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Committees: Corporate Projects Board - for decision Barbican Board – for decision Projects Sub - for decision	**Dates:** 06 May 2020 20 May 2020 27 May 2020
Subject: Barbican Art Gallery Chiller Replacement **Unique Project Identifier:** PV ID 12216.	**Gateway 2:** **Project Proposal** Regular
Report of: Managing Director, Barbican Centre **Report Author:** Cornell Farrell (Head of Engineering and Projects)	**For Decision**
PUBLIC	

Recommendations

1. Next steps and requested decisions	**Project Description:** To remove exisiting, failing art gallery chiller and replace with a new chiller to ensure critical environmental conditions are maintained. **Next Gateway:** Gateway 3/4 - Options Appraisal (Regular) **Next Steps:** Tender for an M&E (design) consultant Undertake feasibility study, determine possible options and complete initial design stage and costings for each option. Undertake an asbestos RnD survey (only if required for feasibility study) Undertake any asbestos removal (only if required for feasibility study – this is a CRP request only) Consult with CoL Energy Team Complete options appraisal and prepare G3/4.

<table>
<tr><td></td><td>Requested Decisions:
See appendix Non-Public for financial information</td></tr>
<tr><td>2. Resource requirements to reach next Gateway</td><td>
<table>
<tr><th>Item</th><th>Reason</th><th>Funds/ Source of Funding</th><th>Cost (£)</th></tr>
<tr><td colspan="4">See appendix Non-Public for financial information</td></tr>
<tr><td>Total</td><td></td><td></td><td></td></tr>
</table>
Costed Risk Provision requested for this Gateway: See appendix Non-Public for financial information
</td></tr>
<tr><td>3. Governance arrangements</td><td>

Barbican Board is the Service Committee responsible
Jonathon Poyner, Director of Operations and Buildings is the Senior Responsible Officer
A project Board is not required because this is a “Regular” project with limited foreseeable risks. There are limited stakeholders (Barbican art gallery team, Barbican Management and CoL Energy team) and there are unlikely to be any major issues to be considered outside the governance of the CPB and PS committee

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Project Summary

4. Context	1 The Barbican art gallery exhibits art works, often of great artistic significance reaching audiences from around the world. 2 A steady temperature and stable humidity levels are critical to the preservation of the artworks and reduces the risk of damage. 3 The chiller is the essential plant that generates chilled water to generate the cool temperature and equally importantly ensures the relative humidity levels are kept within set parameters. 4 The chiller is no longer able to provide the required temperature and humidity levels. The Centre, therefore, relies on the Citigen district network to ensure the correct environmental conditions. This is inefficient and extremely expensive in comparison to running the chiller.

	5 The current incapacity of the chiller exposes the art gallery to significant risk as there is no back-up/alternative supply of chilled water in the event of an outage of the Citigen supply
5. Brief description of project	1 Remove the old end of life, failing art gallery chiller. 2 Replace with a new chiller to ensure critical environmental conditions are maintained. 3 Replace any associated plant and/or controls deemed to be end of life 4 Investigate and consider opportunities to reduce energy use and consumption of resources, including chilled thermal storage within the scope of this project
6. Consequences if project not approved	1 The chiller was installed in 2006 and is showing signs of end of life. The CIBSE (Chartered Institute of Building Services Engineers) state the life expectancy of this plant (screw chiller)to be 15 years and above. 2 Risk of substantial closure while parts are sourced, and repairs are arranged or worse if complete failure occurs and the replacement is required 3 Loss of income of potentially £hundreds of thousands 4 Customer dissatisfaction 5 Potential of damage caused to loaned artworks 6 Immediate removal (or return) of artworks may include international pieces 7 Insurance costs against the City and potential claims for breach of contract and or damaged artworks 8 Poor publicity in press and social media 9 Hand competitive advantage to competitors 10 Damage to business and reputational risk 11 Inability to secure future loans/exhibitions further impact on reputation and income
7. SMART project objectives	Reduce the use of the Citigen chilled supply (volumes to be confirmed at G3/4 options appraisal) Reduce the cost paid to Citigen (value linked to the volumes above - potentially up to £100,000 per annum) Reduce the electricity consumption and costs. To be determined at final design stage because this is only achievable if the new chiller uses less power (KW) than the existing chiller and/or if it is run for less time

8. Key benefits	Remove and reuse or dispose of refrigerant gas in the old existing chiller with zero impact to the environment (Dismantle and) reuse or dispose of the old existing chiller with zero impact to the environment Provide reliable and consistent art gallery conditions Installation of more efficient plant Use of environmentally friendly refrigerant to meet likely compliance for the foreseeable future
9. Project category	6. Improvements in productivity/efficiency
10. Project priority	B. Advisable
11. Notable exclusions	There are no exclusions at this stage

