philosophy and BCR compliance".

23.1.40 The Pre-Preferred Bidder KSR recorded (in section 2, Question 3) that:

> "The Board has confirmed that all bidders have provided detailed programmes to cover the activities for the period until FC and that the development of the technical information is at least as advanced as the Board anticipated at this stage. The Board and its advisers are satisfied that any further development of technical information from PB appointment to FC is achievable within the current project timetable"

23.1.41 A risk register was set out in Annex B of the Pre-Preferred Bidder KSR. It noted "Programme delay in reaching Financial Close" as a "red" risk. The risk register recorded that "Adequacy of Controls" was "Not satisfactory at present".

23.1.42 IHSL's tender was assessed as the most economically advantageous tender.

23.1.43 MacRoberts advised NHSL that the procurement process had complied with the 2012 Regulations and best practice.

23.1.44 SFT confirmed to NHSL that the processes and procedures of SFT had been followed.

23.1.45 MM advised NHSL that from a technical perspective the evaluation had been carried out in a manner consistent with the evaluation methodology. Accordingly, it was appropriate for NHSL to conclude the evaluation process and appoint the preferred bidder.

23.1.46 The advice of MM, MacRoberts and SFT was relied on by the Finance and Resources Committee of NHSL in determining to recommend that IHSL be appointed as preferred bidder.

23.1.47 IHSL was appointed as preferred bidder.

23.1.48 In the period from the appointment of IHSL as preferred bidder to financial close, NHSL agreed to waive the requirement (stated in both the ITPD and ISFT) that room data sheets for all spaces in the hospital would be completed by financial close.

23.1.49 By financial close, IHSL had completed room data sheets for less than half the spaces in the hospital.

23.1.50 The draft project agreement contained a concept of “reviewable design data”. Technical issues not agreed by financial close became “reviewable design data” under the project agreement.

23.1.51 Prior to a contract being signed between NHSL and IHSL, a dispute arose in relation to air change rates, and pressure regimes, in certain bedrooms.

23.1.52 Discussions took place between NHSL, MM and IHSL in relation to the issues concerning environmental parameters in certain bedrooms. IHSL made it clear to NHSL that its proposal for ventilation was “mixed mode” and relied on natural ventilation for certain spaces in the hospital.

23.1.53 No issues were escalated by NHSL to the Scottish Government in relation to the proposed ventilation system for the new hospital before financial close.

23.1.54 Prior to the conclusion of the contract, no issues were raised by NHSL or MM in relation to the requirements of the ventilation system for critical care areas proposed by NHSL.

23.1.55 Question 3 of the Pre-financial close KSR was in the following terms:

> "Please confirm the status of the technical documentation (i.e. design, construction and FM requirements). Is the Procuring Authority, and are its advisers, satisfied that further development/document production (if any) is achievable within the current project timetable?"

23.1.56 The answer should have been answered with either "yes" or "no". The relevant box was left blank. The following comment was included in the KSR:

> "The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site. The Board has also confirmed that the FM Service Level Specification is agreed and that the FM Method Statements have been completed and agreed."

23.1.57 As at August 2014, NHSL had concerns about the project programme.

23.1.58 As at November 2014, NHSL had concerns about the quality of the information provided by IHSL in relation to the Project.

23.1.59 Prior to signing any contract with IHSL, NHSL was aware that there was significantly more “reviewable design data” than had originally been planned for the Project.

23.1.60 A contract was concluded between NHSL and IHSL, and financial close achieved, in February 2015.

23.1.61 NHSL entered into a contract with IHSL which stipulated that the environmental matrix would be “Reviewable Design Data” under the contract. Therefore, the precise parameters for the ventilation system would be worked out after the contract was concluded.


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