

Committees: Corporate Projects Board [for information] Planning and Transportation Committee <i>[for decision]</i> Project Subs Committee <i>[for decision]</i> Corporate Asset Sub Committee [for decision] Culture, Heritage and Libraries Committee [for information]	Dates: 31 March 2021 13 April 2021 14 April 2021 28 April 2021 14 June 2021
Subject: Tower Bridge HV System Replacement and Increasing Resilience Unique Project Identifier: 11520 CS 109/21	Gateway 4c Complex Issue Report
Report of: City Surveyor Report Author: Navdeep Bhal	For Decision
<h1 style="margin: 0;">PUBLIC</h1>	

1. Status update	<p>Project Description: Refurbishment of the High Voltage (HV) and Low Voltage (LV) electrical infrastructure at Tower Bridge and increasing its power resilience (i.e. the secondary source of power in the event of a power failure).</p> <p>RAG Status: Green (Green at last report to Committee)</p> <p>Risk Status: Medium (Medium at last report to committee)</p> <p>Total Estimated Cost of Project (following approval of this report): £6,076,293 (excl. risk)</p> <p>Total Estimated Cost of Project at Previous Gateway: £5,687,003 (excl. risk)</p> <p>Change in Total Estimated Cost of Project: Increase of £389,290 since the last Gateway report for CRP drawdown and proposed SCADA change)</p> <p>Spend and Committed to Date: £890,450.</p> <p>Costed Risk Provision Approved: £335,000 (of which £43,290 has been utilised and £291,710 remaining)</p> <p>Funding Source: Bridge House Estates Bridges Repair Designated Fund</p>
2. Requested decisions	<p>Next Gateway: Gateway 5 - Authority to Start Work (Complex)</p>

