



Blood and Transplant

Business Case Summary

Colindale HVAC Replacement Programme

<09 Sept 2022>

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Reviewed by:	Rob Bradburn	09 Sept 2022
Approved by:	Kevin Cartwright	09 Sept 2022
Central PMO Acknowledged:	Y	

Final Approval (Governing Board):	NHSBT Board	TBC
Business case value approved for spend by governing board:	£6,562,850	
Split by Funding Source:	£2,300,000 Capital	£4,262,850 Revenue
Full Lifetime Cost:	£6,562,850	

SRO:	Rob Bradburn
Accountable Executive:	Kevin Cartwright
Business Lead:	Kevin Cartwright
Programme /Project Manager:	Colin Halliday

Caring Expert Quality

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Section 1: Introduction

Introduction – why is this investment necessary

The Colindale Centre is in excess of 30 years old such that critical infrastructure now requires replacement. The purpose of this investment is to specifically replace the Heating, Ventilation and Air Conditioning (HVAC) system which is well beyond its recommended working life. There is an increasing risk of a complete HVAC failure that would impact all of the functions/services located at the site. The primary rationale for the investment is therefore **to ensure the business continuity of the critical services provided by the Colindale Site.**

In order to conduct the work access is required into the ceiling areas of the laboratories on the first and second floors. This implies that laboratories will need to be temporarily relocated, in turn, and according to a detailed schedule of works. A further and secondary objective of this programme is to use the opportunity to refurbish the laboratories while vacated, and partially reconfigure the floor spaces and workflow as agreed with the relevant laboratory services on site (Microbiology, RCI, H&I, Cord Blood and Tissues and Eye Services). In order to enable the relocation of laboratories, agreement has been reached to use laboratory space within the UKHSA located next door to NHBST at Colindale. In support, the existing canteen space on the second floor will also be relocated to the third floor. In addition to facilitating the work, and providing greater laboratory space on the second floor, this will also result in a larger and improved canteen space, something that has been requested by colleagues on site for a number of years.

The cost of the programme is estimated to be £6.6m with £2.0m of capital (for replacement of the HVAC equipment) and £4.6m of revenue to facilitate the temporary relocation, and refurbishment, of the laboratories, plus reconfiguration and relocation the canteen and Tissues.

In making this investment it is acknowledged that the impact of business strategies (specifically Blood, Plasma, RCI, HCI and Cord Blood) may impact the requirements on Colindale and ultimately its long term configuration, and potentially its overall viability. Any material change is very unlikely, however, to take place within the next 5 years. The investment to maintain business continuity for at least this period of time is necessary and the associated refurbishment of the laboratories and reconfiguration of the space delivers much needed improvement to the quality of the working conditions faced by colleagues on site.

In due course, and subject to further consideration regarding the longer term viability of the Colindale Site, further proposals will be brought for the ongoing refurbishment of the building (including, for example, replacement of the external cladding and window systems).

Introduction – associated improvements in working conditions



Existing canteen – kitchen area



Examples of laboratory conditions

Although the primary objective of the investment is to ensure the business continuity of the services at the Colindale Site, it will also result in a significant improvement to the working conditions.

- During hot weather temperatures reach very uncomfortable levels, especially in the meeting rooms and corridors. The new HVAC address this.
- Laboratory spaces are constrained with poor lighting and inefficient workflows. Electrical and data cabling comes from the ceiling together with any gases and water. This impacts the working area and creates health and safety concerns and a poor working environment. The unfettered access to the labs that we will have during their relocation will provide an opportunity to refurbish and correct these issues.
- The existing canteen space to support the current workforce is small and constrained. To facilitate the work it will be transferred to a larger space on the third floor.

Introduction – future working environment

The programme will create a fresh modern environment for teams based within Colindale, making it a great place to work.

In particular the laboratory spaces will be brought up to the standards seen elsewhere, for example in Colindale hospital services but especially in the labs spaces at other sites.



