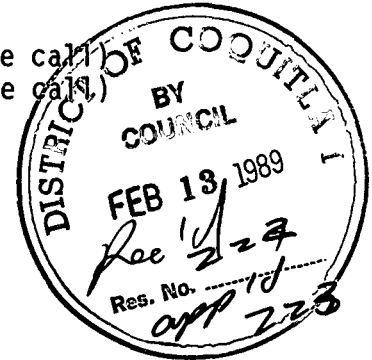




Minutes of a Meeting of the Drainage Committee held at  
Coquitlam Municipal Hall at 0900 h Monday, 6 February, 1989

Attending: Alderman W. LeClair, Chairman (conference call)  
Alderman D. White (conference call)  
Neil Nyberg  
Ken Wright  
Al Kersey



Call to Order.

504-1.1 Booth Creek Storm Drainage Overflow

The Committee reviewed Engineering memo report 8-1478 dated 1989 February 3. The Committee moved that the recommendations of the report that Alternative 2 being an enclosed overflow conduit discharging into the Popeye Creek Channel be utilized if and when the property is developed.

MOVED by Alderman White

SECONDED by Alderman LeClair

Council Action Required:

504.1 That upon development of the property Pcl. A (Ref. Plan 37095) of Lot 3, D.L. 64 PL1122, Pcl. G (Expl. Plan 21810) of D.L. 47, 64 and 111 except pt incl in Pcl. 1 (Ref. Plan 22052), Pcl. 1 (Ref. Plan 22052) of Pcl. G, D.L. 47 and 64 (legal description) now occupied by a flood channel that Council adopt the recommendation on enclosure of the overflow as described on the engineer's report dated 1989 February 3 to:

- (a) That Alternate 2 comprising an overflow conduit extending from a location adjacent the existing headwall to Popeye Creek be incorporated in any future subdivision; and
- (b) That a budget provision of \$64,000 should be presented in the 1989 Annual Budget to allow for possible cost sharing in the provision of the overflow conduit.

5.04.2 That the Land Use Committee be advised of the Drainage Committee's preference.

CARRIED

The Chairman adjourned the meeting at 0920 h.

D I S T R I C T O F C O Q U I T L A M

Inter-Office Communication

TO: Drainage Committee                      DEPARTMENT: Planning                      DATE: 89 February 03  
FROM: Neil Nyberg                              DEPARTMENT: Engineering                      YOUR FILE:  
SUBJECT: JAIKAR DEVELOPMENTS SUBDIVISION AT SHERIDAN AND BRUNETTE                      OUR FILE: 8-1478

---

1.00 BACKGROUND

- 1.01 On November 1988 a plan for a 15-lot subdivision with access from Sheridan Avenue by Jaikar Developments was found technically feasible by the Subdivision Committee. A rezoning application was submitted by Jaikar.
- 1.02 At the public hearing on the proposed rezoning of the property to RS-2, residents of Sheridan objected to the extension of Sheridan. As a result, a meeting was held with the Engineering Department on Wednesday, January 11, 1989 to review.
- 1.03 The site is bisected by a flood control overflow channel for Laurentian Creek. A condition of the agreement with the former owner of the lands, B.C. Hydro, was that this channel be incorporated into any future subdivision in such a manner as to protect the future developer against extraordinary development costs attributable to flood protection for other properties.
- 1.04 Following the meeting with residents, Binnie and Associates, the District's Drainage Consultants, were instructed to prepare an alternate drainage scheme based on a subdivision layout with access to Brunette.
- 1.05 The Subdivision Committee considered a revised layout for the Jaikar subdivision on 16 January 1989. The new layout was based on the revised drainage channel and a new lane connection to improve accessibility to Sheridan for fire protection purposes. The revised layout was found technically feasible on 31 January 89.

1.06 At the Land Use Committee Meeting on January 23rd a request was made of the Engineering Department to review the following additional alternatives relating to the provisions of the overflow channel.

1. Open channel and fence along the west and south boundary of the site adjacent to Brunette,
2. Closed conduit across the site,
3. Closed conduit from the present overflow to Popeye Creek.

The alternatives are illustrated on the enclosed drawings.

## 2.0 DISCUSSION

2.01 In order to complete the 100-year storm overflow from Laurentian Creek, in a closed conduit, a 1200 mm diameter pipe at a 1.5% grade is required.

2.02 The estimated costs of providing the required overflow are as follows:

	<u>Total Cost</u>	<u>Estimated Developers Share</u>	<u>Net to District</u>
Alternate 1	\$ 65,200	\$11,500	\$53,700
Alternate 2	69,000	5,000	64,000
Alternate 3	101,000	5,000	96,000

2.03 Alternate 1 requires a fence on both sides of the channel and culverts across the lane and more access road.

Alternate 2 will eliminate the need for fencing on the open channel within the subdivision. The pipe capacity, however, is limited to the 100-year storm event whereas a ditch will accommodate a greater flow.

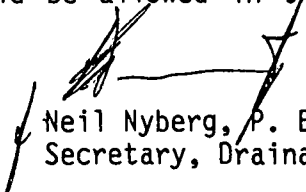
Alternate 3 will also eliminate the existing open channel to the northwest of the subdivision.

## 3.00 RECOMMENDATIONS

3.01 That Alternate 2 be selected and the Engineering Department be instructed to negotiate with the owners regarding cost sharing.

3.02 Payment of \$64,000 should be allowed in the 1989 Capital Budget for Engineering.

KW/pin  
Enc

  
Neil Nyberg, P. Eng.  
Secretary, Drainage Committee

GLENDALE AVENUE

CUTLER ST.

BOOTH CREEK

P A R K

9  
CHAIN LINK FENCE

FLOW DIVERSION

ZONING LINE AS/PER BY LAW

10  
OPEN CHANNEL

SHERIDAN AVENUE

POPEYE CREEK

CHAIN LINK FENCE

16.

CULVERT

46

45

R O A D

P A R K



160

5

16

BRUNETTE

CULVERT

AVENUE

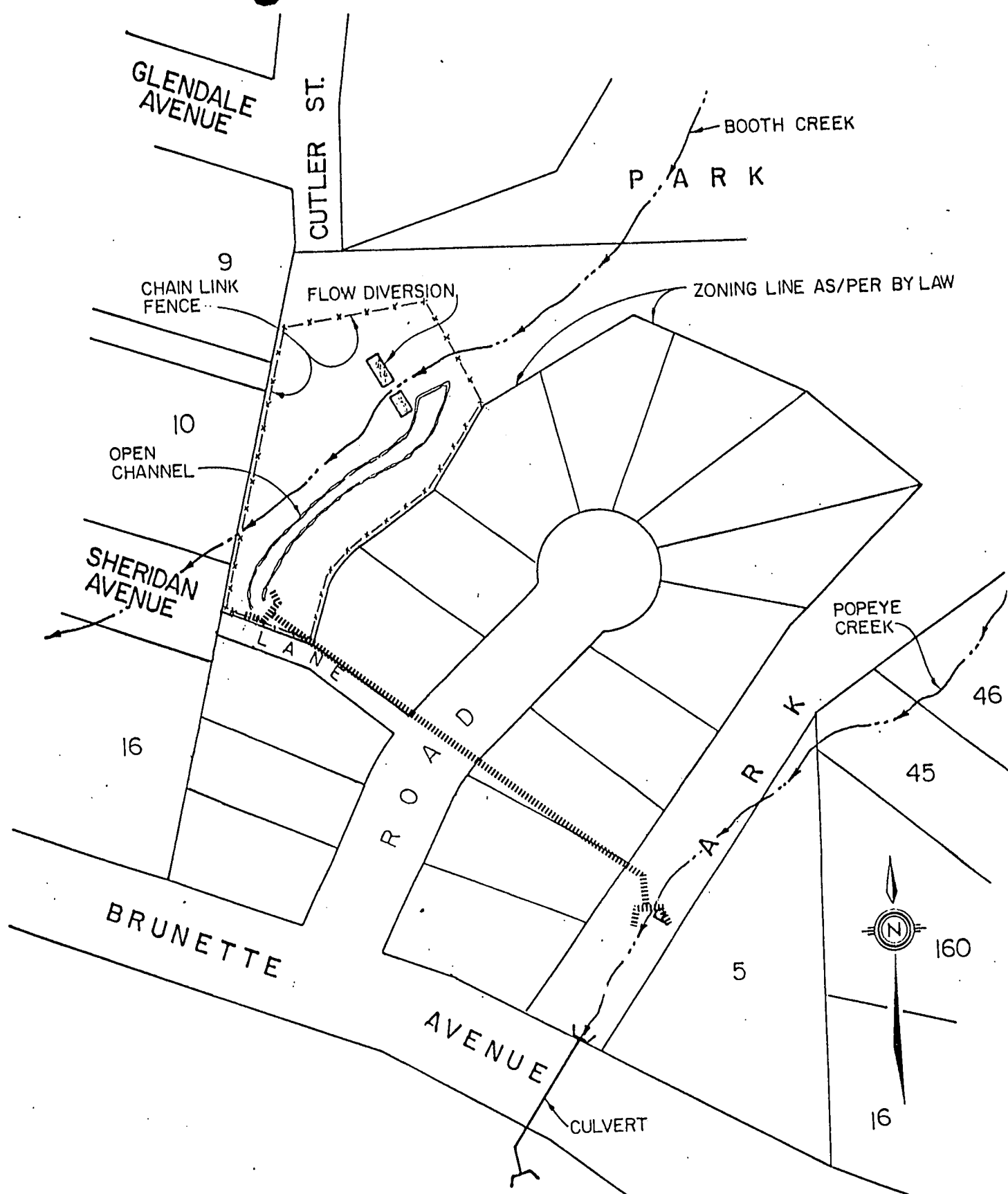
CULVERT

DAWES HILL RD.

