



## CITY OF VANCOUVER

### ADMINISTRATIVE REPORT

Date: June 28, 2005  
Author: Jonathan Helmus  
Phone No.: 604-765-1975  
RTS No.: 5361  
CC File No.: 5809  
Meeting Date: July 12, 2005

TO: Vancouver City Council  
FROM: General Manager of Engineering Services  
SUBJECT: Phase Two - Crown Street Sustainable Streetscapes Project

#### RECOMMENDATION

- A. That Council approve a change order to Contract No. 2004-01 for the construction of Phase Two of the Crown Street Sustainable Streetscapes and Fish Habitat Enhancement Demonstration Project, in the amount of \$350,959.73
- B. That Council approve additional funding for the Crown Street Sustainable Streetscapes Project in the amount of \$160,000 to be provided from the 2003 and 2004 Streets Basic Capital Budget for Aging Uncurbed Arterials (CB1EA4BX1 and CB2EA4BX1).
- C. That the Streets Operating Budget for Horticultural Maintenance be increased by \$8,000 beginning 2006, without offset and subject to the annual budget review, to cover the landscaping operating costs for the project.

#### COUNCIL POLICY

Construction contracts over \$300,000 are to be awarded by City Council.

## PURPOSE

The purpose of this report is to obtain Council approval and funding to proceed with the construction of Phase Two of the Crown Street Sustainable Streetscapes and Fish Habitat Enhancement Demonstration Project.

## DISCUSSION

Council approved this environmentally sustainable demonstration project on Crown Street between SW Marine Drive and W 48<sup>th</sup> Avenue in 2002. Funding of \$1.18 million was approved on September 14, 2004 by City Council, with \$545,162 being the city share of the cost. Construction of Phase One of the project has been completed; a traffic-calmed street with minimal impermeable surfaces and a naturalized storm water management system are now in place. Construction costs are higher than originally estimated due to poor existing soil conditions, the presence of an underground spring, and the higher costs of construction currently being experienced in the industry.

The recently finished product of Phase One is shown below. To celebrate this achievement of the City, a Public Grand Opening of Phase One and a 'sod-turning' of Phase Two will occur on Saturday, July 30.



Figure 1. Crown Street Phase One, May 6 2005.

Phase Two will see the replacement of the stream crossings over two of Vancouver's last salmon bearing streams, Musqueam and Cutthroat creeks; street rehabilitation; and pedestrian safety improvements between W 46<sup>th</sup> Avenue and W 48<sup>th</sup> Avenue. On June 14, 2005 the Department of Fisheries and Oceans approved the City's application for the replacement of the two culverts, and restricted in-stream construction between August 1 and September 15 (see Appendix A).

Requests for quotations to build Phase Two were sent to the two construction companies already under contract with the City of Vancouver to build street projects. A tabulation of the two lump sum quoted prices is shown on below with the best offer highlighted:

Contractor	Total lump sum quoted price
<b>Columbia Bitulithic Ltd.</b>	<b>\$350,959.73 plus gst*</b>
Imperial Paving Ltd.	\$361,649.00 plus gst
Engineer's Estimate	\$283,491.15 plus gst

\*GST is fully rebated to the City of Vancouver

The project's design consultant, Dillon Consulting Ltd., recommends the award of the contact to Columbia Bitulithic Ltd. in the amount of \$350,959.73 (see Appendix B), and is not surprised by the increased cost, noting the current level of activity in the construction industry. Our understanding is that the Musqueam Band plans to provide us with \$33,137.92 to continue the final street construction on the Musqueam Reserve, connecting the south end of Crown Street to Stautlo Avenue.

## FINANCIAL IMPLICATIONS

The overall approved budget for this pilot project was \$1.18 million. Through the local improvement process, the adjacent property owners have agreed to fund \$49,363 and the City has agreed to fund \$545,162. The Federation of Canadian Municipalities has awarded a grant of up to \$593,350 to help cover the costs associated with building and monitoring this leading-edge project. Project monitoring will be performed by the UBC's Institute for Resources, Environment and Sustainability. Due to unforeseen underground water and soil conditions, and the current state of the construction industry, an additional amount of \$160,000 is required to complete this project. Pavement maintenance costs will be covered through the yearly engineering operating budget and \$8,000 is required for annual landscaping maintenance. As a pilot project, this sustainable streetscape costs approximately two to three times as much as a conventional paved street. If constructed on an ongoing basis it is expected this cost premium could be reduced somewhat, but this type of street would be difficult to be cost competitive with a conventional street design.