Options Appraisal

12. Overview of options	1 Do nothing 2 Replace chiller like for like (capacity) 3 Option 2 plus replace associated plant and/or controls e.g. heat exchanger 4 Replace chiller with increased capacity (this will allow for resilience and ability to undertake maintenance/repairs without interrupting gallery supplies. Dependent on the capacity may allow the ability to supply other critical part of the centre e.g. curve gallery and IT server rooms) 5 Option 4 plus replace associated plant and control e.g. heat exchanger A full system condition survey will be required now to determine the most sensible option

Project Planning

13. Delivery period and key dates	**Overall project:** August 2021

	Key dates: G3/4 November 2020 G5 February 2021 Construction Mar/April 2021 G6 Mar 2022 (After review period) **Other works dates to coordinate:** None, but note the existing chiller is housed on the Barbican art gallery roof (level 5), so specialist lifting equipment will be required to remove the old plant and to get the new plant into position
14. Risk implications	**Overall project risk:** Low The existing chiller is located in housing on the level 5 art gallery roof. It is therefore essential that the replacement can fit into the same location without a requirement to modify the housing to prevent the need for either planning permission or listed building consent. A requirement for planning permission (PP) and Listed Building Consent (LBC) is likely to prove problematic and would severely delay or prevent successful completion of the project. There is potential for the existence of asbestos that would have to be identified and removed but this is not uncommon and would only mean a small delay dependant on the locations, quantity and condition of ACMs (asbestos containing material) The nature and design of the Barbican Centre can mean that there are added health and safety risks when working between floors particularly for running services in shafts and risers. The design consultant and the contractors will require site specific RAMS (risk assessments and method statements) for working in these areas. The level 5, roof location of the chiller will require a specific lifting plan and specialist lifting gear (i.e. a crane) to remove the old chiller and locate the new chiller in position. These items add to the complexity of the build and increase the risk slightly, but they are not uncommon in building projects and the risk is still considered to be low.
15. Stakeholders and consultees	1 Barbican art gallery team 2 Barbican senior management team 3 CoL energy team

	4 Barbican estates team for purpose informing residents when works are scheduled to take place 5 Chamberlain's - Finance 6 Chamberlain's - City Procurement

Resource Implications

<table>
<tr><td>16. Total estimated cost</td><td colspan="2">Likely cost range (excluding risk):
See appendix Non-Public for financial information

Likely cost range (including risk):
See appendix Non-Public for financial information</td></tr>
<tr><td>17. Funding strategy</td><td>Choose 1:
All funding fully guaranteed</td><td>Choose 1:
Internal - Funded wholly by City's own resource
<table><tr><th>Funds/Sources of Funding</th><th>Cost (£)</th></tr><tr><td>See appendix Non-Public for financial information</td><td></td></tr><tr><td></td><td></td></tr></table></td></tr>
<tr><td>18. Investment appraisal</td><td colspan="2">None required as this is substantially a maintenance project to replace end of lifecycle plant.</td></tr>
<tr><td>19. Procurement strategy/route to market</td><td colspan="2">The Centre's preference is to have an MEP consultant for the duration of the project to act as principal designer, working on all design stages, assisting with the specification, tender and evaluation and contractor management and contract administration.

The selection of the MEP consultant will be through a single stage tender process. The tenderers will be asked to cost for all stages and duties above on the understanding the project could be terminated at any stage and therefore the contract will be per phase and ergo payments will be on the completion of each phase.

The asbestos survey will be low cost if required at this stage and will be undertaken by the City of London's Corporate asbestos survey contractor.</td></tr>
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	The Centre will continue to work closely with City Procurement, following advice for the best route to market and to achieve best value.
20. Legal implications	None
21. Corporate property implications	None
22. Traffic implications	A road closure is not anticipated. Lifting gear, will however, need to be manoeuvred on to site for the works.
23. Sustainability and energy implications	A new like for like chiller (i.e. with the same output) will inevitably be more efficient and use less energy helping us to reduce carbon emissions in line with the City ofLondon Carbon Reduction Strategy
24. IS implications	None
25. Equality Impact Assessment	An equality impact assessment will not be undertaken
26. Data Protection Impact Assessment	The risk to personal data is non-applicable and a data protection impact assessment will not be undertaken

Appendices

Appendix 1	Project Briefing
Appendix 2	Risk Register
Appendix 3	Non-Public Financial Information

Contact

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