**PROPOSED STORM OVERFLOW DIVERSION**

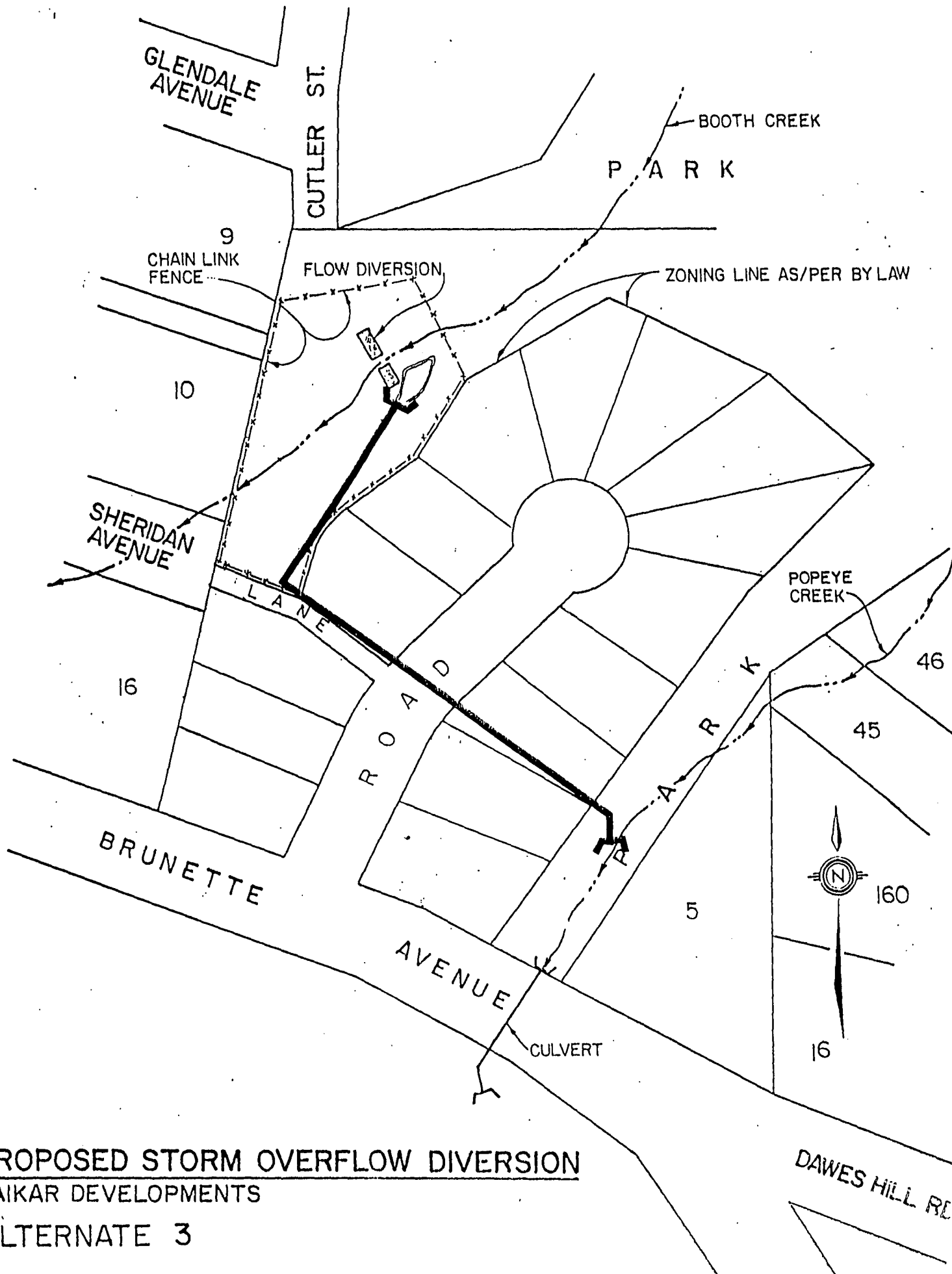
JAIKAR DEVELOPMENTS

ALTERNATE I



**PROPOSED STORM OVERFLOW DIVERSION**  
**JAIKAR DEVELOPMENTS**  
**ALTERNATE 2**

DAWES HILL F

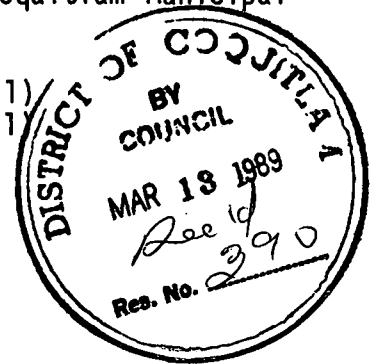


**PROPOSED STORM OVERFLOW DIVERSION**  
**JAIKAR DEVELOPMENTS**  
**ALTERNATE 3**

DAWES HILL RE

MINUTES of a Meeting of the Drainage Committee held at Coquitlam Municipal Hall at 0900 h, Thursday, 1989 March 09.

Attending: Alderman W. LeClair, Chairman (conference call)  
 Alderman D. White (conference call)  
 Neil Nyberg  
 Ken Wright  
 Al Kersey



Call to Order.

504-1 Ditch Elimination Program

- a) Tenders were received 1989 March 03 for Area 6, Laval Project. Low tender by Cicuto & Sons Contracting was \$600,000. A recommendation to Council may be given for contract award on 1989 March 13.
- b) Area 5B and 7 tenders to be opened 1989 March 17.
- c) Recommendation 3.02 on the 1989 annual budget submission contains a typographical error for Area 6. This entry should read \$660,000. The total is correct. The actual cost will be based on the contract awarded by Council and final unit quantities.
- d) The Committee received engineering memo report 05 02 89-16 dated 1989 March 03 and approved the Engineer's recommendations, as amended:

**Council  
Action  
Required**

3.01 That Bylaw No. 1985 be forwarded by the Drainage Committee to Council on 1989 March 13 for three readings.

3.02 That provision in the 1989 Annual Budget submission for the 1989 Ditch Elimination Program be approved as follows:

533055-051	Area 5B	Ditch Elimination	\$ 592,000
533055-060	Area 06	Ditch Elimination	660,000
533055-070	Area 07	Ditch Elimination	<u>200,000</u>
			<b>\$1,452,000</b>

3.03 That engineering design for Area 08, 09, 10, 11 and 12A be made in the 1989 Annual Budget as follows:

533055-080	Area 08	Ditch Elimin: Engineering	\$ 9,600
533055-090	Area 09	Ditch Elimin: Engineering	16,300
533055-100	Area 10	Ditch Elimin: Engineering	15,500
533055-110	Area 11	Ditch Elimin: Engineering	9,600
533055-120	Area 12	Ditch Elimin: Engineering	<u>30,000</u>
			<b>\$ 81,000</b>

*APPRO'D  
CC + 3/29/89  
3/29/89*

MOVED BY ALDERMAN WHITE  
 SECONDED BY ALDERMAN LECLAIR



504-2 The Committee received engineering memo report 01 03 06 dated 1989 February 22 on the status of the Coquitlam Dyking Program. The Committee noted that the federal government will proceed with dyke construction and the C.P.R. is being encouraged to reconstruct the railway at higher elevation to form a dyke, and that Coquitlam will benefit from flood control in the Greene Street Area. The sum of \$10,000 is identified in the 1989 budget for Coquitlam costs toward right-of-way acquisition.

MOVED BY ALDERMAN LECLAIR  
SECONDED BY ALDERMAN WHITE

504-3 The Committee received engineering memo report 01 03 06 dated 1989 March 06 on the status of Fraser Mills Flood Control. The flooding report submitted by the consultant was disappointing. The Committee recommended that the District approach the Ministry of Transportation and Highways and C.P. Rail to construct drainage facilities in conjunction with the Trans Canada Highway widening and reconstruction of C.P. Rail bridges. It is anticipated that Fraser River dyke improvements with floodgates and possibly a storm sewer pumping station may be required in the long-range plan for flood control.

