SCOTTISH HOSPITALS INQUIRY

Royal Hospital for Children and Young People/ Department for Clinical Neurosciences ("RHCYP/DCN")

Witness Statement of

WILLIAM STEVENSON

I have not been approached by the Inquiry under a section 21 notice to provide a statement however there are a number of questions which have been put to my former colleague Colin Macrae which I may be better placed to answer. This reflects the fact that I had a more senior role on the project than Colin and so might have had more insight into certain strategic matters.

1. I am William Stevenson. I am the Technical Principal of building services for Mott MacDonald Limited. I am based in Mott MacDonald's office in Glasgow. I work across a number of sectors including rail, defence, and energy projects. I oversee the building services team for Mott MacDonald in Scotland which includes teams based in the Edinburgh, Glasgow, and Aberdeen offices. In terms of people reporting to me, in Glasgow there is a team of 11 people, 4 in Edinburgh and 8 in Aberdeen.

Background and experience

2. I have worked for Mott MacDonald Limited since 2002. I started as a senior engineer, then was promoted to associate, then technical director, then technical principal. Prior to working for Mott MacDonald, I worked with RMJM in Glasgow for about 18 months and before that I was with Ove Arup from 1989 to 2001 in London, Edinburgh, and New York. I have a BEng Hons in Electrical and Electronic Engineering from Trent Polytechnical in Nottingham and I am a member of MIET (The Institution of Engineering and Technology).

3. I have worked on a number of large healthcare projects. In my first year at Mott MacDonald Limited I worked on the Freeman Hospital in Newcastle. This was a PFI project. I was also involved in Forth Valley Royal Hospital, and Dumfries and Galloway Hospital.

Mechanical and electrical engineering

4. It might be helpful if I explain the difference between a mechanical engineer and an electrical engineer. While people have a tendency to refer to "mechanical and electrical engineering" this generally encompasses two entirely separate disciplines. With the exception of a Building Services related degree (which covers mechanical and electrical) these roles are generally filled with staff who have completely separate qualifications at degree level and so it is very rare to find someone who is a mechanical and electrical engineer. Even with a building services degree staff tend to specialise in either mechanical or electrical engineering. An electrical engineer would be concerned with, for example, lighting, power, fire alarm, security amongst other things. A mechanical engineer would on the other hand be focussed on, for example, water, heating, and ventilation.

5. I am an electrical engineer and so there was no mechanical engineering involved in my degree. Colin Macrae is a building services engineer specialising in mechanical. Paul Kelly is also a mechanical engineer and had some involvement in the project, particularly when Colin Macrae was absent for a time due to planned surgery. There were also various graduates that assisted us on the project on a rolling basis.

Role in project

6. I first became involved in the project back when it was still due to be capital funded. This might have been as long ago as 2009. I recall that BAM were involved as main contractor. Then we were told that the project would not be proceeding, at least along the lines of the initial model. The Scottish government took the decision to proceed with the NPD model instead.

7. When I became involved again, a decision had been taken to proceed with a reference design. The reference design is just a very basic concept for the hospital. In terms of building services, it is like a jig saw puzzle and the bidders have a relatively free hand to play around with the pieces of it, to

prepare what is ultimately their design. The only areas where they are tied to the reference design requirements is in relation to operational functionality, and compliance with SHTMs, CIBSE Guides and British Standards. Other than how they configure these points; the designers have a relatively free hand. Mott MacDonald Limited did not prepare the reference design. I recall that the designers from a mechanical and electrical perspective were Hulley & Kirkwood. Certainly Hulley & Kirkwood prepared the environmental matrix, but they may have had an involvement in other aspects of the reference design too.

The Environmental Matrix (EM)

8. The EM was produced in draft form along with the ITPD. It required to be developed by the bidders, with its purpose being to give an indication to the bidders as to what was required in their tender submissions. The EM is a fluid document and will continue being developed until a very late stage in design development. Certainly, bidders are not expected to have a fully developed design by final tender stage. Primarily this is because the design has not been completed by that point. The EM will continue to develop as the design evolves as it could be affected by the adjacencies of particular rooms / spaces and the inclusion of additional rooms as the design matures.

9. The use of an EM was not unusual. Most of the healthcare projects in which I have been involved have used environmental matrices. An EM was definitely used in Forth Valley Royal Hospital and Dumfries and Galloway Royal Infirmary. They are very common. There is a perceived benefit to the use of environmental matrices as they present the room and environmental data in a relatively user-friendly way. Rather than working through potentially thousands of room data sheets, it might be easier for someone working on the project to refer to an EM instead. It would provide a user-friendly guide to the room requirements which would be helpful for example at the commissioning stage, as a means of referencing the conditions necessary in each room.

