



**CITY OF RICHMOND**

**REPORT TO COMMITTEE**

**TO:** Public Works and Transportation Committee      **DATE:** January 7, 1999  
**FROM:** Jeff Day, P. Eng.      **FILE:** 6340-20  
Director, Engineering  
**RE: No. 6 Road Ditch - Westminster Highway to Steveston Highway**

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**STAFF RECOMMENDATION**

It is recommended that interim remedial measures for stabilizing erosion of the ditches along No. 6 Road by selective rip rap rock placement proceed in 2000 as identified in the provisional 2000 Capital Program.

Jeff Day, P. Eng.  
Director, Engineering

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<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Sewerage and Drainage.....	Y <input type="checkbox"/> N <input type="checkbox"/>	_____

## STAFF REPORT

### ORIGIN

The provisional 2000 Capital Program includes "Ditch Rehabilitation Along No. 6 Road between Westminster Highway and Steveston Highway." This project includes the placement of rip rap rock in various locations in order to stabilize the road where the shoulder and ditch banks have eroded.

At the Budget Workshop for the 2000 Capital Program, Mayor and Council referred the option of infilling the No. 6 Road ditch between Westminster Highway and Steveston Highway as an alternative to ditch bank stabilization to staff for review.

### BACKGROUND

A 5 Year Program for Drainage Ditch Projects has been completed and will be included in the 5 Year Capital Plan. These projects include ditch infill and ditch remediation and were ranked in order of significance based on three criteria:

- Safety – priority levels have been established for each project. Consideration for infrastructure preservation was included.
- Type of Reinstatement or Repair – Infill, retaining structure, bank reinstatement, and rip rap armouring have been considered.
- Cost

On the basis of this ranking, the No. 6 Road drainage system was prioritized as a high priority project in 2000. The road shoulder and ditch bank along both sides of No. 6 Road are eroding at various locations. Staff have proposed to mitigate the erosion under the 2000 Capital Program through selective placement of rip rap to stabilize the road shoulder and ditch bank as an interim measure prior to ultimate future infill of the ditch along the west side of No. 6 Road.

There are seven ditch infill projects to be constructed in 2000. Five of these projects are funded from the 2000 Capital Program and the remaining two are funded through the 1999 Capital Program. A detailed list is included in Appendix A.

### ANALYSIS

There are two drainage conveyance systems along No. 6 Road. Along the east side of the road is a canal while along the west side of the road is a ditch. Staff have undertaken a preliminary analysis of infilling both of the No. 6 Road drainage conveyance systems.

#### ***East Side Canal***

The east ditch along No. 6 Road between Westminster Highway and Granville Avenue was infilled in 1980. The remaining section between Granville Avenue and Steveston Highway is a canal. This canal is periodically backed up for irrigation purposes for use by local farmers along No. 6 Road.

In 1991, Stanley Associates completed the "East Richmond Agricultural Water Supply Feasibility Study", which recommended that the canal on the east side of No. 6 Road between Granville Avenue and Steveston Highway remain intact for irrigation purposes by the local farmers. Staff are in general agreement with the Stanley report with the exception of the portion of canal from Steveston Highway to Triangle Road adjacent to the Riverport Development. Infill of this portion of canal is currently identified as a 2001 project in the 5 Year Capital Plan at an estimated cost of \$0.75M.

Infilling the entire canal with a box culvert would make monitoring water levels and accessing water for irrigation purposes more difficult. From a financial perspective, the cost of infilling the entire canal is prohibitively high. The cost of removing peat and installing a box culvert from Granville Avenue to Triangle Road is estimated to be in the range of \$9 to \$10 million. Accordingly, staff do not recommend infilling the entire east side canal along No. 6 Road.

### ***West Side Ditch***

The portion of the west ditch between Francis Road and Williams Road was infilled in 1998. The remaining west ditch on No. 6 Road from Westminster Highway to Francis Road, and from Williams Road to Steveston Highway is 3 kilometres long. The cost to remove the peat soils underlying this site, and infill this ditch is estimated to be in the order of \$3,000,000. This estimate is based upon historical records of peat soils. The actual cost may vary significantly depending on the actual quantity of peat soils underlying the site.

Infill of the No. 6 Road west side ditch is not proposed in the 2000 Capital Program. Considering the limited funds available, significant projects would have to be cancelled from the 2000 Capital Program in order to proceed with the No. 6 Road west side ditch infill. Since the integrity of No. 6 Road can be preserved by selective rip rap rock placement for erosion stabilization as currently proposed in the 2000 Capital Program, it is recommended to undertake selective rip rap rock placement as currently proposed.

### **FINANCIAL IMPACT**

Stabilization of erosion of ditches along No. 6 Road by selective rip rap rock placement is included in the proposed 2000 Capital Program. There will be no additional financial impact resultant from proceeding with this recommendation.

### **CONCLUSION**

Infill of the No. 6 Road west side ditch is not proposed in the 2000 Capital Plan because available funds are limited. There are a number of other drainage projects in the 2000 Construction program that have a relatively high urgency from a public safety perspective in comparison with the infill of the No. 6 Road west side ditch.

Robert Gonzalez, P.Eng.  
Project Engineer

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## Appendix A

### 2000 Construction Program Ditch Infill

## ***2000 Construction Program Drainage Projects***

<b>PROJECT</b>	<b>COMMENTS</b>	<b>PROJECT BUDGET</b>
<b>1999 FUNDED</b>		
<b>No. 5 Road – Machrina Way to Dyke Road</b>	Ditch Infill	\$1,500,000.00
<b>Hamilton VLA – Willett &amp; Smith Crescent</b>	Ditch Infill	\$ 200,000.00
<b>2000 FUNDED</b>		
<b>No. 8 Road – North of Westminster Highway</b>	Ditch Infill	\$ 329,000.00
<b>Granville Avenue – 11000 Block</b>	Ditch Infill	\$ 540,000.00
<b>Second Avenue – Richmond Street to Garry Street</b>	Ditch Infill	\$ 50,000.00
<b>Sidaway School</b>	Ditch Infill	\$ 50,000.00
<b>Westminster Highway – No. 6 Road to No. 7 Road</b>	Ditch Infill	\$1,200,000.00