MOVED BY ALDERMAN LECLAIR  
SECONDED BY ALDERMAN WHITE

504-4 The Committee received engineering memo report 01 10 01 dated 1989 March 03 on the possible takeover of the Coquitlam Dyking District now administered by the Inspector of Dykes. The Committee noted that Coquitlam could use dykes for park purposes, public walkways as well as for flood protection. A major expansion of dykes as a result of the Fraser River Flood Control Program is anticipated.

The Committee requested that terms of reference be prepared for a consulting study of the economic consequences of taking over the Dyking District.

MOVED BY ALDERMAN LECLAIR  
SECONDED BY ALDERMAN WHITE

504-5 The Committee requested that a report be prepared on the Ditch Elimination Program showing cash flow, financial status to date and projected cash flow. A status report should be prepared and updated for each Committee meeting henceforth.

MOVED BY ALDERMAN LECLAIR  
SECONDED BY ALDERMAN WHITE

The meeting adjourned at 0945 h.

D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J.L. Tonn, Municipal Manager DEPARTMENT: Administration DATE: 1989 March 03  
 FROM: N.W. Nyberg, Munic. Engineer DEPARTMENT: Engineering FILE:  
 SUBJECT: BYLAW NO. 1985 FOR 1989 DITCH ELIMINATION PROGRAM OUR FILE: 05 02 89-16  
FOR DRAINAGE COMMITTEE

1.00 BACKGROUND

1.01 The 1989 Annual Capital Budget submission included the following budget envelopes for the 1989 and 1990 Ditch Elimination Program:

533055-051	Area 5B Marmont/Lougheed Project, 2450 m	\$ 460,000
533055-060	Area 6 Laval Project, 2909 m	720,000
533055-070	Area 7 Sheridan Project, 1013 m	<u>200,000</u>
	Sub Total	\$1,380,000

1.02 Nine tenders were opened on 1989 March 03 for the Area 6 Contract 89-17. Bids ranged from \$600,000 to \$910,189. These bids indicate that the budget envelope for Area 5B should be adjusted, since the detailed design drawings have established the need for approximately 272 metres of additional enclosure.

1.03 Quantity take-offs from the appraised construction drawings and the recent bids for Contract 89-17, suggest the following revised budgets:

	Pipe Length m	Sub-Total \$	10% Contingency	Total (\$)	Rounded Total (\$)
533055-051 Area 5B	2,722	538,546	53,855	592,400	592,000
533055-070 Area 7	915	182,435	18,244	200,679	200,000

1.04 Bylaw 1985 appropriates \$1,592,000 for construction and contingency from the interest proceeds of the Drainage Reserve Fund for of the 1989 program.

1.05 Approximately \$80,000 is required to design the 1990 program, as follows:

533055-080	Area 08	Dennison/Gerard	650 m	\$ 9,600	(design only)
533055-090	Area 09	Burns/Gauthier	1,100 m	\$16,300	(design only)
533055-100	Area 10	Cottonwood/N.Road	1,050 m	\$15,500	(design only)
533055-110	Area 11	Guilby/Rochester	650 m	\$ 9,600	(design only)
533055-120	Area 12A	Hillside/Brunette	2,036 m	\$30,000	(design only)

3.00 RECOMMENDATIONS

3.01 That Bylaw No. 1985 be forwarded by the Drainage Committee to Council on 1989 March 13 for three readings.

3.02 That provision in the 1989 Annual Budget submission for the 1989 Ditch Elimination Program be approved as follows:

533055-051	Area 5B	Ditch Elimination	\$ 592,000
533055-060	Area 06	Ditch Elimination	600,000
533055-070	Area 07	Ditch Elimination	<u>200,000</u>

\$1,452,000

3.03 That engineering design for Area 08, 09, 10, 11 and 12A be made in the 1989 Annual Budget as follows:

533055-080	Area 08	Ditch Elimination: Engineering	\$ 9,600
533055-090	Area 09	Ditch Elimination: Engineering	16,300
533055-100	Area 10	Ditch Elimination: Engineering	15,500
533055-110	Area 11	Ditch Elimination: Engineering	9,600
533055-120	Area 12	Ditch Elimination: Engineering	<u>30,000</u>

Total \$ 81,000



Neil Nyberg, P. Eng.  
Municipal Engineer

JDM/fb  
Attach.

cc: 05 02 89-17

DISTRICT OF COQUITLAM

BYLAW NO. 1985, 1989

A bylaw to authorize the expenditure of One Million, Five Hundred Ninety-Two Thousand Dollars (\$1,592,000) from the Coquitlam Capital Drainage Works Reserve Fund for capital expenditures under the provisions of Section 378 of the Municipal Act.

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WHEREAS there is an unappropriated balance of \$7,388,488 at 1989 March 13 in the Coquitlam Capital Drainage Works Reserve Fund, consisting of monies transferred by Bylaws 1297 (1982), 1698 (1987) and 1867 (1988), including interest earned thereon and set aside in accordance with the provisions of Section 378 of the Municipal Act, which amount has been calculated as follows:

ESTIMATED BALANCE IN RESERVE FUND AT 1988 DECEMBER 31	\$ 7,268,363
ADD: Additions to fund including estimated interest earnings for current year to date	<u>120,125</u>
	\$ 7,388,488
DEDUCT: Total expenditure bylaws for current year current year to date	<u>0</u>
ESTIMATED BALANCE IN RESERVE FUND AS AT 1989 MARCH 13	\$7,388,488

AND WHEREAS no sinking funds have been or were required to be established;

AND WHEREAS the Municipal council of the District of Coquitlam deems it desirable to expend the sum of One Million, Five Hundred Ninety-Two Thousand Dollars (\$1,592,000) from the amount so set aside for the engineering design and construction of the Ditch Elimination Program;

NOW THEREFORE, the Municipal Council of the District of Coquitlam, in open meeting assembled, ENACTS AS FOLLOWS:

1. This bylaw may be cited for all purposes as the "Coquitlam Capital Drainage Works Reserve Fund Expenditure Bylaw No. 1985, 1989".
2. The sum of One Million, Five Hundred Ninety-Two Thousand Dollars (\$1,592,000) being monies reserved pursuant to provisions of Section 378 of the Municipal Act, is hereby appropriated from the Coquitlam Capital Drainage Works Reserve Fund to meet the costs of the engineering design and construction of the Ditch Elimination Program.
3. The expenditure to be carried out by the monies hereby appropriated shall be more particularly specified and authorized by resolution of Council.
4. The Mayor and the Treasurer of the District of Coquitlam are hereby empowered to do all necessary acts and things to give effect to the transfer and use of funds hereby appropriated.

5. Should any of the above amount remain unexpended after the expenditures hereby authorized have been made, the unexpended balance shall be returned to the credit of the said Reserve Fund.
6. This Bylaw shall come into force and effect on the date of the adoption thereof.

READ A FIRST TIME this                    day of                    A.D. 1989.  
READ A SECOND TIME this                day of                    A.D. 1989.  
READ A THIRD TIME this                day of                    A.D. 1989.

RECONSIDERED, FINALLY PASSED AND ADOPTED and the Seal of the District of Coquitlam affixed with a two-thirds majority of all the members of the Municipal Council this                    day of                    A.D. 1989.

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MAYOR

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CLERK

D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J. L. Tonn                                  DEPARTMENT: Administration          DATE: 89 February 22  
FROM: Neil Nyberg                               DEPARTMENT: Engineering            FILE:  
SUBJECT: DISTRICT OF COQUITLAM & CITY OF PORT COQUITLAM          OUR FILE: 01 03 06  
DYKE REHABILITATION: COQUITLAM RIVER (PROGRESS REPORT)

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FOR DRAINAGE COMMITTEE

1.00 BACKGROUND

1.01 In May 1988 it was reported that the Ministry of the Environment was hiring a consultant to prepare an implementation plan for the upgrading of the Coquitlam River Dykes.

2.00 DISCUSSION

2.01 The Ministry of the Environment hired Associated Engineering Ltd. to prepare the implementation plan.

2.02 A Coquitlam River Information Committee was formed, with representatives from the City of Port Coquitlam, the District of Coquitlam, Federal Fisheries, Provincial Ministry of the Environment and Associated Engineering Ltd. to identify problem areas and express concerns of the various agencies regarding proposed works.

2.03 Through a succession of discussion meetings and field observation, Associated Engineering received the necessary input from the various agencies to prepare a preliminary report which was distributed for review in December 1988.

