Committees: Epping Forest and Commons Committee *[for decision]* Operational Properties and Projects Sub *[for decision]*	**Dates:** 26 January 2023 26 January 2023
Subject: Wanstead Park Ponds Project **Unique Project Identifier:** *12058*	**Gateway 4: Detailed Options Appraisal (Complex)**
Report of: Executive Director Environment **Report Author:** Tim Munday	**For Decision**
PUBLIC	

1. Status update	**Project Description:** An engineering assessment of the ponds designated as 'High Risk' by the Environment Agency at Grade II* Wanstead Park. Identifying solutions that fulfil both the City's statutory duties and other works in the Wanstead Parkland Plan, contributing to the removal of the Heritage at Risk status. **RAG Status:** Green (Green at last report to Committee) **Risk Status:** High (High at last report to committee) **Total Estimated Cost of Project (excluding risk):** *900 000–1.150 million* **Change in Total Estimated Cost of Project (excluding risk):** £150 000 (following Capital Projects Review) **Spend to Date:** £134 366 (£241 000 approved) **Costed Risk Provision Utilised:** N/A **Slippage:** *Progression to Gateway 4 has been delayed while a further sustainable drainage feasibility study has been progressed. Project completion is now expected in Autumn 2024 (rather than spring 2024).*
2. Next steps and requested decisions	**Next Gateway:** Gateway 5 **Next Steps:** 1. Liaison with planning authority and other statutory bodies in relation to work sites;

2. Early liaison and communication with the local community.
3. Preparation of project brief (employers' requirement) and tender documentation for design works;
4. Tendering a design contract with a target for design completion in summer 2023;
5. Preparation of project brief (employers' requirement) and tender documentation for a works contract;
6. Tendering a works contract with a target works programme commencing in spring 2024;
7. Stage 1 appointment of a contractor to undertake detailed design and obtain statutory approvals;
8. To undertake enabling works within the park ahead of construction;

Requested Decisions:

1. To shift the project pathway from complex to regular;
2. That recommended Option 2 (to carry out panel engineer recommendations and reinstate and extend the up-cascade pumping station) is approved;
3. That additional budget of **£333 500** is approved to reach the next Gateway;
4. That a Costed Risk Provision (CRP) of **£40 000** is approved at Gateway 4, to be drawn down via delegation to Chief Officer for the fee/investigation items specifically identified in the appended Risk Register, funded by **City Cash**.
5. Note the total estimated cost of the project at **£1.15 million** (excluding risk);
6. That Gateway 5 is delegated to the Executive Director Environment.

3. Resource requirements to reach next Gateway

*For recommended **option 2**:*

Item	**Reason**	**Funds/ Source of Funding**	**Cost (£)**
Statutory approvals (including surveys)	To gain approval for designs and to commence works	City's Cash Reserves (subject to the draw down approval of RASC and other	13,000
Investigations	To confirm parameters		30,000 (+20,000 CRP)

	needed for design		relevant committees)	
Design Fees	To provide detailed design services for proposed works			150,000
Cost Consultancy Fees	Appointment of Cost Consultant			50,000
Panel Engineer fees	To review and approve designs			30,000 (+20 000 CRP)
Public Consultation	PR/Reputation			5,000
Internal Staff Costs	Checking, tender preparation, comms and project management.			55,500
Total				**333,500**

Costed Risk Provision requested for this Gateway: £40 000 to be funded by **City Cash** (as detailed in the Risk Register – Appendix 2)

4. Overview of project options

The Wanstead Park Ponds Project was initiated in July 2019 to fulfil the City Corporation's statutory duties as the reservoir owner of the Wanstead Park ponds. The Environment Agency designated these ponds as 'High Risk' in a risk assessment of dam safety and this project seeks to identify the solutions to fulfilling these statutory duties and other pond related objectives in the Wanstead Parkland Plan.

An initial engineering assessment of the four ponds (Shoulder of Mutton, Heronry, Perch and Ornamental Water) was undertaken in 2020. A further study into the interaction between the River Roding and the Ornamental Water was completed in September 2021.