10. I am not familiar with CEL 19 (2010) (**A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010**

Revision' (2) dated 2 June 2010)[1] and am unable to comment on whether the use of an EM as opposed to room data sheets contradicts CEL 19 (2010). This is not my area of expertise. Within MML possibly either Graeme Greer or Richard Cantlay may have been aware of any issues arising from guidance of this nature. That said I would expect that NHS Lothian would have been aware of the content of this document if it was an NHS publication

11. The bidders were required to develop their own EM. The draft which was produced with the ITPD was given to bidders as a "starter for 10". The onus was then on the bidders to develop their own design. It was clear that this was required. There are always changes to building layouts that require to be developed. It is sometimes a small tweak and sometimes it is a significant change. That means that development of the EM will inevitably be required as progress is made with the overall design for the hospital.

12. I understand that it has come to light, that there was data relevant to ventilation in the EM which was incompatible with SHTM 03-01. I have been asked to explain the significance of the guidance notes on the front of the EM, which I understand did not match some of the air change requirements in the body of the spreadsheet. I would expect any designer, or reviewer, to have regard first and foremost to the guidance notes. A bidder reviewing the EM and adopting their own design from this would be expected to refer to the guidance notes as these provide a set of instructions as to what is required. If the guidance notes said that 10 air changes were required in critical care, then that is what I would expect a bidder to follow. I would expect any designer to have regard to the requirements of the SHTMs in relation to the overall design of the EM. Any reviewer would also have regard to the guidance notes and would take a degree of comfort from the fact that the guidance notes complied with the SHTMs. If there was any inconsistency between the guidance notes and the main body of the spreadsheet, the guidance notes would override the spreadsheet.

Tender evaluation

[1] Bundle 1 Published Guidance - A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010, Item 6, p.553

13. I was involved in the evaluation of tenders. It is possible that I would have been involved in the workshops to discuss weightings for evaluations, but I am unable to recall the specifics given the passage of time, and the number of other projects in which I have been involved since then. My role was to review aspects of the tenders relevant to building services and to score them. Once again, I only reviewed the electrical side of things. One of my colleagues who specialised in mechanical engineering would have reviewed the mechanical aspects, which would have included the ventilation. Generally, that would have been done by Colin Macrae, who was a building services engineer specialising in mechanical in my team. Colin was absent from work though from around 22 January 2014 until 31 March 2014, which was around the time when the final tenders were reviewed. This was pre-planned time off due to an operation and recovery time which he was scheduled to undergo. I believe he carried out the majority of his evaluations of the final tenders received from bidders in advance of this time off. My recollection is that Paul Kelly was involved in providing further comments and input during Colin Macrae's absence.

14. The review that would be carried out for the EM would be a sample review with a few spot checks. A line-by-line review would not be carried out. That was not part of our remit. As an electrical engineer I would be looking at things like lighting levels. A mechanical engineer would be looking at things like air change rates and room temperatures. If we came across any areas of non-compliance with the BCRs and guidance such as SHTM 03-01 then we would highlight them.

15. The key thing to remember though is that at the point at which the final tenders are being assessed, the hospital has not yet been designed. The final tender, which is produced by each bidder, is not their final design. The designs all need to be developed. What you are looking for at final tender stage, is an indication that the bidders are agreeing that what they are going to design, will be compliant with the Board's Construction Requirements and all of the relevant guidance. The final tender is an indication of what is going to be designed, not the final solution.

16. I have been asked whether it would cause me concern that one of the bidders had produced a mark-up of the EM, while the others did not. This would not of itself cause me any concern. It is expected that the EM will be developed. It has to be developed as the design progresses and it is normal for the services design to be developed up to quite a late stage of the project – even right up to the installation of services on site. I don't immediately recall the specifics of this project now, as I have been involved in so many relatively similar projects since then. If one bidder had produced a mark-up of the EM, and another had not produced an EM, but said that they were going to comply with the reference design EM, then that would not of itself have caused me any concern. Mott MacDonald did not design the draft EM issued with the ITPD; it was Hulley & Kirkwood who produced that document. We understood from Hulley & Kirkwood however that their design complied with the SHTMs, as they had certified compliance and told us that their design complied. We would have had no reason to suspect at final tender stage, that the reference design EM contained any data which might not have complied with the SHTMs.