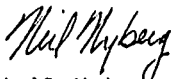
2.04 A meeting of Coquitlam River Information Committee was held on January 11, 1989 to bring all parties up to date on events since the last meeting, and discuss the preliminary report as a whole. At this time, all general concerns were addressed and the general concept of the report was ratified. It was decided at this time that each municipal authority would deal with alignment and property acquisition concerns on an individual basis and the committee would not meet again unless the chair deems it necessary.

### 3.00 STATUS

- 3.01 We have made the initial contact with the major property owners regarding easements or covenants to protect the proposed dyke. Through this contact we have also brought the consultant and the property owners together to discuss the location and structural aspects of the dyke.
- 3.02 Discussions are ongoing between the C.P.R., the Ministry of the Environment and ourselves regarding a satisfactory closure of the dyke at the railway right-of-way near Lougheed and Westwood.
- 3.03 Discussions have been held with B.C. Hydro regarding protection at the Como Lake and Dewdney Trunk Substation. We have agreed on a method of raising the perimeter wall, and Associated Engineering will submit a plan to Hydro for approval.
- 3.04 We have not approached the property owners along Hockaday as construction in this areas is at least 2 years away and the nature of the development could change in this time. Any development applications in this area will be referred to the Ministry of the Environment and they will require a right-of-way for dyke purposes and a flood proofing elevation will be imposed.
- 3.05 When the Province and their consultant have submitted a final plan that will meet our needs, an agreement will be drawn between the Province and Coquitlam setting out the terms and costs of the proposed works. A copy of a sample agreement is attached for information.

### 4.00 SUMMARY

- 4.01 The consultant is proceeding with a final design which will firmly establish alignment and right-of-way requirements.
- 4.02 The Province is co-ordinating the effort to solve the closure problems at the C.P.R. right-of-way.
- 4.03 We have made the initial contact with land owners regarding the need for a right-of-way.
- 4.04 When we receive a final plan, an agreement will be required between the Province and Coquitlam.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

VF/pln

Enc

*Sample Agreement*  
*Capitulation Part of Province* 27.

THIS AGREEMENT MADE THIS 10<sup>TH</sup> DAY OF June, A.D. 1966.

BETWEEN

HER MAJESTY THE QUEEN, in right of the Province of British Columbia (hereinafter referred to as the "Province")

OF THE FIRST PART

AND

THE DEWDNEY AREA IMPROVEMENT DISTRICT, carrying on business at Suite #1, 7340 Horne Street, Mission, within the Dewdney-Alouette Regional District, in the Province of British Columbia (hereinafter referred to as the "Local Authority")

OF THE SECOND PART

WHEREAS an agreement covering a Plan for Flood Control in the Fraser Valley, British Columbia, was signed on the 24th day of May, 1960, by the Government of Canada, represented by the Honourable Jean-Luc Pepin, Minister of Energy, Mines and Resources of Canada, and by the Government of the Province of British Columbia, represented by the Honourable Ray Williston, Minister of Lands, Forests, and Water Resources (hereinafter referred to as the "Federal-Provincial Agreement");

AND WHEREAS the Local Authority has made application to the Province for the implementation of a program for the improvement of existing and construction of new flood control work within its jurisdiction under the Federal-Provincial Agreement;

AND WHEREAS a program under the said Federal-Provincial Agreement provides for the improvement of flood control works within the District boundaries of the Local Authority.

AND WHEREAS plans for a program of improvement to existing and the construction of new flood control work in the Dewdney area have been provided to the Local Authority pursuant to the Federal-Provincial Agreement;

AND WHEREAS the Local Authority has accepted the plans for the program of improvement and construction of flood control work as set out in the aforesaid plans;

AND WHEREAS the implementation and construction of the work is subject to approvals under the terms of the Federal-Provincial Agreement;



AND WHEREAS the total estimated cost of the work is as set out in Schedule "A" attached;

AND WHEREAS programs for the construction and improvement of other work within the Dewdney Area Improvement District may be approved by the appropriate Ministers for Canada and the Province and an agreement or separate agreements for each may be entered into between the Province and the Local Authority with respect thereto at a later date;

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT in consideration of the premises, covenants and agreements herein contained and for other good and valuable considerations, the Province and the Local Authority covenant and agree each with the other as follows:

1. In this agreement "work" means:

- (i) a river or sea dyke, flood box, culvert, ditch or pumping station, intended for use as a flood control or drainage structure, or any appurtenance thereto, or
- (ii) any improvement, construction or otherwise which affords river bank or wave erosion protection

which work is within the boundaries of the area under the jurisdiction of the Local Authority and is constructed or improved pursuant to the Federal-Provincial Agreement.

2. Subject to approvals required under the Federal-Provincial Agreement, the Province will improve or construct that work within the jurisdiction of the Local Authority described in a program approved by the Local Authority by lawful resolution dated April 17, 1906 and in accordance with this agreement.

3. The Province will provide the Local Authority with plans of the completed work, as constructed.

4. The time of commencement and the time limited for the completion of the improvement of construction of the work shall be in accordance with the schedules set out by the Province.
5. The Local Authority shall not be responsible for any part of the cost of the work approved under the Federal-Provincial Agreement but shall be responsible for acquiring and making available such access, easements and rights-of-way as are required for the construction or improvement of the work and for all associated costs thereto except where such rights-of-way or construction access are over Indian lands or Crown lands.
6. Where access, easements or rights-of-way are over Crown lands, the Province will provide such access, easements, or rights-of-way without cost to the Local Authority.
7. The Local Authority shall ~~take over~~ <sup>full ownership and</sup> assume responsibility for, operate and maintain in good order and repair the work as any clearly divisible portion thereof so defined by the Province is completed. *P.P.H.*
8. If any question of the interpretation of this agreement or of the performance of the Province or the Local Authority arises or where no express or only partial or imperfect provision has been made herein a reference shall be made to the Minister of Environment whose determination thereon shall be final and binding.
9. This agreement shall extend to the benefit and be binding upon the parties hereto and their respective successors and assigns.
10. Supplementary agreements between the Province and the Local Authority hereinafter entered into with respect to any other construction or improvement of works under the Federal-Provincial Agreement, shall form part of and be read in conjunction with this agreement. It is understood and agreed that such supplementary agreements shall not become binding on the Improvement District without the express consent in writing by the Improvement District.

IN WITNESS WHEREOF the Honourable Austin Pelton has hereunto set his hand on behalf of the Province, and the Corporate Seal of the Dewdney Area Improvement District has been hereunto affixed in the presence of Ross Kinneard, Chairman, and J. Price, Administrator, on behalf of the Local Authority.

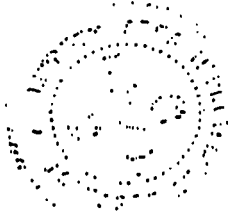
SIGNED on behalf of the Province of  
British Columbia

In the presence of

*Eleanor J. Solomon*

*Austin Pelton*  
Minister of Environment

The Corporate Seal of the  
Dewdney Area Improvement  
District



*R. Kinneard*  
Chairman

*J. Price*  
Administrator

SCHEDULE "A"

ESTIMATED COSTS

The following is the estimated cost of the work within the area under the jurisdiction of the Dawdney Area Improvement District to be improved or constructed under this agreement:

(a) Dyking	\$5,700,000
(b) Bank Protection	1,125,000
(c) Hatzic Slough Dam	<u>300,000</u>
TOTAL (a), (b), (c)	\$7,125,000

D I S T R I C T O F C O Q U I T L A M

Inter-Office Communication

TO: J. L. Tonn DEPARTMENT: Administration DATE: 89 March 06  
 FROM: Neil Nyberg DEPARTMENT: Engineering YOUR FILE:  
 SUBJECT: STATUS REPORT - FRASER MILLS FLOOD CONTROL OUR FILE: 01 03 06

FOR DRAINAGE COMMITTEE

1.00 BACKGROUND

1.01 In August 1988, Reid Crowther and Associates were retained by Coquitlam to undertake a review of the Fraser Mills Drainage Basin to determine future improvements necessary to minimize flooding of the Lougheed Highway, Schoolhouse Street and Booth Creek.

1.02 Some preliminary data collection had been completed in 1987 by District crews. This data was compiled in the District ILLUDAS Program by temporary staff working in the Drafting Section. The Consultant was expected to use the raw data to analyze the natural and man-made drainage systems under a variety of storm events.

1.03 The Consultant modelled the drainage basin using EXTRAN and ILLUDAS software for the following key conditions:

<u>Storm Return Period</u>	<u>Probability of Occurrence In Any Year</u>	<u>Fraser River Return Period</u>	<u>Probability of Occurrence In Any Year</u>	<u>Fraser River Water Level At Como Creek</u>
1:10 yr.	0.10	1:1 yr.	1.000	6.0 ft.
1:10 yr.	0.10	1:160 yr.	.006	12.5 ft.
1:100 yr.	0.01	1:1 yr.	1.000	6.0 ft.
1:100 yr.	0.01	1:10 yr.	0.100	10.5 ft.