	<p>Requested Decisions:</p> <ol style="list-style-type: none"> 1. That a 99-year lease of the existing Diesel Generator room is granted to UKPN for installation of their sub-station, in order to significantly reduce the risk of power failure to the bridge and to the income generating exhibition 2. The Corporate Asset Sub Committee is asked to approve the grant of a 99-year lease of the former Diesel Generator Room on St Katherines Way to UKPN delegating the agreement of final lease terms to the City Surveyor in consultation with the Comptroller & City Solicitor. 3. That a project cost increase of £346,000 is approved for a change to the project scope following an opportunity to implement a known HV control system whilst improving the network resilience and future proofing the existing bridge lift system. Please note that this additional budget will be requested as part of the Gateway 5 budget. 4. Note the revised total estimated cost of the project at £6,076,293 (excluding risk) if the change in scope is approved. 5. Note the revised total estimated cost of the project at £8,238,003 (including risk) if the change in scope is approved. 6. That option 1 is approved. Option 1 seeks approval for the partial integration of the existing bridge lifting and new HV SCADA systems and approval to grant a 99-year lease for a sub-station to UKPN. 												
<p>3. Budget</p>	<p>The table below indicates the increase to the overall project estimated cost if the proposed change in scope is approved. It should be noted that this cost is currently indicative based on the design and will be confirmed as part of the tender for the main works contractor. This budget will not be requested until Gateway 5. The full project budget is documented in the Cost Book in Appendix 2.</p> <table border="1" data-bbox="512 1532 1406 1995"> <thead> <tr> <th data-bbox="512 1532 759 1675">Item</th> <th data-bbox="759 1532 987 1675">Reason</th> <th data-bbox="987 1532 1232 1675">Funds/ Source Funding of</th> <th data-bbox="1232 1532 1406 1675">Cost (£)</th> </tr> </thead> <tbody> <tr> <td colspan="4" data-bbox="512 1675 1406 1742">Construction Fees</td> </tr> <tr> <td data-bbox="512 1742 759 1995">Supervisory Control and Data Acquisition (SCADA) works</td> <td data-bbox="759 1742 987 1995">To provide a new HV Power intake</td> <td data-bbox="987 1742 1232 1995">Bridge House Estates Bridges Repair Designated Fund</td> <td data-bbox="1232 1742 1406 1995">£346,000</td> </tr> </tbody> </table>	Item	Reason	Funds/ Source Funding of	Cost (£)	Construction Fees				Supervisory Control and Data Acquisition (SCADA) works	To provide a new HV Power intake	Bridge House Estates Bridges Repair Designated Fund	£346,000
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	<p>The revised total estimated project cost (excl. risk) = £6,076,293 if proposed change of scope is approved. This element will be included as part of the competitive tender exercise to ensure it is market tested.</p> <p>Costed Risk Provision requested in this report: £0 however the remaining £291,710 costed risk provision is to be retained</p>
<p>4. Issue description</p>	<ol style="list-style-type: none"> 1. In order to significantly reduce the risk of power failure to the bridge and to the income generating exhibition, UK Power Networks (UKPN) will need to lease an area of land from the City of London and construct an HV sub-station so that they can provide the required power supply to the new North shore HV intake. Detailed lease terms are yet to be agreed however, UKPN have requested a lease term of 99 years, which this report seeks approval for. Members are asked to note that a lease renewal will likely need to be agreed with UKPN prior to the 99 years and also that as detailed lease terms are to be agreed, any additional maintenance costs affecting the City will be the subject of a future report. If required, this will be funded from the Bridge House Estate Repairs Designated Fund. 2. The report also seeks approval for delegated authority to the City Surveyor to negotiate final lease terms in consultation with the Comptroller & City Solicitors 3. It has been proposed that UKPN lease the Diesel Generator room on St Katharine's Way for this purpose. The existing generator is being removed as part of this project and being replaced by a generator plug-in point, therefore the space will be vacant. The construction of the sub-station is being funded as part of this project and is included in the overall estimated project cost. 4. During the feasibility stage of the project, a standalone Building Management System (BMS) was allowed for in the scope to control / monitor the new electrical equipment. However, as the project progressed it was recognised that, due to complex nature of the new electrical infrastructure being installed, a more advanced local Supervisory Control and Data Acquisition (SCADA) system would be more appropriate for controlling / monitoring the new HV equipment. 5. Working with the Tower Bridge operations team and the incumbent SCADA contractor, that installed the controls system for bridge lifting, an opportunity to improve network resilience and future proof the existing bridge lifting system

	<p>was then recognised and explored. It was considered that by implementing a partial integration of the existing and new system, whereby the bridge lift operations and HV equipment share a common network but have separate programmable logic controllers (PLC), resilience would be increased whilst allowing further hardware works to the bridge lifting system to be easily implemented. The Tower Bridge operations team and the Project Board have confirmed that this is their preferred approach and have asked to include this upgrade into the current HV Electrical Upgrade project scope. This change of scope is detailed in Change Control Notice 02 (Appendix 3) and will increase the overall project cost by £346,000</p>
<p>5. Options</p>	<p><u>Option 1:</u> Approve the 99-year lease term for the UKPN sub-station and approve the request to add the partial integration of the existing bridge lift and the new HV equipment SCADA systems to the project scope of works. This option is recommended as it importantly ensures the required power can be provided to the new North Shore HV supply and it explores an opportunity to increase the resilience of the existing bridge lifting SCADA system.</p> <p><u>Option 2:</u> Reject the 99-year lease term for the UKPN sub-station and reject the request to add the partial integration of the existing bridge lift and the new HV equipment SCADA systems to the project scope of works. This option is not recommended as it would prevent the required power from being provided to the new North Shore HV supply and the opportunity to increase the resilience of the existing bridge lifting SCADA system would be lost.</p> <p>Recommendation: Option 1 to importantly ensure UKPN can provide the required power to the new North shore HV supply that is to be installed. Also it will reduce the number of SCADA systems in operation on the bridge whilst increasing the resilience of the existing bridge lift SCADA system.</p>

Appendices

Appendix 1	Project Coversheet
Appendix 2	Cost Book
Appendix 3	Change Control Notice 002
Appendix 4	Risk Register

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