

CITY OF BURNABY

ENVIRONMENT AND WASTE MANAGEMENT COMMITTEE

HIS WORSHIP, THE MAYOR
AND COUNCILLORS

RE: BURNABY LAKE PILOT DREDGING PROJECT

RECOMMENDATIONS:

1. **THAT** Council receive this report for information.
2. **THAT** a copy of this report be forwarded to the Parks & Recreation Commission, the GVRD Parks Department and the Burnaby Lake Park Partnership Association.

REPORT

The Environment and Waste Management Committee, at its meeting held on 1999 May 11, received and adopted the attached report summarizing progress to date on the Burnaby Lake pilot dredging project. The Committee noted that the first phase of the project includes a program to develop a detailed engineering design and environmental mitigation plan for removal of up to approximately 2,500m³ of the lake bed sediment. The Committee concluded by advising that based on engineering and testing work carried out to date, the greatest challenge ahead is to resolve the treatment technology and process for the dredgate.

Respectfully submitted,

Councillor D. Johnston
Chair

Councillor C. Redman
Member

Councillor D. Lawson
Member

: COPY - CITY MANAGER
- DIRECTOR ENGINEERING
- DIR. PLNG. & BLDG.
- DIR. PARKS, REC. & CULT. SERV.

TO: CHAIRPERSON & MEMBERS
ENVIRONMENT & WASTE
MANAGEMENT COMMITTEE

DATE: 1999 05 05

FROM: DIRECTOR ENGINEERING

FILE: 40-09-03

SUBJECT: BURNABY LAKE PILOT DREDGING PROJECT

PURPOSE: To provide the Committee and Council with an update on the Burnaby Lake pilot dredging project

RECOMMENDATION:

1. THAT the Committee forward this report to Council for information.
2. That a copy of this report be forwarded to the Parks & Recreation Commission and the GVRD Parks Department.

REPORT

1.0 INTRODUCTION

Council at its regular meeting of 1999 February 15 approved a staff report on a proposed pilot scale dredging program for Burnaby Lake. Included with the approval was the Phase I-Design component of the program to develop detailed engineering design and environmental mitigation plan that would include up to approximately 2,500 m³ of lake bed sediment removal. The purpose of this report is to provide the Committee and Council with an update on the tasks that have been completed to date and the projected schedule for the completion of the design phase.

2.0 WORK PROGRESS TO DATE

A team consisting of engineering, geotechnical, and environmental consultants was retained by the City in late February 1999 to undertake the design program. Information meetings were held with the GVRD Parks staff and members of the Burnaby Lake Park Association to review potential dredging sites and a dewatering site. The consultant team and City staff had also met with contractors to investigate dredging and sediment separation/dewatering alternatives.

In consultation with the GVRD Parks Department and the Burnaby Lake Park Association, two dredging sites were selected near the mouth of Still Creek which encompasses a number of criteria including water depth, extent of vegetation and access. A site east of Sperling Avenue and north of

the soccer fields is also identified for use as the staging area for dredgeate processing operations and dewatering. The proposed staging site had been disturbed by filling and construction in the past, and from the lake dredging perspective, it provides the best access and the least disturbance to the environment in comparison with several other sites examined around the Burnaby Lake area. The location of the proposed dredging sites and the staging area is shown in Figure 1. A geotechnical study is underway currently for the staging area to investigate the sub-surface soil strength and to confirm the suitability of the site with respect to equipment loading and storage pond construction.

With the selection of the dredging sites, 18 sediment cores were collected from the lake bed for physical and chemical analysis. The results of the laboratory analysis indicated that the lake bed sediment contains a high percentage (>50%) of fines and some of the samples also contain elevated levels of metal contaminants that are slightly higher than the commercial/industrial standards. The high proportion of fines in the lake bed sediment also suggested that the conventional dewatering and mechanical separation process would be inadequate for the dredgeate treatment and an enhanced mechanical/chemical process would be required. More analysis is being conducted at this time to estimate the composite characteristics of the dredgeate when other organic and vegetative substances are blended in the dredging operations.

To refine the treatment process design for the pilot project, a bench scale testing program was conducted on 1999 April 22. Approximately 1,400L of lake water/sediment mixture were obtained from the proposed dredging sites and fed through a hydrocyclone device supplemented by the addition of a polymer to evaluate the effectiveness of alternative mechanical and chemical treatment processes. The results of the bench scale testing will be used to determine the minimum treatment effort required for the dredgeate.

In concert with the preliminary testing, meetings were conducted with regulatory agencies and the GVRD with respect to the discharge of the process water. The options of discharging the process water to the GVS&DD sewer system and back to the lake are being investigated. The selection of the final treatment option will be dependent on the quality of the process water and the effectiveness of the treatment process. We will be in a better position to recommend the final treatment configuration and discharge option when all the tests are complete.

In anticipation of the commencement of the pilot project in the summer months, an application has been submitted to the Ministry of Environment in accordance with the fisheries requirement.

3.0 NEXT STEPS

The estimated dredging volume for the pilot project is in the order of 2,500 m³ and it would require approximately 4 weeks to 6 weeks to complete due to the testing and sampling time that may be needed during the course of the dredging program. The level of testing to be conducted during dredging will be considerable given the many unknown elements and data that need to be obtained and verified for future dredging application. Therefore, it is desirable to commence the dredging work in early August for completion within the fisheries window.