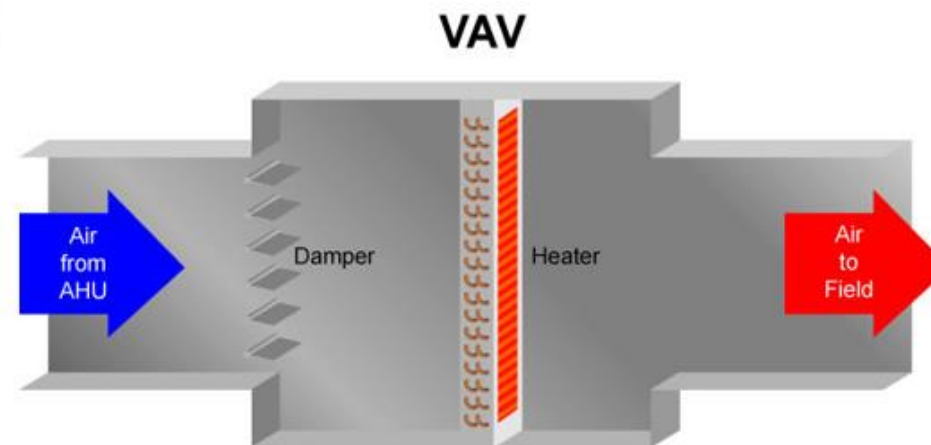
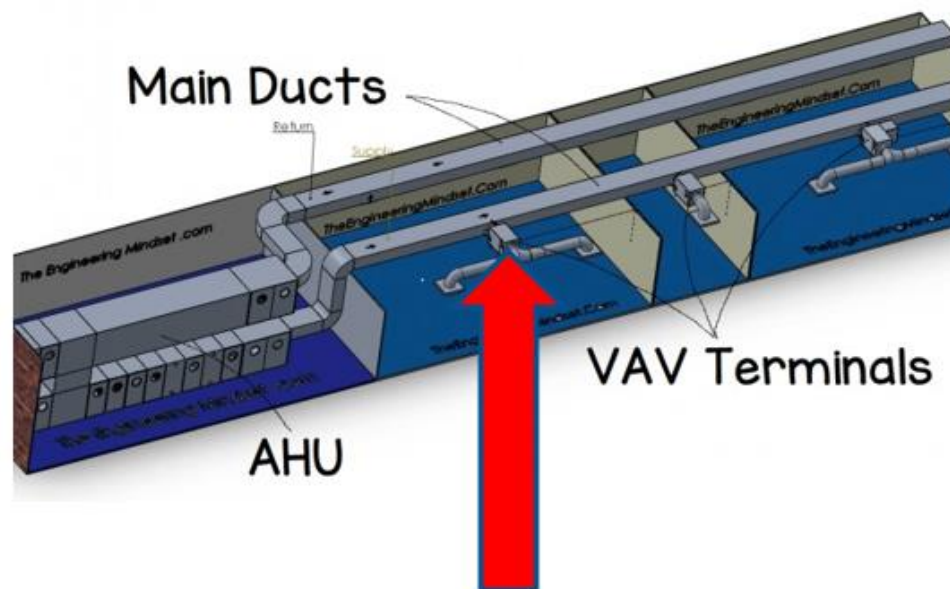
Laboratories at the Barnsley Site

What is an HVAC

HVAC stands for Heating, Ventilation, and Air Conditioning. HVAC refers to the different systems used for moving air between indoor and outdoor areas, along with heating and cooling.

The Variable Air Volume system (“VAV”), designed to maintain zonal temperature control, is failing due to changes made to the layout and usage of the building over many years of reconfiguration. This has included modifications to the system where the accumulation of additional holes in the ductwork has had adverse effects on the performance of the system.

In addition, dampers within the VAV boxes have been identified as being broken or seized in the wrong positions, and heater batteries and controllers have failed due to fatigue and erosion of the electrical terminals.





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Section 2: Strategic Case

Strategic Case

Strategic Context

- We expect to be operating in Colindale for at least the next 5 years and, probably for the much longer term.
- Some of the critical infrastructure is beyond normal working life. The most critical element is the HVAC system, the failure of which would severely impact all of the services provided by the Colindale Site.
- The primary objective of the proposed investment is to ensure the continuity of business services at Colindale.

