



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee  
**From:** Milton Chan, P.Eng  
 Director, Engineering  
**Re:** South Dike Repairs – Gilbert Road Area

**Date:** January 19, 2021  
**File:** 10-6050-01/2021-Vol  
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### Staff Recommendation

That funding of \$500,000 from the Drainage Improvement Reserve Fund be approved to complete dike armouring repairs and debris removal along the south dike at Gilbert Road, and that the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.

Milton Chan, P.Eng  
 Director, Engineering  
 (604-276-4377)

Att. 2

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Finance Department	<input checked="" type="checkbox"/>	
Roads & Construction	<input checked="" type="checkbox"/>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

Demands on the City's flood protection infrastructure are most significant during storm season in the winter and freshet season in the spring. On January 13, 2021, the region experienced a king tide event together with a wind storm and storm surge. Although the dike structure was never at risk, the storm caused local damage to the rip-rap armouring along the south dike around Gilbert Road, and a significant amount of large logs and woody debris accumulated in the area (Attachments 1 and 2).

It is necessary to repair the dike rip-rap armouring and remove the debris ahead of the 2021 freshet season.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

*Enhance and protect the safety and well-being of Richmond.*

*1.2 Future-proof and maintain city infrastructure to keep the community safe.*

### Analysis

As detailed in the City's Flood Protection Management Strategy, Richmond is situated approximately 1.0 m above sea level and flood protection is integral to protecting the health, safety, and economic viability of the City. Richmond is protected from flooding by infrastructure that includes 49 km of dikes, 585 km of drainage pipes, 61 km of culverts, 165 km of watercourses and 39 drainage pump stations.

The south dike at Gilbert Road is a typical dike structure in Richmond, consisting of impermeable dike fill with rip-rap armouring for erosion protection. This section of dike was most recently re-armoured in spot locations in 2018.

As a result of the recent winter king tide and storm events, a build-up of debris, mostly consisting of large logs and branches, accumulated along the Gilbert Road south dike area. In combination with the storm and king tide events, the woody debris dislodged portions of the rip-rap armour.

It is necessary to repair the dike prior to the upcoming spring freshet. Further damage to the dike will occur if the dike is not re-armoured and debris removed, resulting in a reduced level of flood protection to the City.

The scope of work includes inspection, reinstatement of rip-rap armouring along a 300 m stretch, debris removal along a 750 m stretch, and any necessary permitting to complete the work.

In accordance with the City's Procurement Policy (Policy 3104), procurement would be excluded from normal purchasing practices as this is considered an unforeseeable urgent situation or emergency.

Should Council not approve the funding request of \$500,000, any incurred urgent/emergency works costs that cannot be accommodated within the 5 Year Financial Plan will be reported to Council and the 5 Year Financial Plan will be amended to include the expenditure and the funding source.

**Financial Impact**

The total estimated capital cost is \$500,000 for the reinstatement of erosion protection and debris removal along the south dike near Gilbert Road.

In order to commence this urgent work immediately, staff recommend that existing Council approved Drainage and Diking capital projects be utilized as a temporary funding source until the Consolidated 5 Year Financial Plan (2021-2025) can be amended with this additional \$500,000 to be funded by the Drainage Improvement Reserve Fund.

**Conclusion**

Through the capital improvements and investment in preventative maintenance programs, the City has developed the ability to proactively prepare and respond to flood related concerns. The City continues to make significant progress in advancing dike planning efforts and implementing infrastructure improvements to the City's flood protection system.



Eric Sparolin, P.Eng.  
Manager, Engineering Design and Construction  
(604-247-4915)

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- Att. 1: Dike Damage Location
- 2: Debris Build-up and Dike Armour Damage

Dike Damage Location



Debris Build-up and Dike Armour Damage