To select a contractor who is experienced and qualified for the pilot dredging work, staff will be issuing a general expression of interest to the construction industry to invite submissions of statements of qualification for the project. The pre-qualification process will be used to select three to five most qualified contractors who are experienced in dredging and water treatment work. The selected contractors will then be invited to submit tender for the proposed work.

In order to meet the August construction date, the following tasks and target dates are identified as critical components in the process.


- Complete design and pre-qualification process 1999 May 20
- Report to Council on details of final pilot program 1999 June 14
- Environmental approval, tendering & award 1999 June 16 - July 12
- Construction 1999 August - mid September

It should be noted that the above timetable is extremely tight and is predicated on the basis that a practical and cost efficient treatment process that would meet the environmental and site constraints is feasible and that the proposed program would meet the requirements of the regulatory agencies.

4.0 CONCLUSION

Based on the engineering and testing work that has been carried out to date, the greatest challenge ahead is to resolve the treatment technology and process for the dredgeate. The engineering testing and design program for the pilot program will be complete in the next few weeks. We will bring back a report to Council as soon as the final technical details for the program are resolved and the pre-qualification process is complete.

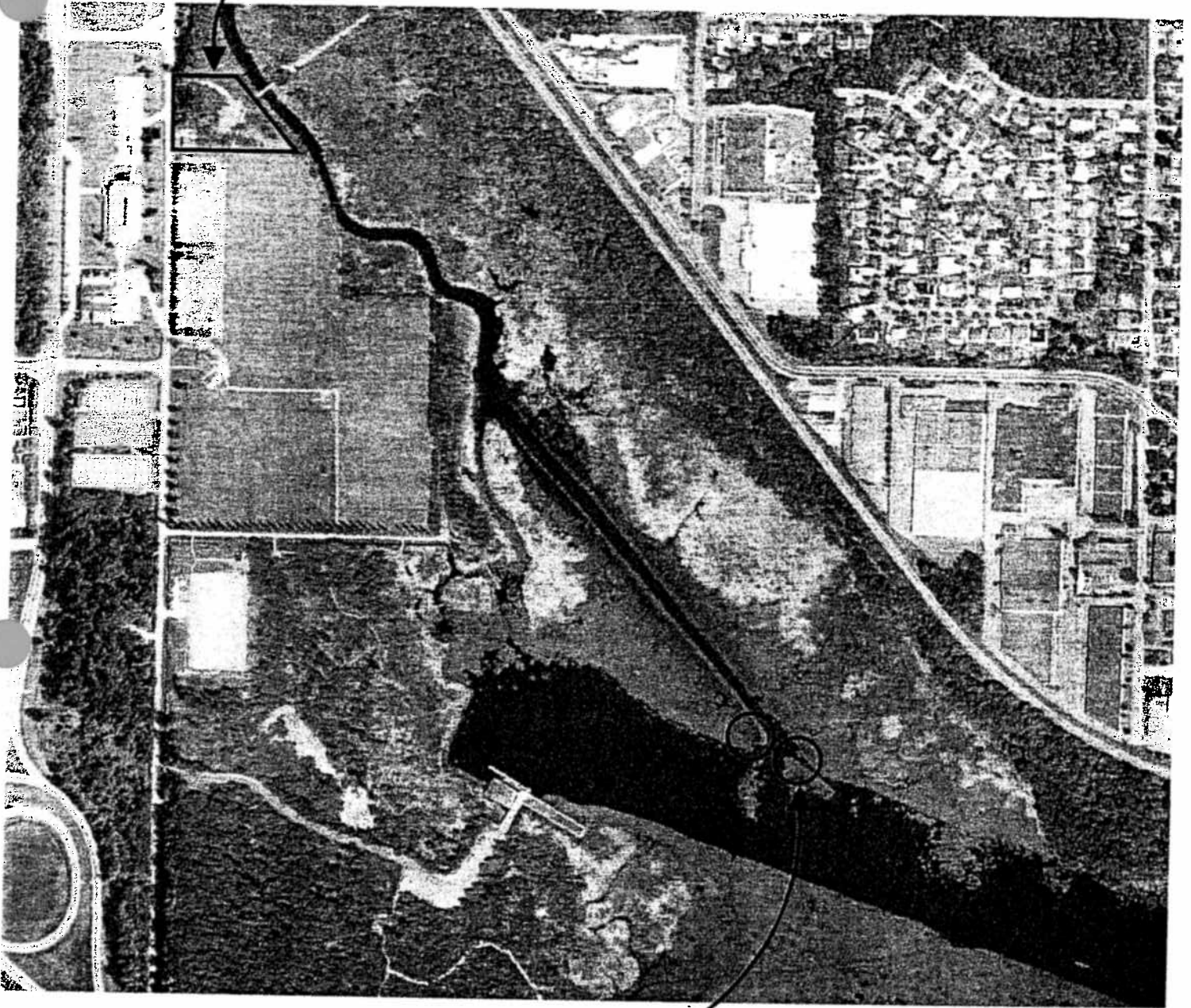
This is provided for the information of the Committee and Council.


DIRECTOR ENGINEERING

LSC:jh

cc: City Manager
Director Planning & Building
Director Parks, Recreation & Cultural Services
Manager - GVRD Parks

STAGING / DEWATERING
AREA



PROPOSED DREDGING
AREA

FIGURE 1
**BURNABY LAKE PILOT
DREDGING PROGRAM**

