3. CAVE CREEK AND RIDEAU RIVER COLLECTOR SEWER
FLOW MONITORING STUDIES CONTRACT NOS. CA9501 AND CA9500

COMMITTEE RECOMMENDATIONS

That Council approve:

1. **The award of Contract CA9501 for the Cave Creek Collector Sewer Flow Monitoring Study to G.A. Clark and Associates Limited, Nepean, for a total contract provision of $95,500;**

2. **The award of contract CA9500 for the Rideau River Collector Sewer Flow Monitoring Study to Ainley Graham and Associates Limited, Gloucester, for a total contract provision of $74,500.**

DOCUMENTATION:

1. Environment and Transportation Commissioner's report dated 29 Apr 98 is immediately attached.

REGIONAL MUNICIPALITY OF OTTAWA CARLETON — REPORT
MUNICIPALITÉ RÉGIONALE D'OTTAWA CARLETON — RAPPORT

Our File/N/Réf. **50** 49-98-3026-B, 49-98-3028-B
Your File/V/Réf.

DATE 29 April 1998

TO/DEST. Corporate Services and Economic Development Committee

FROM/EXP. Environment and Transportation Commissioner

SUBJECT/OBJET **CAVE CREEK AND RIDEAU RIVER COLLECTOR SEWER FLOW MONITORING STUDIES CONTRACT NOS. CA9501 AND CA9500**

DEPARTMENTAL RECOMMENDATIONS

That the Corporate Services and Economic Development Committee and Council approve:

1. **The award of Contract CA9501 for the Cave Creek Collector Sewer Flow Monitoring Study to G.A. Clark and Associates Limited, Nepean, for a total contract provision of $95,500;**

2. **The award of contract CA9500 for the Rideau River Collector Sewer Flow Monitoring Study to Ainley Graham and Associates Limited, Gloucester, for a total contract provision of $74,500.**

INTRODUCTION

The RMOC's Wastewater Master Plan identifies the need to work with local municipalities in developing a Flow Management Program in an effort to:

- address existing capacity and overflow issues on the Wastewater Collection System;
- provide the necessary servicing to support the Regional Development Strategy.

The Flow Management program will explore and develop cost effective alternatives to control excessive extraneous and drainage flow contributions to the system. Flow monitoring is an essential element in providing the necessary information to implement the Flow Management Program.

The studies require the installation and maintenance of temporary flow monitors over a period of six months to establish existing flow conditions in specific areas of the Regional Municipality of Ottawa-Carleton's (RMOC's) Cave Creek Collector and Rideau River Collector Systems. Emphasis will be on characterizing the flow contributions to the Regional system from major tributaries and various sanitary sewer system types.

DISCUSSION

General

The Cave Creek and Rideau River Collectors generally run in a northerly direction and are tributary to the main West Nepean-Interceptor-Outfall sewer system conveying flows to the Robert O. Pickard Environmental Centre (Figure 1). The Cave Creek Collector runs from Baseline Road to LeBreton Flats and services the communities of Carlington Heights, Hampton Park and Hintonburg. The Rideau River Collector Sewer extends approximately from Walkley Road to Beechwood Avenue and, for the most part, parallels the east side of the Rideau River. Included in its service area are the communities of Sandy Hill, Vanier, Overbrook and parts of Alta-Vista and Rockcliffe Park.

The sewer systems within the Cave Creek and Rideau River Collector drainage areas consist of a mixture of combined, partially separated and separated sewer systems. Combined sewer systems convey both sanitary wastewater and storm run-off flows in a common conduit. Partially separated sewer systems (built from approximately 1950 to 1961) are defined as systems with separate storm and sanitary conduits but with foundation drains (weeping tiles) connected to the sanitary sewer rather than the storm sewer as in a modern separated sewer system.

Due to the direct connection and conveyance of storm run-off, combined sewers are most susceptible to the impacts of shorter duration high intensity rainfall events typical of the summer and fall rainfall period. Partially separated systems, due to the effect of the weeping tile contribution, respond with high flow contributions during periods where the groundwater table is elevated and/or during periods of high soil moisture content. These systems are thus sensitive to spring snowmelt conditions or during large volume rainfalls which typically have lower rainfall intensities.

The primary objective of the Cave Creek Collector study will be to evaluate the effectiveness of a number of rehabilitation and flow removal projects implemented from 1994 to 1996 on both the Regional and local systems within the Cave Creek Collector drainage boundaries.

The primary objective of the Rideau River Collector Flow Monitoring Program is to characterize wet weather flows from the major contributors to the system in order to determine where flow control or removal measures will be most effective. Existing capacity and overflow problems on this system present an existing liability with the risk of basement flooding and non-compliance with provincial combined sewer overflow regulations. These constraints are currently limiting the potential for intensification within the greenbelt for areas inside the collector's drainage boundaries.

