Committees: Buildings Chief Officer Group – for Decision. CAS Senior Responsible Officer – for Decision. Resource Allocation Sub (Policy and Resources) Committee – for information. Projects and Procurement Sub Committee – for information.	**Dates:** Jan 2024 Jan 2024 11 March 2024 15 April 2024
Subject: Climate Action Strategy (CAS) – Capital Delivery Programme for Operational Buildings: Walbrook Wharf Carbon Reduction Measures. **Unique Project Identifier:** 12419	**Gateway 3/4/5: Options Appraisal and Authority to Start Work (Regular)**
Report of: City Surveyor **Report Author:** Adam Fjaerem	**For Information**
PUBLIC	

1. Status update	**Project Description:** This paper is for a single project to deliver four Energy Conservation Measures (ECM) at Walbrook Wharf Phase 2 Building (the main office space, not the depot (Phase 3) or the depot's offices (Phase 1)) to reduce energy consumption, costs and carbon emissions. **RAG Status:** Green **Risk Status:** Medium **Total Estimated Cost of Project (excluding risk): £169,378** **Change in Total Estimated Cost of Project (excluding risk): £92,599** increase on previous estimate due inflationary increases, increased overheads and a greater share of prelims costs due to a reduced scope as other measures are still being developed. The total estimate cost (including risk) is within the previously allocated combined funding, as set out in the Funding Strategy of the Options Appraisal Matrix (see below). **Spend to Date: £0** **Costed Risk Provision Utilised: £0 (of which £0 amount has been drawn down since the last report to Committee);** **Funding Source:** CAS Year 3 Plan budget. **Slippage:** The Gateway 2 paper set out a completion date of March 2025 and a gateway 2 program completion by September 2023. The

	delayed and extended timeframe for this single project is to allow the development of the proposal from our existing energy performance contractor and to minimise site disruption.
2. Next steps and requested decisions	**Next Gateway:** Gateway 6: Outcome Report **Next Steps:** • Establish Project Team, to be managed by City Surveyor's Minor Projects Team. • Instruct works contract for Vital Energi. • Detailed design to be undertaken by Vital Energi and approved by CoL. • Vital Energi to raise supply orders. • Commence installation. **Requested Decisions:** 1. That **Option 2** is approved for the delivery of a project to deliver four ECM. These works relate to the same site and their inclusion in a single project will provide a cost-effective approach and ensure good alignment of the works under a single main contractor. 2. Note the total estimated cost of the project at **£169,378** (excluding risk); 3. Approve a budget of **£150,558** for the capital works to reach the next Gateway; 4. Approve a budget of **£18,820** for the fees, which include project management support and building control, to reach the next Gateway; 5. Approve a Costed Risk Provision of **£24,394** (to be drawn down via delegation to Chief Officer in consultation with the Chamberlain as a post mitigation cost to solve the highlighted risk. This will be funded from CAS funds if required); 6. Enter into a new works agreement with Vital Energi to undertake the works as Principal Contractor and Principal Designer, in accordance with the terms of their existing contract with CoL to deliver services under the National Framework Agreement for Energy Performance Contracting; 7. Procure the project management support services required to reach the next gateway.
3. Budget	The following sets out the budget for the recommended option 2. Total estimated cost of the project, including risk: **£193,772** (including a costed risk budget of **£24,394**). Spend to date of £0. In accordance with the 'Climate Action Strategy (CAS) – Capital Delivery Programme for Operational Buildings' (see background

documents) “In the case of centrally funded sites, financial savings that are made will accrue back to the City Corporation as a contribution to the Build Back Better Fund held in City Fund or City’s Cash as appropriate. Therefore, departmental local risk budgets will be adjusted accordingly.”

The funding arrangement is presented in the Options Appraisal Matrix under option 2. The budget requested for option 2 to reach the next gateway is set out below.