1.04 The objective of the study was to identify and prioritize those critical improvements necessary to minimize flooding at certain storm return periods. This information would be used to guide developers as to drainage improvements; discuss improvements with CP Rail and the Ministry of Transportation and Highways; and to assist in budget preparation.

## 2.00 DISCUSSION

2.01 The Reid Crowther Report of March 1989 recommended cleaning of debris from channels, regrading and lowering culverts and additional culvert. Much of the capital upgrading could be handled by the Ministry of Transportation and Highways and future land developers in Fraser Mills. Channel maintenance will be handled as a routine operations activity over a number of years.

2.02 Three projects require detailed investigation and coordination with the Ministry of Transportation and Highways; CP Rail; and the future developers of the Fraser Mills Industrial Park. Potential priority projects for the Fraser Mills drainage area emerge from the study:

- A new 2.5 m x 3.5 m culvert capacity 16.25 m<sup>3</sup>/s at approximate invert elevation 1.25 m crossing the Trans Canada Highway, at Como Creek.
- A new 2.5 m x 3.5 m culvert capacity 16.25 m<sup>3</sup>/s south of the Highway 1 crossing at elevations 1.15 m crossing the CP Rail main rail line; and
- A new dyke and floodgate in the lower reaches of Como Creek in the Fletcher Challenge Fraser Mills development.

2.03 Major culvert construction under the highway is probably required to achieve an improved hydraulic profile north of Highway 1. To prevent the Fraser River tidal waters from 'backing up' the main channels of Booth Creek, Schoolhouse Creek, it may be necessary to install 'tidal' gates in a dyke or dam. However, installation of tidal gates could require extensive storage in the lower reaches of Como Creek. It may even be necessary to provide pumping to remove the accumulated drainage held behind the dyke. Local flood protection improvements are also necessary to protect property from high water levels in the Fraser River during heavy rainfall.

...3

2.04 The installation of at least one major culvert needs the cooperation of the Ministry of Transportation and Highways. The Ministry want the work to be carried out in conjunction with the widening of Highway 1. However, serious negotiation is required to determine an equitable cost sharing. Similarly, the railway culvert requires discussion with CP Rail. It is not expected that the necessary agreements with the above agencies can be achieved in 1989.

3.00 RECOMMENDATIONS

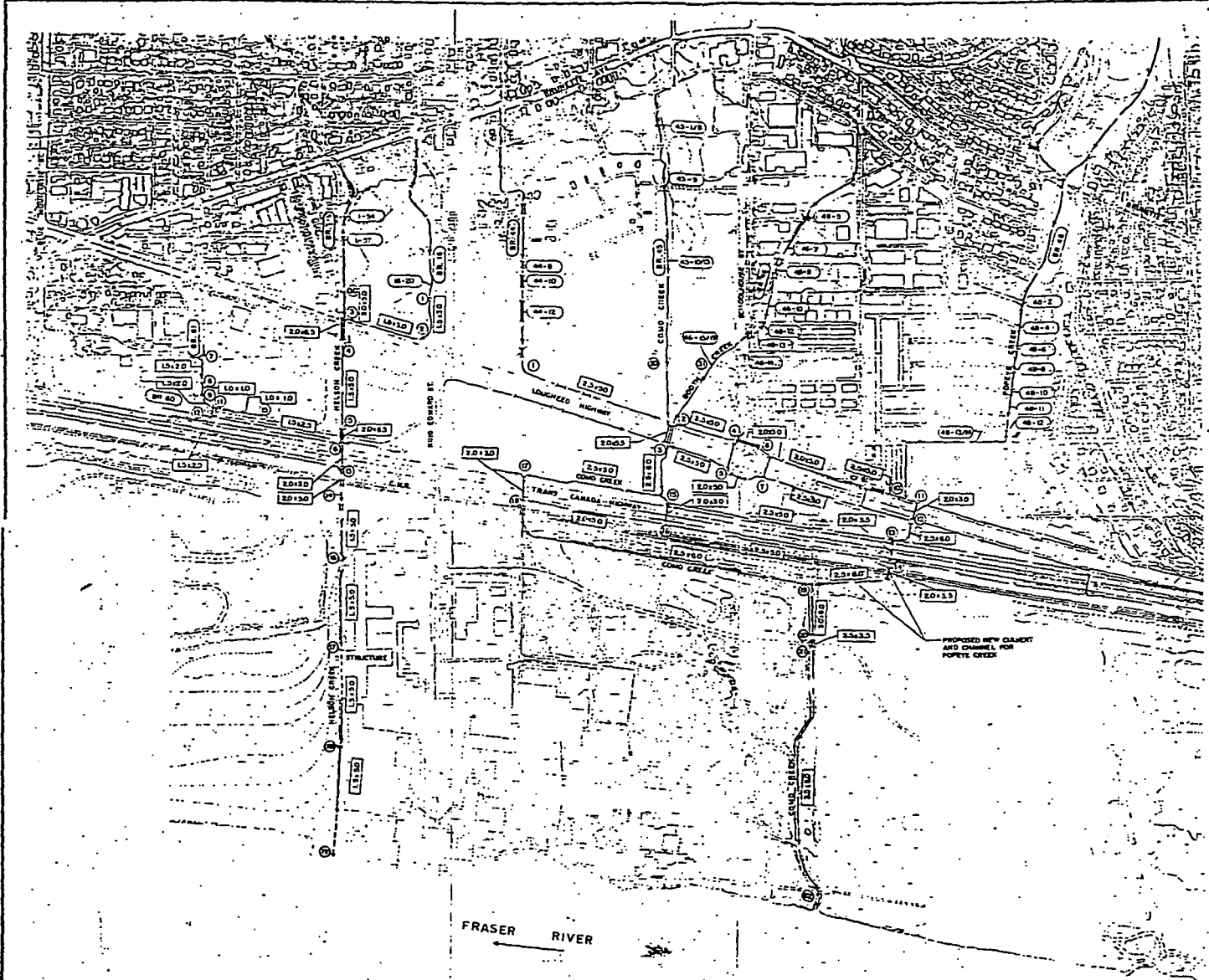
3.01 That the Engineering Department be authorized to approach the Ministry of Transportation and Highways, Federal and Provincial Fisheries Departments and CP Rail to commence negotiations for major drainage works in Fraser Mills.



Neil Nyberg, P. Eng.  
Municipal Engineer

KW/pin

Encs: Consultant Terms of Reference  
Key Plan  
Profiles of Booth and Nelson Creeks



**NOTES:**  
 1. TO BE READ IN CONJUNCTION WITH DRAINAGE REPORT  
 2. FOR PROFILE DATA SEE FIGURES 3J - 3K

- LEGEND:**
- EXISTING DRAINAGE CHANNEL
  - EXISTING CULVERT
  - EXISTING BRIDGE
  - BRANCH - REACH NUMBER (ILLU/DAT MODEL)
  - NODE NUMBER (EXTRAN MODEL)
  - EQUIVALENT WATERWAY AREA (MODELLED)

FRASER RIVER


**Reid Crowther**  
 Reid Crowther & Partners Ltd  
 Professional Engineers & Planners  
 1000 West Broadway, Vancouver, B.C. V6H 3T9  
 Tel: (604) 681-3333 Fax: (604) 681-3334

DISTRICT OF COQUITLAM  
**FRASER MILLS DRAINAGE STUDY**

Project No.	31270
Scale	1:4000
Sheet No.	31270
Figure	FIGURE 1



# DISTRICT OF COQUITLAM

1111 Brunette Avenue  
Coquitlam, B.C. V3K 1E9

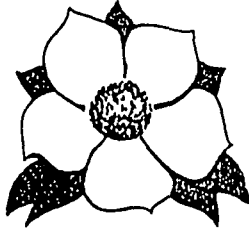
Mayor: L. Sekora

Phone: (604) 526-3611

Fax: (604) 526-6014

ENGINEERING DEPARTMENT

File: 05 02 88/12



Reid Crowther  
200 - 260 West Esplanade  
North Vancouver, B. C.  
V7M 3G7

88 July 14

Attention: Mr. Peter Galbraith

Dear Sir:

Re: Request for Proposals- Fraser Mills Drainage Study

The District of Coquitlam is requesting proposals for an analysis of the capacity of all existing storm drainage works, including water courses and structures in the Fraser Mills Drainage Basin.