The combined recommendations from the Panel Engineer's studies are:

	Shoulder of Mutton: - Regulation of the dam's crest. - Maintenance of short grass cover to dam's embankment. Heronry: - Regulation of the dam's crest. - Installation of a concrete edging beam. - Grass improvement to the dam's embankment - Regrading of the dam's embankment Perch: - Regulation of the dam's crest. - Installation of a concrete edging beam. Ornamental Water: - Works to ends of both embankments to the River Roding to regulate height with reinforced geotextile. General: - Measures to limit dam structures from substantially drying out in the event of a prolonged period of drought lasting over 18 months. The drying out could cause cracking in the earth dam embankments, weakening the structure of the dam. Resulting in leaking and increasing the risk of failure. Gateway 3 approval was agreed in November 2021 to look in more detail at two options, the second of which has been split into two sub-options: 1. Reservoir safety only works (as recommended by the Panel Engineer) 2. Reservoir safety works and water balance interventions. The following water balance interventions have subsequently been considered: - Back pumping from the River Roding - Reinstatement and extension of the up-cascade pumping system - Land drainage improvements - Local Sustainable Drainage Systems (SuDS) - Habitat creation and lake bed reprofiling. For this report the second option has been refined and separated into two. The options considered at this gateway are: **Option 1:** Reservoir safety only works (as recommended by the Panel Engineer)

	Option 2: Reservoir safety works and reinstatement and extension of the up-cascade pumping system **Option 3:** Reservoir safety works and all water balance interventions. The reinstatement of the up-cascade pumping system is felt to be necessary for the longer term safe management of the ponds. Whilst this option would not increase water supply, it would give greater flexibility in how the current water in the system is used. This pumping system would enable water to be moved to the pond most in need and therefore reducing the chance of prolonged drying out of the dam structures. The other interventions which are not being proposed as part of Option 2 are all being considered to be taken forward separately outside of the project. The Project Board will continue to co-ordinate with these further works.
5. Recommendation	It is proposed to progress **Option 2 - Reservoir safety works and reinstatement and extension of the up-cascade pumping system.** It is considered that the recommended option mitigates the risks to the City Corporation and the public, and is necessary for fulfilling the City Corporation's statutory duties as reservoir owner.
6. Risk	The major risk the project seeks to address is the failure of the dams both individually and in cascade. There are additional requirements for reservoirs that the Environment Agency designates as 'High Risk'. These are reservoirs where an uncontrolled release of water could put people's lives at risk. The Panel Engineer's recommendation which are proposed as part of Option 2 should mitigate the risk of failure to the standard required under the Reservoirs Act 1975 and the Flood and Water Management Act 2010. This risk could be exacerbated due to the long-term issues with water balance which results in occasional drying out of the dams. The Panel Engineer has identified that should prolonged drying out of the dams occur this will increase the risk of failure. The reinstatement and extension of the up-cascade pumping system will mitigate this risk by enabling water to be moved more easily around the cascade. In addition, should other water balance interventions be taken forward by other workstreams to increase water supply to the lake system, the up-cascade pumping system will assist with the sustainable management of water across the site. Since the initiation of the Project and following the Panel Engineers original report it is now felt that the project's risk,

	uniqueness and complexity is now medium. Along with the reduction of the overall cost of the project it is now requested for the project to be shifted from the 'Complex' pathway to the 'Regular' pathway of the Gateway process. Costed Risk Provision Utilised at Last Gateway: **0** Change in Costed Risk: **40 000** Further information available in the Risk Register (Appendix 2) and Options Appraisal.
7. Procurement strategy	It is proposed to use open tender to procure the design of works and the same used to procure the construction works.

Appendices

Appendix 1	Project Coversheet
Appendix 2	Risk Register

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Options Appraisal Matrix

Option Summary	***Option 1***	***Option 2***	***Option 3***
1. Brief description of option	Reservoir safety works as recommended by the Panel Engineer only.	Reservoir safety works and reinstating and extending the up-cascade pumping system.	Reservoir safety works and all assessed water balance interventions.
2. Scope and exclusions	• Works to dams structures of Shoulder of Mutton, Heronry, Perch and Ornamental Water. • Excludes all water balance intervention works.	• Option 1 works • Ornamental Water to Perch Pump reinstatement, including intake lowering and outfall extension to Heronry. • Excludes all other water balance interventions.	• Option 2 works • Roding pumphouse reinstatement • Land drainage to Long Walk • Blake Hall Road SuDS Scheme • Northumberland Road SuDS Scheme • Lakebed reprofiling • Excludes non assessed water balance interventions including works to reduce leakage or reinstate pond linings.
LG Project Planning			
3. Programme and key dates	Overall project: Completion by Autumn 2024 Key dates: Design and Consultation – Summer 2023 Enabling works Autumn 2023 Construction works commence Spring 2024		