Item	Reason	Funds/ Source of Funding	Cost (£)
Works: Insulation to pipework	Main works	CAS Year 3 Plan budget. (this paper, GW5 approved budget drawdown)	£3,488
Works: Pumps and valve replacement	Main works		£59,119
Works: EC Fan Replacement	Main works		£78,980
Works: BEMS Optimisation	Main works		£8,971
Fees: Consultancy services to support project delivery.	Project delivery resources		£15,056
Fees: Asbestos R&D surveys	Compliance		£1,000
Fees: Building Control	Compliance	CAS Year 3 Plan budget (GW2 approved budget drawdown)	£1,382
Fees: Permission and compliance	Compliance		£1,382
Total			**£169,378**
From CWP			**£50,000[1]**
From CAS GW5 budget (approved by this paper)			**£116,614**
From CAS GW2 project development budget			**£2,764**

Costed Risk Provision requested for this Gateway: £24,394 (as detailed in the Risk Register – Appendix 2) to cover any variations which may be required following detailed design, cost uplift from inflation, additional project management costs and making good.

[1] Cyclical Works Programme has a project to replace pumps in the building in 2024/25. This funding has been transferred to this project to contribute to ECM3 – Pump replacement.

4. Overview of project options	**Option 1 (not recommended). Cancel the project.** Do not proceed with the project covered by this paper to install four ECMs at Walbrook Wharf, Phase 2. This is not recommended as it will not support the City of London's goals for reducing carbon emissions and energy costs. **Option 2 (recommended): Proceed with the project to install the ECM measures.** The scope of this project is to install the four distinct ECM. No alternative technical options have been identified to those which are proposed here under option 2.
5. Recommended option	Option 2, to proceed with this project to install four ECM. Combining these four ECM into one project at the same site will provide a more cost-effective approach and ensure good alignment of the works under a single main contractor. These measures will provide significant energy cost and carbon emission savings and can be met within the existing provisionally approved funding. This option provides an estimated saving of c.£12,236 per annum in electricity and gas costs which will support the City Corporations Build Back Better Fund. The simple payback for this project is 11.8 years (including risk). The option provides an estimated annual saving of 10.8 tCO_2e (based on projected 2027 electricity carbon factors), equating to an 8% reduction in the sites carbon emissions, which will support the City Corporation to meet its net zero carbon by 2027 target as set out in the CAS.
6. Risk	**Service interruption**. The project to install these ECM will be completed whilst the building is operational and although plant will need to be turned off this should not adversely impact the building's tenants. Nighttime and weekend work will be utilised if required to complete the works when least disruptive to tenants. **Health and safety**: all works within the demise will require careful management in line with City of London policies. Further information available in the Risk Register (Appendix 2) and options appraisal matrix. **Costed Risk Provision requested for this Gateway: £24,394** (as detailed in the Risk Register – Appendix 2) to cover any variations which may be required following detailed design, additional project management costs and making good.
7. Procurement approach	City of London have an existing Call-off-Contract with Vital Energi under GLA's Re:fit framework, for which Vital Energi (the Service Provider) will provide a range of services including High Level

	Assessments, Investment Grade Proposals and Works Contracts to carry out Energy Efficiency Measures under an Energy Performance Guarantee. Vital Energy have undertaken numerous surveys of Walbrook Wharf and issued CoL with an Investment Grade Proposal (IGP) in accordance with their contract. The IGP sets out the firm costs, guaranteed savings and Measurement and Verification (M&V) plan for the works. The project works set out in this paper are to be carried out through entering into a new works agreement with Vital Energi, under the Call-off-Contract. Vital Energi will undertake the design and construction of the works and undertake the duties of Principal Contractor and Principal Designer. Following project completion, Vital Energi will undertake a M&V exercise, in accordance with an agreed method and best practice industry standards, to evidence the achieved savings.
8. Design summary	The final design shall be undertaken by Vital Energi as part of their works agreement and issued to CoL for approval. The following summarises the design as set out in Vital Energi's Investment Grade Proposal (IGP) which has been informed through on-site surveys with their design team and sub-contractors. <u>Pipework insulation</u> This ECM involves the installation of insulation onto exposed valves, flanges, pipework and heat exchangers. The need for this insulation has been identified via site surveys with temperatures loses noted through using thermal imaging cameras. Where existing insulation is missing or damaged this will be replaced with new insulation with the old material suitably disposed of. <u>EC Fan replacement</u> This ECM involves the replacement of belt driven AC fan motors in Air Handling Units (AHU) with Electrically Commutated (EC) driven fans. These EC fans will provide energy saving from improved energy efficiency, reduction in belt losses and reduced noise level. EC fans can be fitted to both direct on-line starting AHU and those with inverters and will work with the existing BMS controls. Thirteen motors will be installed in nine AHUs, any holes in the external covers (as a result of the old motor being removed) will be covered with bespoke plates to ensure that AHU retains air tightness. <u>Pumps and Valves replacement</u> Replacing the 3-port valve on each AHU with a 2-port valve and replacing the existing heating pumps with an inverter driven pump. New flow and return temperature sensors will monitor the