The work will cover the area south of Brunette Avenue, east of Blue Mountain Street and west of Coleman Avenue, and will determine the following:

- 1) Capacities of existing ditch and channel systems as well as requirements for 10, 100 and 200-year flood conditions.
- 2) Capacities of existing culverts and structures of the Highway 401, C.P.R. and Lougheed Highway rights-of-ways.
- 3) Recommendations for any storm drainage pumping stations similar to the Mayfair Station.
- 4) Recommendations for the necessity of installation of floodgates along the Fraser River.
- 5) Recommendations for requirements to protect the subject Area from damage due to flooding during 10, 100 and 200-year flood conditions.

The assignment schedule is to have the drainage study completed by 1988 December 20.

Proposal submissions should be concise and deal with the project study and approximate cost. Proposal evaluation will be based primarily on the ability of the consultant to ensure the supply of the required information in the time frame and the appropriate level of effort to ensure lowest future design and construction costs.

...2

- 2 -

Proposals will be will accepted at the Work Reception Counter of the Engineering Department, Coquitlam Municipal Hall, until 1988 August 03. Notice of Award is expected by August 10, 1988.

Reference material may be viewed at the Municipal Hall. Contact Mike Iviney, Acting Project Manager, at 526-3611, Local 234, to arrange a viewing time.

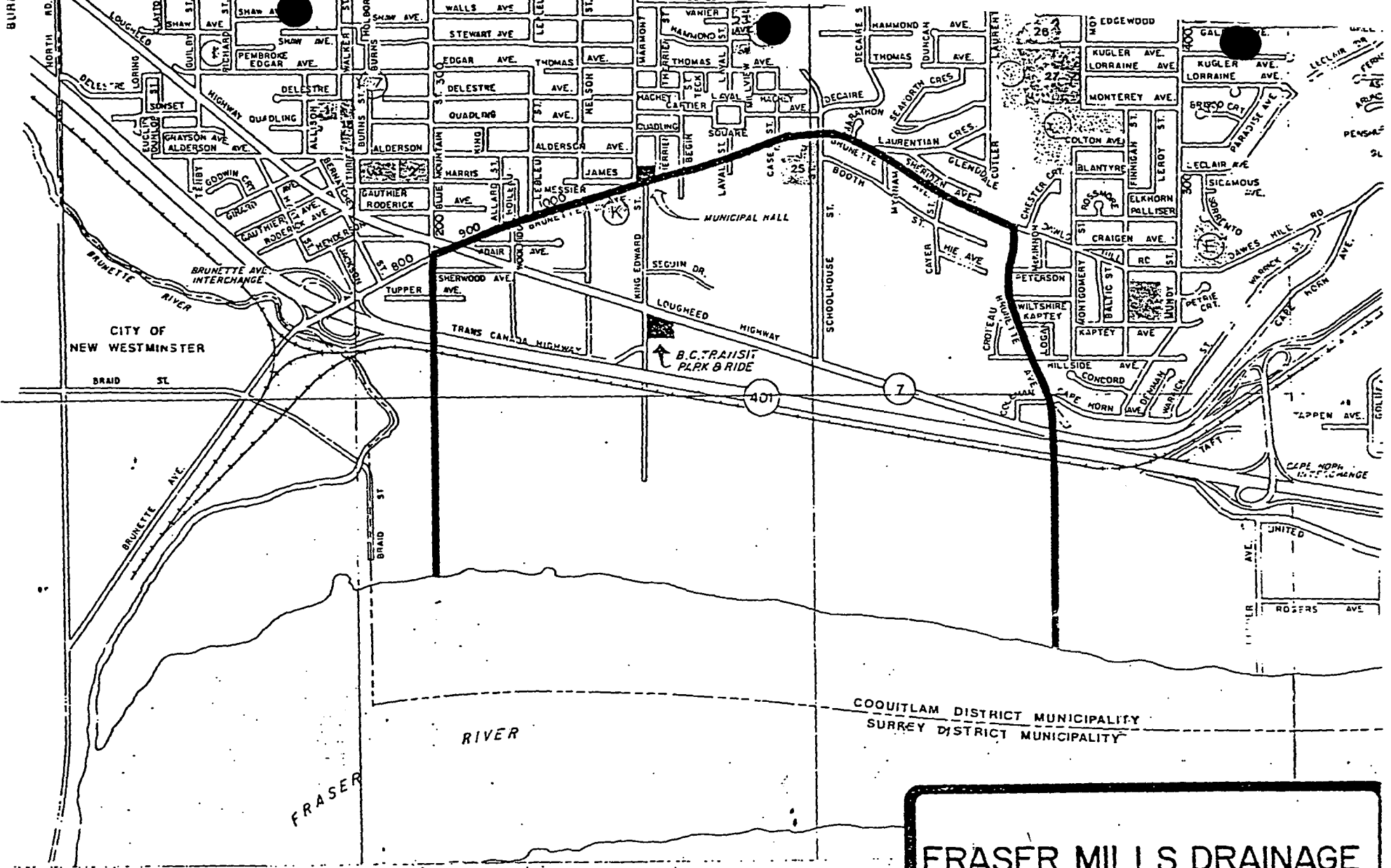
Should you have any further questions, please contact the Acting District Design Co-Ordinator, Mike Iviney, at 526-3611, Local 234.