17. I have been asked if a tender should be regarded as compliant if some aspects of the EM produced at final tender stage did not comply with the published guidance such as SHTM 03-01. My understanding is that the reference design EM was not a mandatory document and therefore this would not have impacted whether the tender was compliant. It was up to the preferred bidder to design the EM and to ensure that it was compliant. The tender would be compliant if it complied with the Board Construction Requirements. Ultimately it did not matter whether the environmental matrices produced by the bidders matched each other or the draft matrix produced with the ITPD. the important thing was that they complied with the guidance and the SHTMs. Where the EM did not comply with the design guidance and any anomalies were observed then it would be up to the preferred bidder to address this while developing their design.

18. The Inquiry has asked how a bidder could comply with both the EM and SHTM 03-01. Bidders were not required to comply with the ITPD issue environmental matrix. This was not how it worked. They were required to develop their own EM by developing it, in a way which would bring it into compliance with the

guidance. Fundamentally the design risk sits with the preferred bidder, so it is up to them to ensure that their solution is compliant.

19. In terms of my own reviews at final tender stage, I would have been looking at the electrical distribution requirements and reading through their submissions, to consider whether the bidders had understood the BCRs and what the Board was looking for. For example, I would be thinking have they allowed space for services distribution and checking that against SHTMs for compliance. I would be looking at it practically and the buildability.

20. We would have followed a process for evaluation of the tenders. There would be certain categories to be assessed and we would provide a score and every other workstream would provide a score, which would be weighted and pulled together. An evaluation proforma was completed which formed part of the Appendices to the evaluation Manual. In particular this was sheet Proforma C8 on the Appendix D spreadsheet. Generally, in an NPD project, very little would be ascribed to mechanical and electrical engineering as part of the overall score. Clinical functionality is king. People are not really too interested as long as the building gets services. M&E is behind the scenes. The end users don't really think about M&E as it is not as important to them as other factors such as how the hospital looks, the lay outs, the interior design. That said, things like how hot or cold the room is or how bright or dark the lighting is can make a very big difference to patients and staff. It is normal though in this type of project that the weighting for M&E is not very high. I am told that the weighting was 1.06% which does not surprise me.

21. From my experience I have noted that the preferred bidder does not always have the highest overall M&E score, which is what I understand happened here. The winning bids tend to be those which are focussed on clinical functionality, and how the hospital looks. The bids which produce a clinically efficient hospital tend to win over those with the best servicing strategy. It just comes down to what is important to the staff and the patients who use the space. People tend to take building services for granted and they care more about how things look.

Preferred bidder to financial close

22. After their appointment as preferred bidder, Project Co had to develop their own design. One of the things they required to do as part of that was to develop their own EM. They produced a number of different drafts of the matrix. I was involved in undertaking reviews. Once again, my reviews would only have involved looking at the electrical side of things though, as the mechanical side would have been done by Colin. The electrical reviews would mainly have involved looking at the lighting.

23. I believe the Project Management Team would pass documents to Colin Macrae and to me for review. Our role would then be to undertake a sample review or spot check of the documents, to check for any areas of non-compliance with the BCRs. We were not engaged to undertake a line-by-line check, or audit of Project Co's design. That was not part of the services we were to undertake in the preferred bidder to financial close stage. It would not have been practical to do this in any event, as we would only ever have a limited time to turn the reviews around. Generally speaking, we would only ever have ten days to turn around each review. We would provide comments on any areas of concern to the project management team at Mott MacDonald, who would then feed them in to NHSL, and either the Mott MacDonald project management team or NHSL would then escalate any issues to Project Co if that was appropriate.

24. I do recall some examples of comments I raised on the EM. It would be things like highlighting that there should not be occupancy sensors for lighting control in the plant room, that there should be manual switch control, that kind of thing. We were not the designer for the project, and we had to take care not to make any suggestions or to provide any input which might lead us to become the designer of any aspect of the project by default. Our role was to provide technical advice to NHS Lothian. With the exception of operational functionality, the design risk for the project all sat in the private sector. This is the whole basis of the NPD structure, which is designed to transfer the risk allocation to the private sector.

25. The Inquiry has asked whether I am aware of anyone on the Board whose role was to give design advice to Project Co. IHSL were the designers and were responsible for undertaking their own design. As the design risk sat

with the private sector, specifically with IHSL, NHSL we would not have played any role in advising ProjectCo on their design. It was up to ProjectCo to ensure that they themselves complied with the BCRs. In my experience, it is possible for designers to have differing opinions on guidance as there is always more than one way of doing things. IHSL had the responsibility for ensuring that their design complied so it would not have been up to the board to advise them on this issue.

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

Signed

22 February 2023