Case for Change

- Continuity of critical services at Colindale.
- Replacement of the HVAC requires access to laboratories and their temporary relocation whilst the work is undertaken. The programme additionally proposes to take advantage of this access to deliver much needed refurbishment to the laboratory spaces on the first and second floors and to reconfigure the space used by certain functions.
- Facilitation of the work will be supported by relocation of the canteen from the second to the third floors. Again this will be used as an opportunity to deliver a new and larger canteen space for use by colleagues on site.

Modernise our operations to improve patient safety, resilience and efficiency

- The programme is required to support the resilience of the services provided by Colindale
- It will result in lower maintenance and energy costs, and also in the costs of temporary mobile A/C units that are brought in from time to time.
- The working environment will be much improved and support the quality and accuracy of work conducted in the laboratories.

Invest in people and culture to ensure a high performing inclusive organisation

- This will improve the working environment within laboratories and the general areas on the upper floors. During periods of hot weather, the temperature in the common areas/meeting rooms can be extremely uncomfortable.
- Refurbishment of the laboratories will result in a much improved and modern, brighter laboratory environment.
- A much-improved environment, together with better welfare facilities will support Colindale in being a 'great place to work'.
- The improved environment should support both the retention and recruitment of staff.



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Section 3: Economic Case

Economic Case

Approach

- The following options were developed and evaluated. At this stage the costs are estimated pending procurement.

Option 0: Do nothing (BAU)	Option 1: Do minimum	Option 2: Relocate	Option 3: Replace HVAC and Associated Works
<ul style="list-style-type: none"> Not recommended, doesn't resolve technical risks or enable us to achieve our objectives. HVAC replacement is critical to the Colindale site so not doing would create risk. 	<ul style="list-style-type: none"> This would involve trying to source spare parts to make the existing system work. We know that is virtually impossible to do given the system is in excess of 30 years old 	<ul style="list-style-type: none"> Our property advisors suggest a cost of £90-100M and rent of £3-4M per year It would take in excess of 5 years to achieve We would still need to do the HVAC works 	<ul style="list-style-type: none"> Replace the HVAC system (AHU 1 and 3), including new ceilings, lighting and electrics Modernise laboratory space – flooring, benching, walk-in cold room Relocate Tissue and Eye Services into a new facility Create decamp laboratory space by creating a new canteen
<p><i>These are not credible options technically or provide a solution that's fit for purpose to support our strategy</i></p>			<p><u>Recommendation</u></p>

Preferred Option

- Replace the HVAC and use the opportunity to deliver associated works (lighting, flooring, and electrics) and refurbish the laboratory spaces.
- As part of this, move Tissue and Eye Services to a more appropriate space and hence free space on the 1st floor for other services.
- Relocate the canteen to facilitate the works (create decamp laboratory space) and create a new, larger facility on the third floor.
- To be delivered over 1-2 years.

Options Appraisal

Costs and benefits shown are estimates, subject to tender, and will be updated in the FBC

	0- Do nothing – continue as today	Option 1: Do minimum	Option 2:Relocate	Option 3: HVAC replacement and associated works	
1 Scope	0.1 As-is Continue trying to fix the existing system	1.1 Try to source spare parts for existing system as and when it fails	2.1 Relocate the Colindale Centre to within M25 area or alongside M1 (Herts/Beds) 2.2 to note this option does not preclude replacement of HVAC	3.1 Replace HVAC system (AHU 1 and 3) including new ceilings, lighting and electrics Replace benching Relocate Tissue and Eye Services into a new facility within the garage Create a walk-in fridge facility	
2 Solution	0.2 Keep asking our on-site engineers to respond to TABS requests	1.2 Liaise with maintenance provider to see if this is even possible (doubtful given age of system)	2.2 Engage our property experts to find alternative accommodation but to note this would be in excess of 5 years and would still require HVAC replacement	3.2 Go out to market to tender. Evaluate for best value. Award contract and deliver above option	
3 Delivery	0.3 Not applicable	1.3 Would be by maintenance and third party suppliers	2.3 Programme Team and stakeholders from right across the business	3.3 Delivery Team consisting of NHSBT Stakeholders, Programme Team and Supplier Relocate some teams to UKHSA for the short duration of the work	
4 Implementation	0.4 Not applicable	1.4 As needed	2.4 Estimated to be in excess of 5 years for alternative property solution but within 1 year to replace HVAC	4.4 Estimated works between 12months and 2 years	
5 Costs (est)	0.5 Time and material costs. IF we can get, parts estimates are £100K per year.	1.5 Time and material costs. IF we can get, parts estimates are £100K per year.	2.5.1 At least 5 years £90 - £100M plus HVAC costs £2.5M (basics)	2.5.2 £4 - £5M per year rental costs	5.5.1 Programme £6.6M
6 Benefit	○	○	◐	●	
7 Value for Money (VfM) assessment	0.7 Not viable	1.7	2.7	3.7 Solution that meets needs	