Yours truly,



D. A. Kersey, A.Sc.T.  
Senior Project Technologist

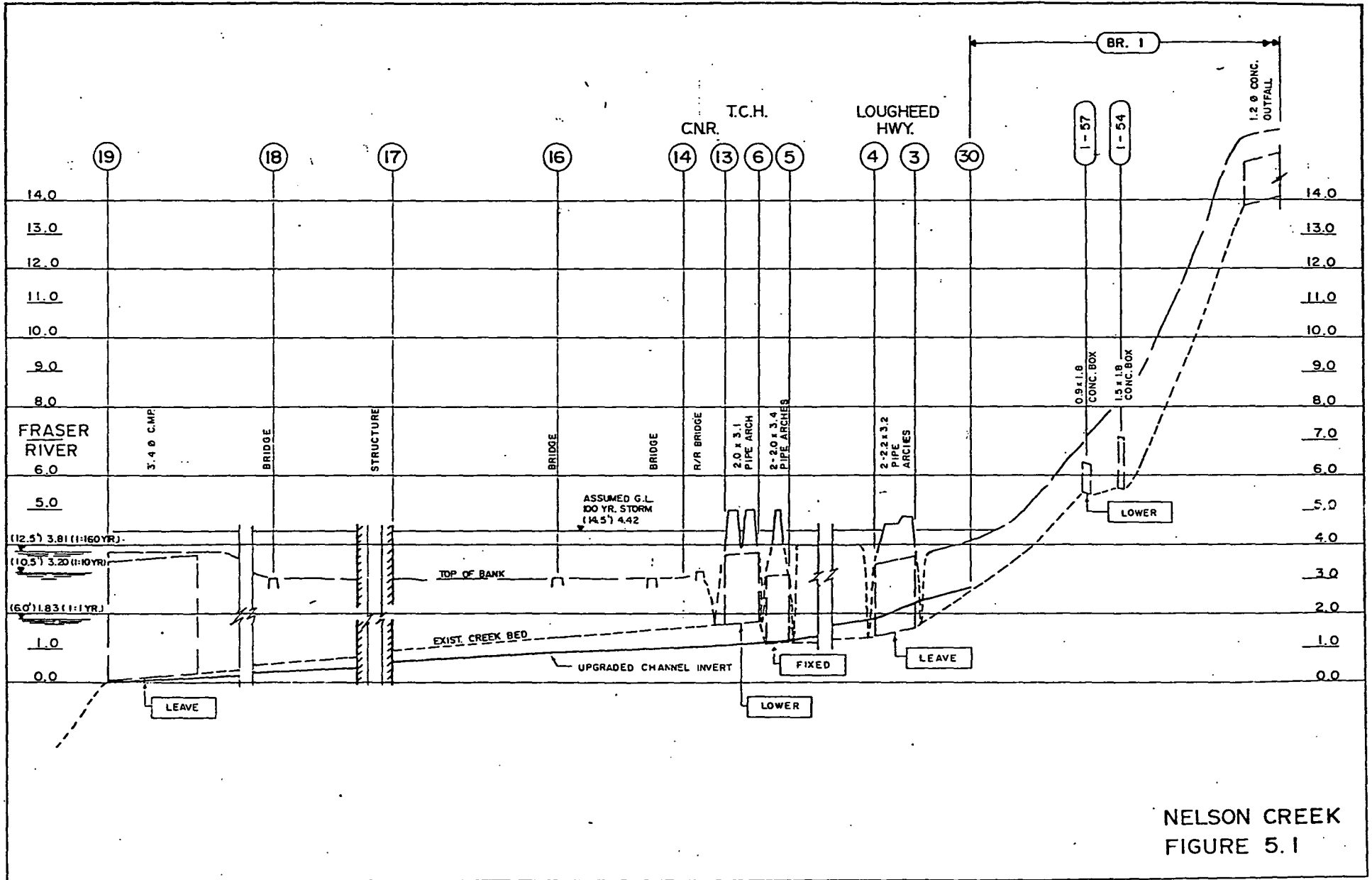
MI/pfn  
Enc



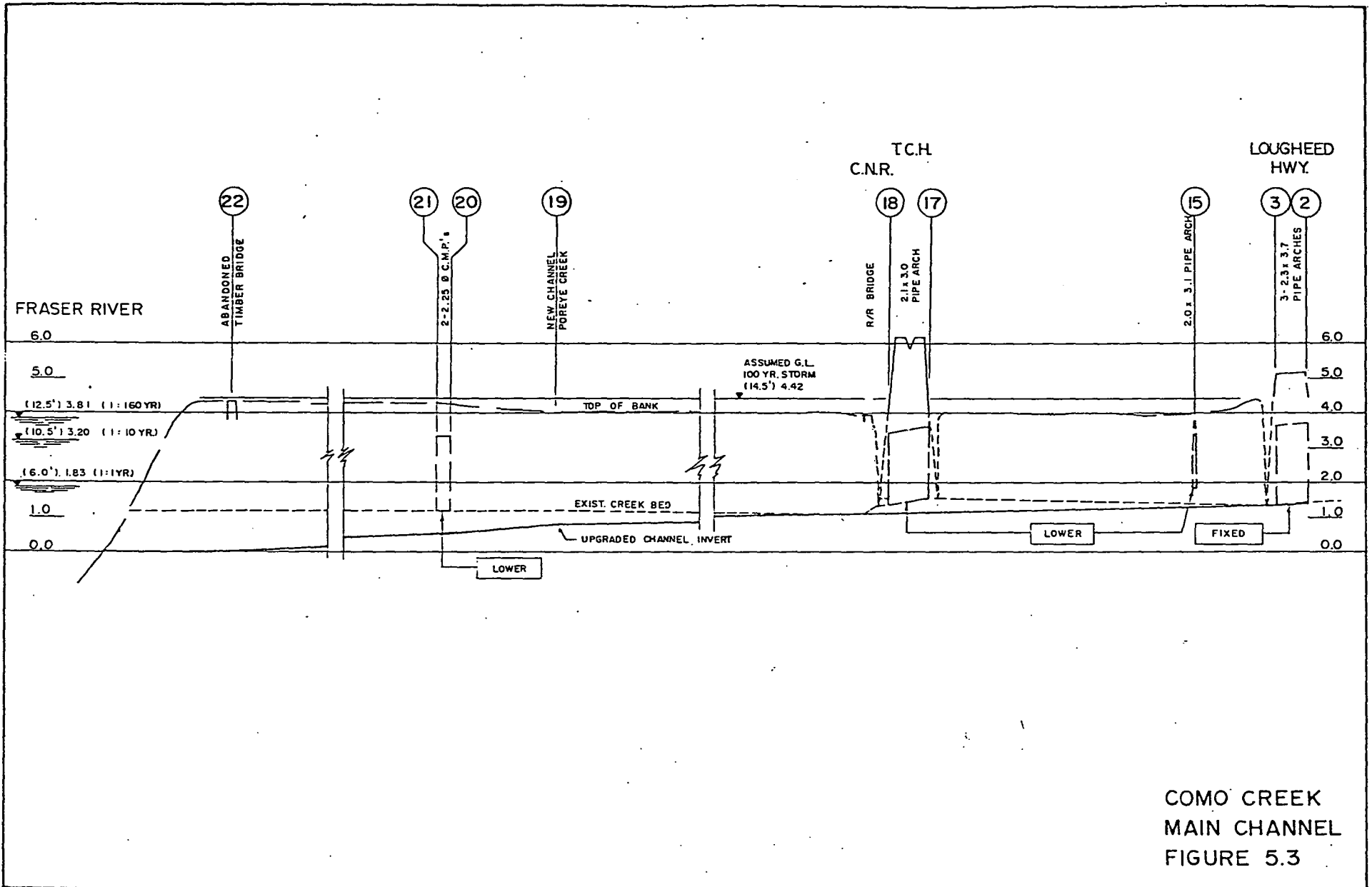
**FRASER MILLS DRAINAGE  
STUDY AREA**

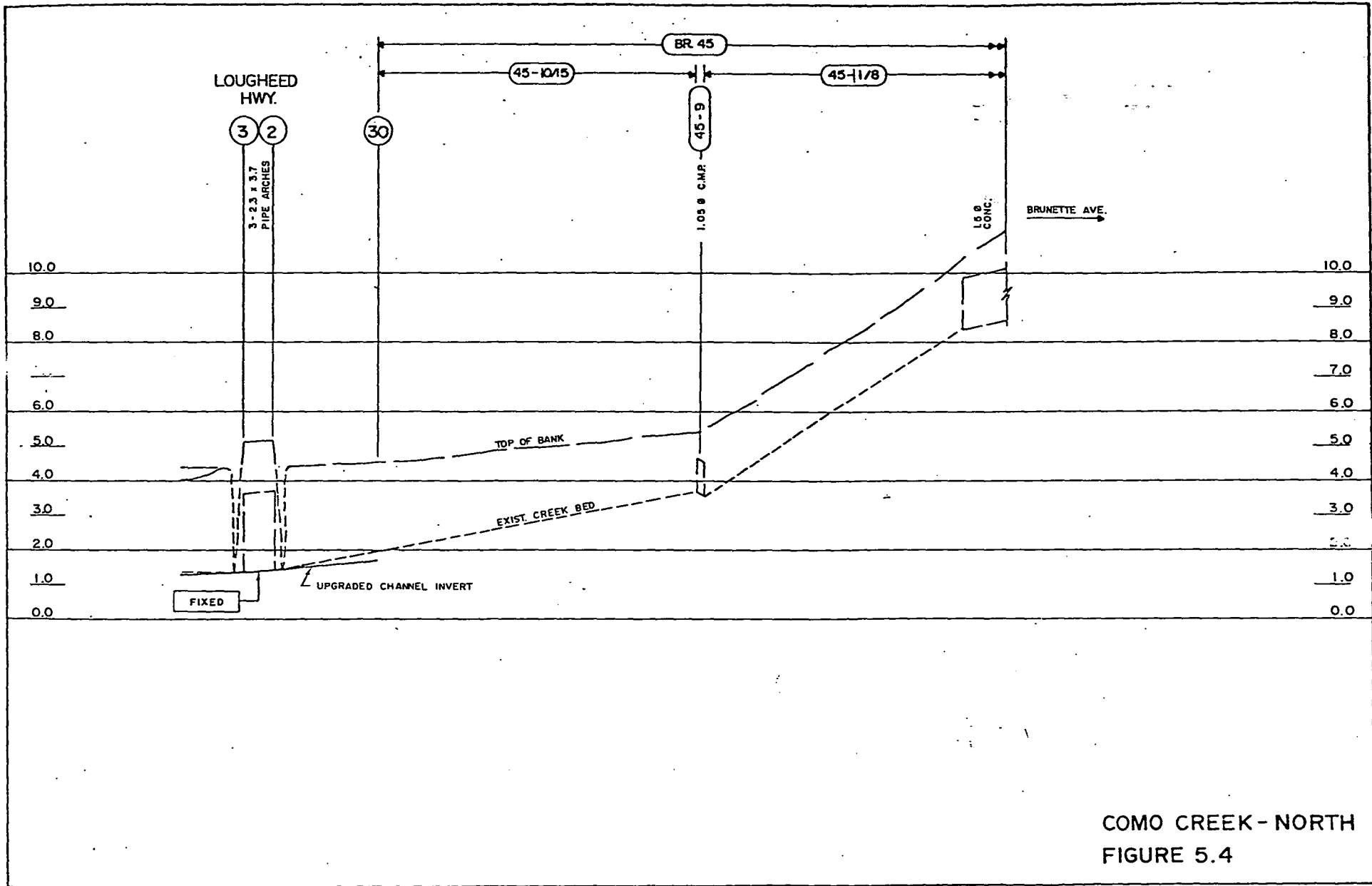
**LEGEND**

DRAINAGE STUDY BOUNDARIES



NELSON CREEK  
FIGURE 5.1





COMO CREEK - NORTH  
FIGURE 5.4

## D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J. L.Tonn, Municipal Manager DEPARTMENT: Administration DATE: 1989 March 03  
 FROM: Neil Nyberg DEPARTMENT: Engineering FILE:  
 SUBJECT: COQUITLAM DYKING DISTRICT OUR FILE: 01 10 01  
 TRANSFER OF OPERATION AND MAINTENANCE

---

FOR DRAINAGE COMMITTEE1.00 BACKGROUND

- 1.01 The Coquitlam Dyking District is presently managed by the Inspector of Dykes' office. This District was originally established by local commissioners in 1892 under the Drainage, Ditch and Dyke Act. Due to financial difficulties, the Inspector of Dykes was appointed as Receiver of the District in 1905.
- 1.02 The original dyke was constructed in 1893-1894 using native material from adjacent borrow ditches. In 1949-1950 the dyke was rebuilt by the Fraser Valley Dyking Board. In 1984, under a Provincial Dyking Program, the old flood box was replaced by a new concrete structure.