	temperature going to the heat emitter and lower the speed of the pumps saving energy. This ECM will reduce energy consumption with the existing heating system but will increase energy savings with any future heat pump solution as this will have allowed for lower flow and return temperatures. <u>BMS Optimisation</u> This ECM involves the optimisation of the BMS to better match the occupancy of the building and more closely control the temperatures of the spaces. It includes an assessment of the BMS hardware, sensors and controllers and will involve the replacement of any obsolete or failing equipment with the most suitable, latest models. Savings in the BMS are likely to cover operating times more closely reflecting tenants working hours, nighttime setbacks being introduced, set points being checked and the control strategies being interrogated to ensure that the control loops are fine tuned. Energy savings will be realised through reduced gas consumption in the existing boilers and through reduced operations of fans, pumps and motors reducing electricity consumption.
9. Delivery team	The project will be led by the Minor Works Projects Team, City Surveyor's. The project management consultancy support set out in this paper will be resourced separately by the Minor Works Team.
10. Success criteria	1. Completed by May 2024. 2. Completed within budget. 3. Verified energy cost savings of £12,236 per annum. 4. Verified carbon savings of 10.8 tCO_2e per annum based on projected 2027 carbon costs.
11. Progress reporting	Project Vision progress reports with any required decisions coming back as an Issue Report.

Appendices

Appendix 1	Project Coversheet
Appendix 2	Risk Register

Background documents

Background Paper. GW2 CAS Capital Delivery Programme

Contact

Report Author	Adam Fjaerem
Email Address	Adam.Fjaerem@cityoflondon.gov.uk

Telephone Number	07871 107 902

Options Appraisal Matrix – in scope Phase 2 Building, out of scope Phase 1 & 3 buildings

Option Summary	Option 1	Option 2
1. Brief description of option	**Option 1. Cancel the project.** Do not proceed with the project to deliver four Energy Conservations Measures (ECM) at the building.	**Option 2**. **Proceed with the project to deliver four Energy Conservation Measures (ECM).** The scope of this option encompasses pipework insulation, EC Fan replacement, Pumps and Valve replacement and BMS optimisation.
2. Scope and exclusions	N/A	Scope: • Pipework insulation within Phase 2 building at Walbrook Wharf. • EC Fan replacement at Phase 2 building at Walbrook Wharf. • Pump and valve replacement at Phase 2 building at Walbrook Wharf. • BEMS optimisation at Phase 2 building at Walbrook Wharf.
Project Planning		
3. Programme and key dates	N/A	Jan 24: GW3-5 approval, Feb 24: Instruct works agreement with Vital Energi, Mar 24: Contractor mobilisation, supply orders raised, Mar 24: Commence installation, May 24: Complete installation, Mar 25: Gateway 6.

<table>
<tr><th>Option Summary</th><th>Option 1</th><th>Option 2</th></tr>
<tr><td>4. Risk implications</td><td>Low</td><td>Low

Further information available within the Risk Register (Appendix 2).

Service interruption. The insulation to the pipework project can be completed whilst the boilers are operating however, it would be preferable to do this after a period of them being off to avoid operative’s discomfort. This installation will be coordinated with the Building Manager to avoid any negative impacts for tenant’s comfort.

For the EC fans, pumps and valves replacement the individual plant will need to be turned off during the replacement. The amount of down time will be minimised and co-ordinated with the Building Manager.

The BMS works will mainly be remote desk based unless hardware requires swapping out. Any replacement works will be arranged with the Building Manager to reduce plant shut-down time.