## ENVIRONMENTAL IMPLICATIONS

Phase One has shown dramatic environmental benefits. The series of swales and small ponds lining the street-side encourages direct infiltration of storm water into the ground, and reduces peak flows in the near-by salmon bearing streams. The maturing vegetation and landscape seen in Figure 1 also provides natural filtration of storm water contaminants before it reaches the groundwater table and surrounding streams. Improved water quality and more constant flow levels in the stream will enhance fish habitat.

Fish habitat will be further enhanced by the culvert replacements featured in Phase Two. The culverts currently in place are too small and are filled with silt, making the passage of salmon up and downstream very difficult. Replacing these culverts with adequately sized stream crossings will make this passage easier for fish, and reduce the likelihood of the creeks over topping the banks and roadway as they have in the past.

Working in conjunction with UBC's Institute for Resources, Environment and Sustainability, our plan is to monitor the amount of water infiltration, water quality, and fish population. The success of this project has the potential to change the way we build some residential streets in Vancouver. Engineering will look for other opportunities to move away from the standard curb and gutter system with an underground storm water sewer, to a more naturalized streetscape offering opportunities to maximize green space, reduce heat-island effects associated with wide asphalt surfaces, and reduce requirements for underground storm water sewer pipes.

\* \* \* \* \*



Oceans, Habitat and Enhancement

Lower Fraser Area

Unit 3 - 100 Annacis Parkway (Annacis Island)

Delta, B.C. V3M 6A2

FILE # 654 17  
1032 655 Crown

June 14, 2005

Otto Kauffmann  
City of Vancouver  
453 West 12<sup>th</sup> Avenue  
Vancouver, BC  
V5Y 1V4

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**RE: City of Vancouver - Proposed 6200 Block Crown Street Culvert Upgrades and Replacements - Cutthroat Creek and Musqueam Creek**

Dear Mr. Kauffmann:

Reference is made to the letter and memo to myself of Fisheries and Oceans Canada (DFO) from Dillon Consulting Ltd. dated April 20, 2005 and May 9, 2005 respectively and attachments regarding the above subject.

Based upon the information provided, DFO understands that the City of Vancouver is proposing to conduct works to upgrade and replace two existing culverts in the 6200 block of Crown Street, Vancouver, BC; one culvert at Cutthroat Creek and the other culvert at Musqueam Creek.

Please be advised that, based upon a review of the information provided, DFO has concluded that the proposed works to upgrade and replace two existing culverts in the 6200 block of Crown Street, Vancouver, BC; one culvert at Cutthroat Creek and the other culvert at Musqueam Creek, are not expected to result in the harmful alteration, disruption or destruction of fish habitat. In addition to those measures set out in the information provided, the following measures, are intended to prevent or avoid any potentially harmful effects to fish and/or fish habitat:

1. City of Vancouver acknowledges that all plans and specifications relating to the subject proposal have been duly prepared and reviewed by appropriate professionals working on their behalf. City of Vancouver further acknowledges that it is solely responsible for all design, safety and workmanship aspects of all of the works associated with the subject proposal.
2. The works shall be as described in this letter, as described and/or shown in the following documents:
  - i. The letter to B. Naito of the Department of Fisheries and Oceans from N. Gregory of Dillon Consulting Ltd. dated April 20, 2005 regarding "Crown Street Culvert Upgrade and Replacement, Vancouver Application for Environmental Approval" and attachments.