Option Summary	***Option 1***	***Option 2***	***Option 3***
4. Risk implications	Medium Risk • Liability for raised reservoirs in cascade remains but with Panel Engineer supported works undertaken fulfilling statutory requirement. • Risk of lakes drying out remains unchanged with potential increased risk of failure following prolonged dry periods.	Medium Risk • Liability for raised reservoirs in cascade remains but with Panel Engineer supported works undertaken fulfilling statutory requirement. • Risk of lakes drying out reduced through improved management but remains during drought and extreme circumstances. Further information available within the risk register (Appendix 2).	Medium Risk • Liability for raised reservoirs in cascade remains but with Panel Engineer supported works undertaken fulfilling statutory requirement. • Risk of lakes drying out reduced but remains in extreme circumstances
5. Stakeholders and consultees	• Epping Forest (City of London Natural Environments) • London Borough of Redbridge • Environment Agency • Panel Engineer • Historic England • Friends of Wanstead Parklands • Surrounding landowners • Local residents		
6. Benefits of option	• Fulfils statutory duties in relation to the Large Raised Reservoirs ownership.	• Fulfils statutory duties in relation to the Large Raised Reservoirs ownership. • Enables enhanced water management of water in lake	• Fulfils statutory duties in relation to the Large Raised Reservoirs ownership. • Enables enhanced water management of water in lake

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		cascade by allowing greater flexibility in moving water around the lake system. • Will increase the storage capacity and impact of future back pumping from the river Roding.	cascade by allowing greater flexibility in moving water around the lake system. • Increases the supply of water to the lake system reducing the chances of prolonged drying out and improving biodiversity and amenity benefits. • Enhances back pumping from the river Roding by enabling the additional water to be pumped beyond Ornamental Water up the cascade.
7. Disbenefits of option	• Does not address issue of potential prolonged drying out of the dam structures. • Reputational damage related to lakes drying out.	• Does not directly increase water supply to lakes or reduce leakage from the lake system.	• Falls outside of the agreed project budget. Works to re-instate Roding Pumphouse being progressed in CWP programme. SuDS feasibility being reviewed as part of a Mayor of London Green and Resilient Spaces development funding programme.
Resource Implications			

Option Summary	***Option 1***	***Option 2***	***Option 3***
8. Total estimated cost	Total estimated cost (excluding risk): £750K – 850K	Total estimated cost (excluding risk): £900K – 1150K	Total estimated cost (excluding risk): £1400K – £1600K
9. Funding strategy	Funded through City Cash.		Statutory works funded through City Cash, Roding pumphouse and land drainage through Cyclical Works Programme. SuDS through further unconfirmed GLA funding and additional grant funding.
10. Investment appraisal	Not applicable due to nature of works.		
11. Estimated capital value/return	Not applicable.		
12. Ongoing revenue implications	No revenue implications, ongoing commitments to dam maintenance continue unaffected.	Increased cost of maintenance due to need to maintain pump infrastructure and new costs associated with running pump.	Increased cost of maintenance due to need to maintain new features and new costs associated with running pumps, offset by reduced pumping from existing aquifer borehole. New cost for license to extract from river Roding.

Option Summary	***Option 1***	***Option 2***	***Option 3***
13. Affordability	This is the least expensive option but does not address the issue of dam drying out.	This is considered to be the most economic option that includes measures that address dam drying out.	This is the most expensive option and would require increased funding.
14. Legal implications	• Compliance with the Reservoirs Act 1975 and Flood & Water Management Act 2010		
15. Corporate property implications	None		
16. Traffic implications	All works will result in local site traffic and plant machinery moving within the park.		
17. Sustainability and energy implications	• Does not address increased frequency of dry periods from climate change.	• Addresses increased frequency of dry periods from climate change. • Enhanced water management in Park will improve biodiversity of lakes.	• Addresses increased frequency of dry periods from climate change. • Enhanced water management in Park will improve biodiversity of lakes. • Pumping water from river Roding to Heronry less energy intensive than pumping from aquifer borehole.
18. IS implications	• Not applicable		

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19. Equality Impact Assessment	N/A. Works are unlikely to result in discrimination against any disadvantaged or vulnerable people.		
20. Data Protection Impact Assessment	N/A		
21. Recommendation	Not recommended	Recommended	Not recommended