Health and safety: No hot works will be required with operatives using cold cutting equipment, all electrical and related works will require careful management in line with City of London policies.</td></tr>
<tr><td>5. Stakeholders and consultees</td><td>N/A</td><td>
<table>
<tr><td>1. Corporate Property</td><td>Peter Collinson, Paul Friend, Peter Young, Dorian Price, Robert Murphy, Matt Baker, Jonathan Cooper, Darren Horrigan, Grayham Howarth, Ian Hughes, Peter Ochser, Luca Pagliaroli, Andrew Coke, Samantha Williams, Stuart Wright, Michaela Dhas, Graeme Low, Mark Donaldson, Edmund Tran,</td></tr>
<tr><td>2. IT</td><td>N/A</td></tr>
<tr><td>3. Chamberlains</td><td>John James, Andrew Little, Sarah Baker</td></tr>
<tr><td>4. Procurement</td><td>Jemma Borland</td></tr>
</table>
</td></tr>
</table>

Option Summary	Option 1	Option 2
		5. Site users/clients: Alan Dingley, Building Tenants
6. Benefits of option	No funding required.	Cost savings est. of c.£12,236/yr. These savings are guaranteed under the energy performance contract with Vital Energi. A Measurement and Verification (M&V) exercise will be undertaken six months after installation to verify the actual projects savings which will be evidenced through the metered electricity and gas consumption. Carbon emission savings of 10.8 tCO_2e/yr. The new fans, pumps and valves will come with lower maintenance failures and associated costs. The pipe insulation will lower the temperatures in the plant room to make for better working conditions.
7. Disbenefits of option	Higher ongoing energy and maintenance costs	Capital cost. Staff management and resource implications.
Resource Implications		
8. Total estimated cost	N/A	Total estimated cost (excluding risk): **£169,378** Highly confident in the cost at this stage. Total estimated cost: (including risk): **£193,772**
9. Funding strategy	N/A	The total estimated cost (including risk) of **£193,772** shall be met through the following funding sources: **£50,000 from CWP** **£143,772 from City Fund**. This funding was previously provisionally approved by CAS as set out in the Gateway 2 issue report approved in December 2022.

Option Summary	Option 1	Option 2
10. Investment appraisal	N/A.	A simple payback for the whole project has been estimated of 11.8 years based on estimated cost savings of c.£12,236/yr. (based on current energy prices). The energy savings are an estimate based on assumptions of the existing system and proposed system. These estimations will be verified post-completion.
11. Estimated capital value/return	N/A	Estimated cost savings of c.£12,236/yr and simple payback of 11.8 years. Moderately confident (+/-15%). The savings estimate will be refined as the project is developed to final design and verified after completion.
12. Ongoing revenue implications	N/A	There will be a reduction in maintenance costs as the ECMs come with an increased life expectancy against the existing and the works to the fans and pumps will reduce the operating hours of the plant and reduce future maintenance.
13. Affordability	N/A	The cost for this option can be accommodated within funding allocations already approved in principle, as set out in item 9 above.
14. Legal implications	N/A	None.

Option Summary	Option 1	Option 2
15. Corporate property implications	Does not align with the Corporate Property Asset Management Strategy 2020-2025	• This project aligns with the Corporate Property Asset Management Strategy 2020-2025 in reducing energy costs and carbon emissions. • Works require careful planning, consultation and coordination to minimise the disruption and impacts to building services and site users. • Works require coordination with other site works/projects and activities/events. • Security considerations for contractor access to certain areas. • Maintenance contracts and registers need to be updated to account for the changes to the building services and systems. • Good commissioning and hand-over process required to ensure the upgraded plant and equipment is working satisfactorily.
16. Traffic implications	N/A	None.
17. Sustainability and energy implications	Cancelling the project would be a missed opportunity for reducing energy and carbon emissions for this building and does not support the City of London's net zero carbon targets.	This project supports the City of London's net zero carbon targets as set out in the Climate Action Strategy.
18. IT implications	N/A	None
19. Equality Impact Assessment	N/A	None.

Option Summary	Option 1	Option 2
20. Data Protection Impact Assessment	N/A	N/A
21. Recommendation	Not recommended	**Recommended**