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- ii. The Dillon Consulting Ltd. Drawings “The Road Ahead – City of Vancouver”:
    - Sheet 3 of 9 “Road Plan & Profile Crown St. From W.46<sup>th</sup> Ave to Stautlo Ave” Revision B dated February 2005.
    - Sheet 4 of 9 “Typical Sections & Details & Planting Plans At Creek Crossings Crown St. From W.46<sup>th</sup> Ave to Stautlo Ave” Revision B dated February 2005.
    - Sheet 7 of 9 “Musqueam Creek Crossing Crown St. From W.46<sup>th</sup> Ave to Stautlo Ave” Revision B dated February 2005.
    - Sheet 5 of 9 “Cutthroat Creek Crossing Crown St. From W.46<sup>th</sup> Ave to Stautlo Ave” Revision B dated February 2005.
  - iii. The Memo to B. Naito from R. Parker of Dillon Consulting Ltd. dated May 9, 2005 regarding “Crown Street Spill Response”.
3. The works are to adhere to the mitigation measures specified in the letter to B. Naito of Department of Fisheries and Oceans from Dillon Consulting Ltd. dated April 20, 2005 regarding “Crown Street Culvert Upgrade and Replacement, Vancouver Application for Environmental Approval” and in the Memo to B. Naito from R. Parker of Dillon Consulting Ltd. dated May 9, 2005 regarding “Crown Street Spill Response”.
  4. The works must only be undertaken during the in-stream work window from August 1 to September 15 of any given year.
  5. The works must be conducted in accordance with the provincial Ministry of Water, Land and Air Protection's *Standards and Best Practices for Instream Works* (March 2004) document. A copy of the interim standards and best management practices document can be found at the following provincial web-site: <http://wlapwww.gov.bc.ca/sry/fwh/hp/iwn.htm>
  6. The works shall be carried out in such a manner so as to avoid any adverse impact on fish or any harmful alteration of fish habitat. If any such alteration occurs DFO reserves the right to immediately suspend or alter operations and the proponent and/or their agent(s) or contractor(s) shall undertake, at their own expense, any remedial works deemed necessary by DFO to ensure a "no net loss" in the productive capacity of local fish habitat.
  7. The DFO Conservation & Protection Field Supervisor in Steveston, B.C. (Ph: (604) 664-9250 / Facs. (604) 664-9255) shall be notified at least five (5) days in advance of the start of the proposed works.
  8. The Musqueam Fisheries Department (Ph: (604) 263-3261 / Fax: (604) 263-4212) shall be notified at least five (5) days in advance of the start of the proposed works.
  9. A copy of this letter must be forwarded to all agents, contractors and/or crew supervisors and must be present on the site while work is proceeding. The agents, contractors and crew supervisors responsible for the subject works must be familiar with and understand the conditions of this letter.
  10. This letter of advice is valid until September 15, 2005, after which time this approval will be void and reapplication will be necessary.

11. It is understood, by proceeding with the subject works, City of Vancouver or its agents or contractors shall have indicated that they understand and have agreed to the foregoing conditions.

Please note that the above comments should not be taken to imply approval of the subject works in accordance with the habitat protection provisions of the *Fisheries Act* or any other federal or provincial legislation. If harmful alteration, disruption or destruction of fish habitat occurs as a result of a change in the plans for the subject proposed works, or failure to implement the additional measures specified above, contravention of Section 35 of the *Fisheries Act* could occur.

Please note that this letter is valid only with respect to fish and/or fish habitat and no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other branch of Fisheries and Oceans Canada or any other regulatory agency(ies).

If you have any questions or require further information, please do not hesitate to contact me at (604) 666-8190.

Yours sincerely,



Brian G. Naito  
Habitat Biologist

cc: N. Gregory, Dillon Consulting Ltd.  
DFO C&P Field Supervisor, Steveston



May 11, 2005

Streets Design Branch  
City of Vancouver  
453 West 12<sup>th</sup> Avenue  
Vancouver, BC  
V5Y 1V4

Attention: Mr. Dave Desrochers, P.Eng.

Dear Mr. Desrochers,

**Re: Crown Street Phase II Construction Estimate**

As requested, we are submitting our recommendation for the construction of Phase II of the Crown Street Project.

Through this second phase of the project, we are proposing the replacement of the existing crossings at Musqueam Creek and Cutthroat Creek. As detailed in our design drawings, we are proposing the installation of box culverts complete with fish baffles to improve fish passage. As part of the proposed works, the existing road leading into the Musqueam Reserve will also be upgraded (almost 150m of road).

For the proposed works, we are forwarding a copy of the estimates we have received from Columbia Bitulithic and Imperial Paving. As mentioned, Columbia Bitulithic has submitted the lowest cost estimate (**\$350,959.73 not including GST**). Imperial Paving has submitted a quote of \$361,649.00, \$10,689.27 more than Columbia's cost estimate.

Because Columbia's quote is the lowest and because they have worked on the first phase of the project and are therefore familiar with the delicate nature of the project, we recommend that they be awarded the construction of Phase II of the Crown Street Project.

If you have any questions or require any additional information, please do not hesitate to contact the undersigned at 604-278-7847.

Yours truly,

**Dillon Consulting Limited**

David Moschini, P.Eng.  
Associate, Project Coordinator

cc: Otto Kauffmann City of Vancouver

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