Economic Case - Recommended

- Options 0: As is (do nothing) and 1: Do minimal
Do not meet critical success factors and are not sustainable options.
- Option 2: Relocation is not cost-effective. Estimates over £90M, lack of defined service strategies and a mobilisation period of over ten years mean the investment is still required now.
- Option 3: HVAC Replacement and associated works provides the best opportunity to ensure business continuity, whilst taking the opportunity of gaining access to laboratory spaces to provide laboratories that are fit for the future:
 - Benefits in staffing engagement and Centre moral
 - Supports ongoing business continuity efforts; less likely to fail
 - Reduction of maintenance costs; less likely to fail, faster recovery
 - Increases capacity through updated re-configuration and workflow

Recommended Option 3: Replace HVAC and associated works	
Scope, main deliverables, timescales	<ul style="list-style-type: none"> Procurement and implementation of a major upgrade to the Colindale site. Provision of replacement HVAC and associated works (lighting, flooring, and electrics) New canteen facility with upgraded welfare facilities. Move of Tissue and Eye Services to give them a more appropriate facility and thus free space on 1st floor Walk in refrigerator To be delivered over 1-2 years.
Benefits	
Staffing Engagement	Investment in Colindale, modernisation of the centre and the creation of a new Canteen space will increase moral of teams based within the Colindale Centre
Business Stability	While business continuity planning will still be required, modernisation of the Colindale will mean less likelihood of failure
Reduction of Maintenance	New HVAC, and modernisation will mean a less likely hood of failure and a quicker recovery if items do need repair. Hired cooling units would no longer be required also further reducing existing maintenance costs
Increase of capacity	Re-configuration with better workflows and utilisation of space will allow for increased laboratory capacity
Costs	
Estimated	£6.6M including Optimism bias and Contingency
Risks	
See " Management Case - Key Risk Summary "	



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Section 4: Commercial Case

Commercial Case

- The size of the Programme is too large for the minor works facility that is provided by our Mitie contract, but too small for the P21 framework (that, for example, was used for the Barnsley Centre).
- The programme will therefore be subject to a separate tendering process covering the following work packages:
 - AHU3 Replacement, Canteen Relocation, Second-floor laboratory creation
 - Tissue & Eye Relocation
 - HVAC Replacement, AHU 1 Replacement, Electrical Works, Ceiling, Lighting and Flooring
- The tenders will follow our standard NHSBT processes used for construction works.
- In order to facilitate the access to, and temporary relocation of laboratories, additional external laboratory space is required. During the early stages of the programme it was assumed that this would be achieved through bringing portable units onto site at a cost well in excess of £1m. The Colindale Head of Centre has however, negotiated with the UKHSA (that neighbours the Colindale Centre) use of laboratory space within their facility at a cost of £300k.
- Further details will be provided and this section will be updated accordingly during the FBC stage



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Section 5: Financial Case

Financial Case

Funding the Preferred Option

The total programme is forecast to cost £6.6M, over 3 years, but with the bulk of the spend falling, in 2023/24.

- The capital element is forecast to be £2.3m and can be funded from (and prioritised within) NHSBT's capital programme.
- The revenue element is forecast to be £4.3m. This will be funded from (and prioritised within) the Blood/Group transformation programme. The item has been previously recognised as a pipeline programme our planning processes but is at a higher level than initially forecast due to the recent inflation of building costs.

