



# **Corporate** NO: R059

# **Report** COUNCIL DATE: April 8, 2002

## **REGULAR COUNCIL**

**TO: Mayor & Council**    **DATE: March 21, 2002**

**FROM: General Manager, Engineering**    **FILE: 6520-20 (South Newton)**

**SUBJECT: South Newton NCP Replacement of Pond P8 With Distributed Water Quality Devices and Bio-swales**

## **RECOMMENDATION**

1. That the South Newton NCP storm drainage concept and 10 Year Servicing Plan be amended by replacing the stormwater detention Pond P8 with a water quality system consisting of nine sediment removal devices, 400 metres of bio-swale, and additional trunk sewer as shown in Appendix B.
2. That the implementation plan of the system described in the report be adopted.

## **INTENT**

This report supports the amendment of the South Newton NCP by replacing the stormwater detention Pond P8 with a system of sediment removal devices, and a biological treatment swale for nutrient removal. The proposed water quality system provides the same water quality benefit and objectives of the original pond at a lower cost, and is more easily implemented due to reduced land requirements.

## **BACKGROUND**

The South Newton NCP identifies three community detention ponds for stormwater quantity and quality control. One of these ponds, Pond P8, located south of 64 Avenue between 150 and 152 Streets, provides detention for 81 ha and requires approximately 1.94 ha of land to build. Securing the land required for P8 has been particularly difficult. Some development proposals presented to the City have been unable to proceed due to the pond land requirements.

In October 2001 several developers asked the City to help them implement the NCP requirements. The City commissioned a review of the design objectives and an investigation of alternate implementation plans.

The review concluded that the original pond would provide significant water quality benefits but would only provide limited flow and erosion control benefits due to its proximity to the lowlands and previously completed

erosion protection work on Hyland Creek. The report recommended replacing Pond P8 with a water quality system composed of nine sediment removal devices, 400 metres of bio-swale for nutrient removal, and a storm trunk system to convey flows to Hyland Creek. The details of this concept are shown in Appendix A.

## DISCUSSION

Replacing Pond P8 with a combination of sediment removal devices and the bio-swale will reduce the servicing costs by \$1,134,000.00. The trunk stormwater servicing costs comparisons between the original NCP and the proposed changes are shown in the following table and in detail in Appendix B:

| <b>Item Description</b>  | <b>Original Cost</b>  | <b>Revised Cost</b>   |
|--------------------------|-----------------------|-----------------------|
| Trunk Storm Sewers       | \$1,230,000.00        | \$1,378,000.00        |
| Detention Pond           | \$2,257,000.00        | --                    |
| Bio-Swale                | --                    | \$ 504,000.00         |
| Sediment Removal Devices | --                    | \$ 471,000.00         |
| <b>TOTAL COST</b>        | <b>\$3,487,000.00</b> | <b>\$2,353,000.00</b> |

The current NCP identifies Pond P8 and the trunk sewers leading to and from the pond as DCC items. The recommended amendment to the NCP replaces the centralized pond with a distributed system of nine sediment removal devices and bio-swales; these items form a comprehensive water quality system to service the entire 81 ha catchment and as such, should be added to the 10 year plan as DCC funded items as shown in Appendix B.

### Implementation Plan

In order to effectively implement this water quality system, new developments in this catchment will be required to ensure their sediment removal device is installed prior to developing. Storm sewers and trunks will be required for all frontage and for downstream pipe sections when existing system capacity is exceeded. The bio-swale will be constructed in conjunction with the associated trunk diversion once Hyland Road can be closed.

### OTHER CONSTRAINTS

This area of the NCP also needs a new trunk sanitary sewer that cuts through private property from 150 Street to 152 Street. City staff are currently working to facilitate the acquisition of the right-of-way needed for this trunk sanitary sewer.

## CONCLUSION

Replacing the original Pond P8 identified in the South Newton NCP with the proposed items will save the City \$1,134,000.00, and facilitates development in the catchment. The recommended changes meet or exceed the original design objectives of the detention pond. Consequently, the Engineering Department recommends that Council support the amendment to the NCP.

Paul Ham, P. Eng.  
General Manager, Engineering

VL/DOH/har/brb

Attachment

c.c. - General Manager, Planning and Development Department

g:\wp-docs\2002\utilities\drainage\03191104vl.doc

KJJ 4/8/02 3:34 PM

## Appendix A

**Figure 1**



Sediment Control Device

Trunk Sewer

Pond P8

Catchment Boundary

Proposed amendment to the South Newton NCP

## Appendix B

g:\wp-docs\2002\utilities\drainage\03191104v1.doc

KJJ 4/8/02 3:34 PM