Cave Creek Collector

The Cave Creek Collector represents a system comprised of a mixture of sanitary sewer system types (combined, partially separated and separated systems) where major rehabilitative works have been undertaken in an effort to reduce excessive drainage and extraneous flows. The following study is designed to provide post-rehabilitative information on the effectiveness of these efforts.

Through on-going efforts, the City of Ottawa's Combined Sewer Separation and Sewer Disconnect programs have both had a significant impact on reducing flows within the boundaries of the Cave Creek Collector drainage area. Studies of the Cave Creek Collector commissioned by the RMOC in 1992 determined baseline flow conditions and defined means to allow for the servicing of the Clyde/Merivale lands by reducing wet weather flows to the collector. Recommendations from the study were implemented and consisted of rehabilitating certain portions of the collector, replacing certain deficient sections of the collector, and removing a number of direct inflow sources.

With two permanent monitoring locations already located on the Cave Creek Collector, the proposed monitoring program will supplement the available information by determining corresponding flow contributions at five additional locations on the system.

A provision for a two month follow-up monitoring program in the spring of 1999 is also included in the scope of work. The capture of a wide range of event types is necessary given that the study area is comprised of a mixture of combined, partially separated, and separated sewers. The intent is to characterize the response for both small and large events given that both overflow and capacity issues exist on this system.

Proposals were requested from four local consulting firms: Stanley Consulting, Kanata, Delcan Corporation, Ottawa, G.A. Clark and Associates Ltd., Nepean, and J.L. Richards and Associates, Ottawa. Each proposal received was evaluated on the basis of company experience, their overall approach to the project, familiarity with and the use of appropriate technology as well as their availability and ability to conduct the work. The firm of G.A. Clark and Associates Limited is recommended on the basis of their superior ranking in this evaluation.

Rideau River Collector

The Rideau River Collector System represents one of the largest flow contributors to the main interceptor-outfall sewers conveying sanitary flows to the Robert O. Pickard Environmental Centre (ROPEC) and is one of the most significant contributors of combined sewer overflows. The Rideau River Collector services a population in excess of 90,000 people and conveys flows from an effective drainage area of approximately 2,700 hectares within the Cities of Ottawa, Vanier and Rockcliffe.

With a combination of both combined and partially separated systems, the Rideau River Collector system is susceptible to capacity and overflow problems during both spring snowmelt/rainfall conditions as well as normal rainfall conditions.

Four permanent monitoring locations were installted on the Rideau River Collector in the fall of 1997 by the Delcan Corporation. Five temporary monitors were added to major tributaries on the system in March of 1998 to capture flow contributions during the spring snowmelt period. The temporary equipment was installed and maintained by Ainley Graham and Associates Limited, while the Delcan Corporation continues to maintain the permanent sites.

Based on the results of the spring snowmelt monitoring period and recent efforts to model the system, it was deemed beneficial to continue with the temporary monitoring program for an additional six months. Extending the program allows for the characterization of flow conditions during the normal rainfall period and further supports the Flow Management Program identified for the Rideau River Collector in the Wastewater Master Plan. It is anticipated that the extended monitoring period will also coincide and be supplemented by monitoring efforts conducted at the local level by the Cities of Ottawa and Vanier.

Terms of Reference for this second phase of temporary monitoring work were discussed with three local firms; Delcan Corporation, Ottawa, Stanley Consulting Group, Kanata, and Ainley Graham and Associates Limited, Gloucester. Both the Delcan Corporation and Stanley Consulting declined to submit proposals at this time. It is therefore recommended that Ainley Graham and Associates continue with the proposed program as the next phase.

CONSULTATION

Public consultation is not applicable.

EXPENDITURE CONTROL ANALYSIS

The Cave Creek and Rideau River Collector sanitary sewer flow monitoring studies are required to address current operational problems and support the initiatives set forth in the Flow Management Program identified in the Wastewater Master Plan. Flow monitoring provides the base information required in being able to identify problematic areas and assess the cost-benefit of a range of alternatives designed to control excessive wet weather flows in the wastewater collection system.

COMPLIANCE WITH REGIONAL OFFICIAL PLAN

The flow monitoring studies are consistent with the objectives of the Regional Official Plan in that they form an integral part of a plan to ensure compliance with provincial combined sewer overflow regulations as well as support the Regional Development Strategy. The two studies brought forward in this report are required to improve existing operational problems and support growth within the established inner greenbelt area.

FINANCIAL STATEMENT

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(1997) Budget to Date	1,270,000
Total Committed	(1,065,471)
Balance Available	204,529
THIS REQUEST	(170,000)
Balance Remaining	34,529

Funds have been provided in the 1997 Capital Budget, Account No. 932-43413, Flow Monitoring Program. (Reference page 231).

Approved by P. McNally on behalf of
M.J.E. Sheflin, P.Eng.

AC/

FINANCE DEPARTMENT COMMENT

Funds are available as indicated.

Approved by C. Colaiacovo on behalf of
Finance Commissioner

Figure 1: Central Wastewater Collector Sewer System