The overall cost includes an optimism bias of £280K and £793K for contingency based on material fluctuation and labour in current market conditions. The estimates already take account of the recent significant increases in construction costs but the environment remains extremely volatile.

What is the funding being requested for the next stage?

At this stage the programme is requesting approval of £200k of revenue funding to build cost estimates to RIBA stage 4 standard, and approval of programme costs estimated within this OBC

Financial Case – Budget & Funding Model

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Early indicative cost profile. to be updated in the FBC

Cost type	Cost Description	Total Spend	22/23	23/24	24/25
Investment	Capital Programme	£ 2,300,000.00		£ 1,299,500.00	£1,000,500.00
	Revenue Programme	£ 4,262,850.00	£ 200,000.00	£ 3,055,550.00	£1,007,300.00
Estimated Total Programme Cost		£ 6,562,850.00	£ 200,000.00	£ 4,355,050.00	£2,007,800.00
Capital Costs	AHU 1 Replacement*	£ 1,400,000.00		£ 840,000.00	£ 560,000.00
	AHU 3 Replacement*	£ 150,000.00		£ 90,000.00	£ 60,000.00
	Walk in Cold Room	£ 150,000.00			£ 150,000.00
	Fixed Benching	£ 50,000.00			£ 50,000.00
	IT infrastructure	£ 250,000.00		£ 200,000.00	£ 50,000.00
	Sub-Total Capital Costs	£ 2,000,000.00	£ -	£ 1,130,000.00	£ 870,000.00
	15% Contingency	£ 300,000.00		£ 169,500.00	£ 130,500.00
Estimated Total Capital Programme Cost		£ 2,300,000.00	£ -	£ 1,299,500.00	£1,000,500.00
Revenue Costs	RIBA Stage 4*	£ 200,000.00	£ 200,000.00		
	Canteen Relocation*	£ 600,000.00		£ 600,000.00	
	Tissue & Eye Relocation	£ 560,000.00		£ 560,000.00	
	Electrical Works*	£ 520,000.00		£ 312,000.00	£ 208,000.00
	Lighting Works*	£ 210,000.00		£ 126,000.00	£ 84,000.00
	Ceiling Works*	£ 85,000.00		£ 51,000.00	£ 34,000.00
	Flooring Works	£ 200,000.00		£ 120,000.00	£ 80,000.00
	UKHSA Rental Costs*	£ 300,000.00		£ 240,000.00	£ 60,000.00
	Canteen Furnishings*	£ 50,000.00		£ 50,000.00	
	Relocation Costs, Equipment recalibration costs	£ 480,000.00		£ 240,000.00	£ 240,000.00
	UKHSA DDTS IT support Costs	£ 100,000.00		£ 80,000.00	£ 20,000.00
	Programme Management Resource	£ 184,000.00		£ 92,000.00	£ 92,000.00
	Sub-Total Revenue Costs	£ 3,489,000.00	£ 200,000.00	£ 2,471,000.00	£ 818,000.00
	15% Contingency	£ 493,350.00		£ 370,650.00	£ 122,700.00
10% Optimism Bias	£ 280,500.00		£ 213,900.00	£ 66,600.00	
Estimated Total Revenue Programme Cost		£ 4,262,850.00	£ 200,000.00	£ 3,055,550.00	£1,007,300.00

Financial Case – Included in our costs

Top-level understanding of Programme Costs.

Not included in this programme	
Ground floor reconfiguration	
Third floor reconfiguration	
Windows	
Cladding	
Flood Defence	

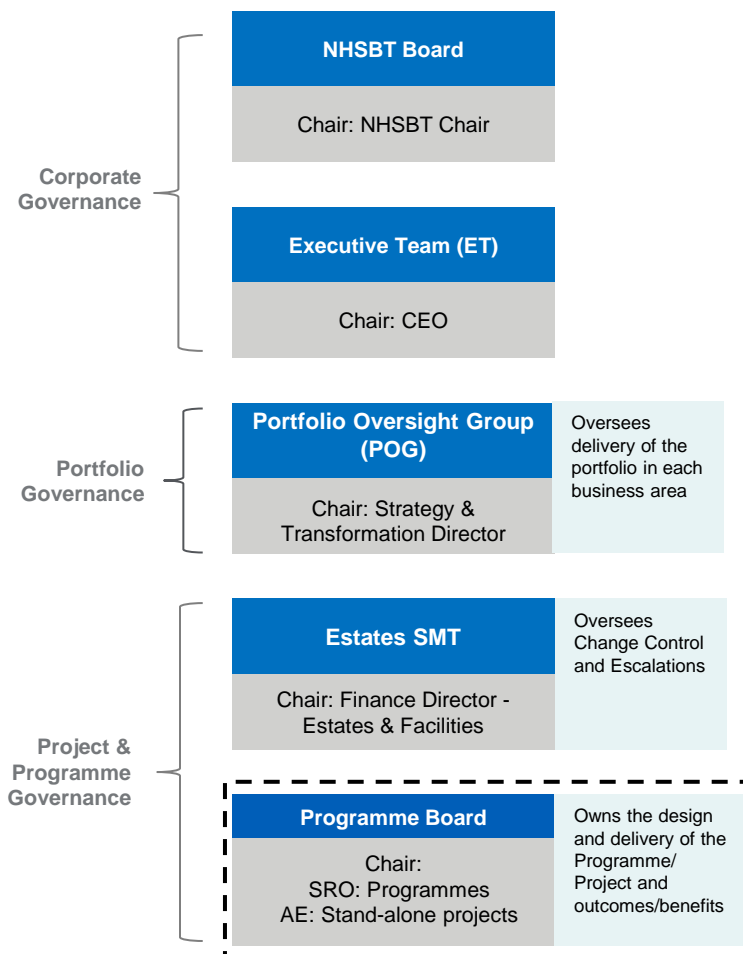


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Section 6: Management Case

Management Case - Governance and Assurance

Governance Hierarchy



Programme/Project Governance Structure

Programme Board (Twice Monthly)		
Inputs	<ul style="list-style-type: none"> Programme Board Pack Briefing papers as required 	
Outputs	<ul style="list-style-type: none"> Actions, decisions and escalations 	
Attendees	Programme Role	Name(s):
	Chair: SRO	Rob Bradburn
	Accountable Executive (if applicable)	Kevin Cartwright
	Programme Manager (as required)	<Insert text>
	Senior Project managers	Colin Halliday
	Suppliers (as required)	Glen Ashby
	Programme SMEs (as required)	Ian Freestone Stephen Thomas Laura Hontoria Del Hoyo Mark Williams
	Quality/Regulatory Change Control	Dapo Odumeru

Programme/Project Assurance

- The Programme will be monitored daily. Issues, risks or decisions will be elevated, as identified, for discussion at scheduled programme board meetings (scheduled twice a month). If the issue, risk or required decision is urgent the board can meet or it can be addressed offline.
- Highlight reports will be done monthly in line with current processes and will be reviewed by Central PMO, POG and Estates SMT
- Escalations that required a higher authority than the programme board will first be raised at the Estates SMT for resolution, or mitigation with oversight given to POG, and Corporate Governance teams

Approach

This OBC provides an estimate of the programme costs and will become more accurate as we progress through the FBC phase. Approval to proceed is sought and move through to the FBC.

Next steps

- 1
 - Finalise specification to RIBA Stage 4
 - Produce tender documents ready to go to market and calculate pre-tender estimates
 - Work with UKHSA to secure and configure space
 - Establish Programme and Project Teams
 - Work with the teams to develop a plan for relocating to UKHSA and decamp teams to other locations within the Colindale Centre

Sept 2022

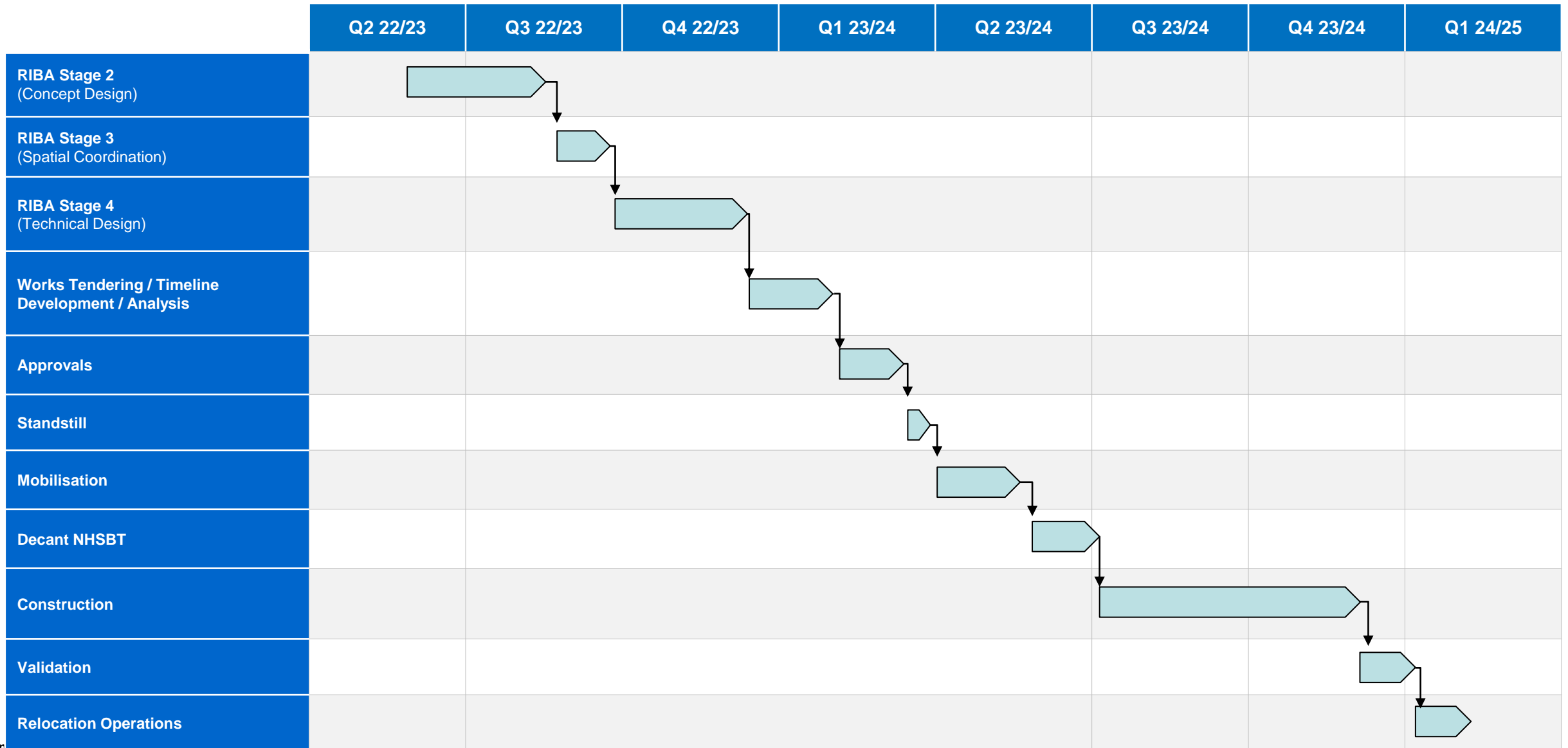
- 2
 - Detailed review of estimated costs
 - Confirm the detailed scope for the programme
 - Produce an implementation plan
 - Confirm funding required FY23/24 FY24/25 and further visibility of any future year investment requirements

FBC (Q4 '22/23)

- 3
 - Tenders evaluated and final costs ascertained.*
 - Transition plans firmed up, and programme timeline confirmed.*
 - Approval of FBC by NHSBT Board.*



High-Level Programme Plan (Estimated)



Management Case – Delivery Assurance

- All departments affected by this programme, and their programme board representatives support the proposals outlined
- Visibility of this programme continues to be evangelised to ensure ongoing support from teams based at Colindale

Programme Board

SRO
Rob Bradburn

AE
Kevin Cartwright

Quality
Dapo Odumeru

Clinical Services
Laura Hontoria Del Hoyo

Comms.
Angela Collett

Estates & Facilities
Ian Freestone

National Construction
Glen Ashby

MSL
Stephen Thomas

RCI
Mark Williams

Programme Management
Colin Halliday

Programme Visibility

Colindale Centre CPC (x1 Monthly)

Programme Board Meeting (x1 Monthly)

Project SME Support

RCI
Katie Cockayne

H&I
Gary Hatfield

MSL
Pravesh Dhanilall

H&I
Colin Brown

Management Case - Key Risk Summary

Risk	RAG	Risk Description	Risk Effect	Risk Mitigation
1	Risk	Increased Cost	<p>Costs, at the time this document was created, are estimates only and are based on:</p> <ul style="list-style-type: none"> RIBA Stage 2 design (RIBA Stage 4 is required). These impact the quality of estimates provided from <ul style="list-style-type: none"> Construction Teams DDTS/IT Infrastructure Teams That no Portakabin rentals are required That UKHSA can house decamped teams That services required can be adequately supported by proposed UKHSA relocation and moving works to other centres during the works period Cost of Materials as we know them to be today 	<ul style="list-style-type: none"> Approval of the £200K being requested now will allow for the programme to complete RIBA Stage 4 designs and allow for IT Infrastructure teams to complete required surveys needed to provide more accurate and details costs. Contingency in the programme has been calculated to mitigate the cost of materials rising; however, longer approvals to start the programme will stress the mitigation that has been put in place.
2	Risk	Scope	<ul style="list-style-type: none"> Based on final designs for 1st and 2nd floors laboratory requirements may change depending on the final design. 	<ul style="list-style-type: none"> Approval of the £200K being requested now will allow for the programme to complete RIBA Stage 4 designs and allow for IT Infrastructure teams to complete required surveys needed to provide more accurate and details costs.
3	Risk	Time	<ul style="list-style-type: none"> Timeline estimations have been made before the design and tender processes, meaning that final timelines may take longer overall. Delivery timeline of equipment 	<ul style="list-style-type: none"> Timelines will be revisited once designs have been completed and the works tendered. Based on supplier proposals and the selection made firmer timelines will be agreed. With the sequencing of work, the equipment could be ordered in advance of need.
4	Risk	Impact on Services	<ul style="list-style-type: none"> Sections and workstreams within the programme may take longer which could impact services 	<ul style="list-style-type: none"> We will continue to monitor as we move into FBC stages. Once timelines have been agreed upon, we will track within programme governance and reporting.
5	Risk	Resource	<ul style="list-style-type: none"> We have assumed that there is no requirement for full-time additional resource QA, RCI, H&I and MSL in support of this programme 	<ul style="list-style-type: none"> We will track within programme governance and reporting.
6	Risk	Operational Changes	<ul style="list-style-type: none"> Changes in key stakeholders, such as SRO, as well as to be defined service strategies may impact timeline strategic outcomes. 	<ul style="list-style-type: none"> We will track within programme governance and reporting.
7	Risk	Communication	<ul style="list-style-type: none"> Perception of underinvestment in Hospital Services, Manufacturing and other areas within NHSBT 	<ul style="list-style-type: none"> Leadership to development communication and narrative for Colindale over the next 5 years

Management Case - Assumptions Summary

Assumptions

During the development of this business case the programme team have had to make some top-level assumptions which have been documented below. As a team, we will work to validate as we progress into RIBA Stage 4, where we are able to collect defined user requirements and acceptance criteria

Known Assumptions

- Significant Business Risk to RCI, H&I, and/or MSL business operations
- Nominated MSL resource would be required to support the programme; while a specific % of the time cannot be defined at this stage, we predict that a high level of utilisation would be required from this resource during RIBIA, Validation, and Relocation stages
- New laboratory space being established on the 2nd floor is being designed for RCI and HCI needs
- Temporary Laboratory space does not include space for PCR, or R&D. This has been discussed with MSL teams and agreed that works carried out in these areas can be accommodated within the temporary space or work paused during the temporary period, until works have been completed.
- DDTS teams will be temporarily moved to the Customer Services area. Once IT has defined their user/employee requirements estates will work to define a permanent space within the centre.

Not included in this programme

- Ground floor reconfiguration
- Third-floor reconfiguration
- Window replacement
- Cladding replacement
- Flood Defence