2.00 PHYSICAL DATA

- 2.01 There are 4.7 kilometres of dyke in this area protecting 611.5 hectares of low land along the Pitt River north of DeBoville Slough.
- 2.02 Drainage from the protected area is handled by one concrete flood box with four 1,800 mm diameter concrete pipes and flap gates. This is backed by one pump station with a 900 mm diameter vertical turbine pump installed in 1938 with an approximate rated capacity of 45 cubic feet per second.

3.00 CONDITION OF THE DYKE

- 3.01 During 1974-75 an assessment of the dyke condition was carried out. Following this assessment, a final design report was prepared outlining remedial works and estimated costs. This report identifies works representing a total cost of \$3,009,000. In June 1975 these works, north of DeBoville Slough, were removed from the Federal Provincial Flood Control Program.
- 3.02 In 1984, the Ministry of Environment Inspector of Dykes replaced the flood box north of DeBoville Slough. This still leaves \$1,511,000 worth of improvements to the dyke and seepage ditches; \$262,100 to replace the pump installation, and \$726,500 for raising Cedar Drive and improving the channel of Partington Creek. The costs are in 1975 dollars and the actual 1989 cost of these works could be considerably higher.

4.00 PROPOSAL

- 4.01 The Inspector of Dykes is proposing that the Municipality take over the operation and maintenance of the dykes and related works in the Coquitlam Dyking District. He has submitted an information package (attached) which shows the financial status of the operation, and outlines the steps required to make the transfer.
- 4.02 An annual tax levy of \$13.00 per acre raises \$11,339.25 for the maintenance and improvement of the dyke each year. A renewal reserve for future replacement of the pump station stands at \$103,773.69. These financial resources would be transferred to Coquitlam as part of the 'takeover package'.
- 4.03 There are potential economies of scale to consider when evaluating the transfer of dyking district assets and taxing powers. When the Federal/Provincial Fraser River Dyking Program completes the flood protection works on the Coquitlam River, a much more significant inventory of flood protection works will be assumed by Coquitlam. Moreover, the existing dyke along the Fraser, formerly maintained by the British Columbia Building Corporation, is now maintained by the lease holders for the former Colony Farm lands. A consolidation of assets and liabilities related to flood protection could be the most cost effective approach to sustaining a consistent and appropriate level of flood protection in Coquitlam.
- 4.04 An investment in updating the cost of upgrading, maintenance and replacement work should be considered. A budget of perhaps \$20,000 would allow for the work of a consulting engineer to examine the existing and proposed facilities, and determine the costs of 'perpetual care'. Possibly the Provincial Government would assist in the cost of such a study.

5.00 RECOMMENDATION

- 5.01 Prepare terms of reference for a consultant study and report back to the Drainage Committee.



Neil Nyberg, P. Eng.  
Municipal Engineer



COQUITLAM DYKING DISTRICT

INFORMATION PACKAGE

01 10 01

1. GENERAL HISTORY

The Coquitlam Dyking District is managed and administered by the Inspector of Dykes' office. This district was originally established by local Commissioners in 1892 under the Drainage, Ditch and Dyke Act. Due to financial difficulties the Inspector of Dykes was appointed as receiver of the district in 1905.

The original dykes built in 1893 - 94 were constructed with native material from adjacent borrow ditches. The partially constructed dykes were damaged in the highest flood of record in 1894. In the 1948 flood the dyke held with only some seepage and minor flooding. In 1949 - 1950 the dyke was re-built by the Fraser Valley Dyking Board.

A preliminary design for the dyke rehabilitation under the Fraser River Flood Control Program was prepared by Crippen Engineering in 1975. However, since the benefit/cost ratio was less than 1, the dykes north of Debouville were not rehabilitated. In 1984, under a Provincial Dyking Program, the old floodbox was replaced by a new concrete structure.

2. PHYSICAL DATA

- Area Protected = 872 Acres
- Length of Dyke = 2.9 Miles
- One Pumpstation with a 36" diameter vertical turbine pump installed in 1938 with an approximate rated capacity of 20,000 U.S. Gallons per minute.
- One concrete floodbox with four 72-inch diameter concrete pipes and flapgates. Constructed in 1984.

3. CONDITION OF THE DYKE

The dyke design elevation should be 16.9 ' GSC which allows two feet of freeboard above the 1894 flood of record. The existing dyke elevation varies from 14.8 to 16.0 feet based upon a 1975 survey. The crest width varies from ten to twelve feet wide. The side slopes are generally stable but steep, in the range of 1 1/2 to 1. The dyke does require tree and brush removal on an annual basis. There is some rock bank protection on the riverside slope of the dyke along the Pitt River.

4. FINANCIAL DATA

The annual tax levy based upon \$13.00 per acre, raises \$11,339.25. This levy has been constant since 1982.

Annual expenditures are generally as follows:

Hydro Power Costs	\$4,000.00
Brush Cutting	\$5,000.00
Trash Rack Cleaning	\$1,000.00
Miscellaneous Repairs	\$1,000.00

A Renewal Reserve Fund of \$103,773.69 has been established to provide funds for the eventual replacement of the pump station.

F I N A N C I A L   S T A T U S

COQUITLAM DYKING DISTRICT

SEPTEMBER 30, 1988

OPERATING:

Current Account:	#23-00710	\$ 5,195.54	
Savings Account:	#95-09062	\$ 19,383.85	\$ 24,579.39
Taxes Owing:	1987	\$ 754.63	
-accrued interest @ 6% from Sept. 30/87 to Sept. 30/88 (366 days)			
		\$ 40.32	\$ 798.55
			\$ 25,377.94

TERM DEPOSIT - RENEWAL RESERVE:

*pump station replacement*

Savings Account:	#95-09267		\$ 359.81
Term Deposit:		\$100,000.00	
\$100,000.00 @ 7% interest for 181 days accrued interest Apr. 19/88 to Sept. 30/88 (164 days)			
		\$ 3,143.88	\$103,143.88
			\$103,773.69



Province of  
British Columbia

Ministry of  
Environment

Water Management Branch  
INSPECTOR OF DYKES,  
34345 Vye Road  
Abbotsford, B.C.  
V2S 4N2

October 24th, 1988

File: C7-1

*FILE → 050288/28  
011001*

ENGINEERING DEPT.		
COPIES TO:		
RECEIVED		
OCT 27 1988		
CIRC.	INIT.	DATE
SR	AC	1988 Nov 4
VF	2	BB-K-15

District of Coquitlam  
1111 Brunette Avenue  
Coquitlam, B. C.  
V3K 1E9

ATTENTION: Mr. S. Rondestvedt

Dear Sirs:

Re: Coquitlam Dyking District

This letter is further to our information meeting of October 19, 1988, regarding the possible transfer of the operation and maintenance of the Coquitlam Dyking District to the District of Coquitlam. At this meeting we discussed the present operation of the dyking district by the Inspector of Dykes and the facilities in the dyking district. At the conclusion of the meeting, it was decided to further pursue the legalities of accomplishing the transfer.

I have done some research on past transfers of dyking districts to municipalities. There is a Section 595 in the Municipal Act pertaining to transfer of a development district, see attached. Also I have photocopied Section 170 of the Drainage, Ditch and Dyke Act. The procedure during past transfers of dyking districts was as follows:

1. The municipality passes a Council resolution indicating that the municipality is prepared to take over, operate and maintain the facilities of the dyking district and will assume all the assets and liabilities of the dyking district.
2. Upon receipt of a certified copy of the Council resolution, an Order-in-Council is prepared by the Ministry of Environment for approval by the Legislature, see example enclosed.
3. An audit of the financial status of the dyking district is prepared.

Mr. S. Rondestvedt  
Page .... /2  
October 24, 1988

4. Upon approval of the Order in Council, the dyking district is dissolved and the assets and liabilities are transferred.
5. Land Registry Office is advised to change all charges on titles to lands in the dyking district to the District of Coquitlam.

Regarding dykes south of DeBouville Slough, I have been able to locate a draft copy of the inter-municipal agreement between your municipality and the City of Port Coquitlam, see enclosed. However, I do not have a final signed copy so I am unsure of the wording of the final agreement.

If I can be of any further assistance regarding the transfer of the Coquitlam Dyking District, please call me at 852-5404.

Yours truly

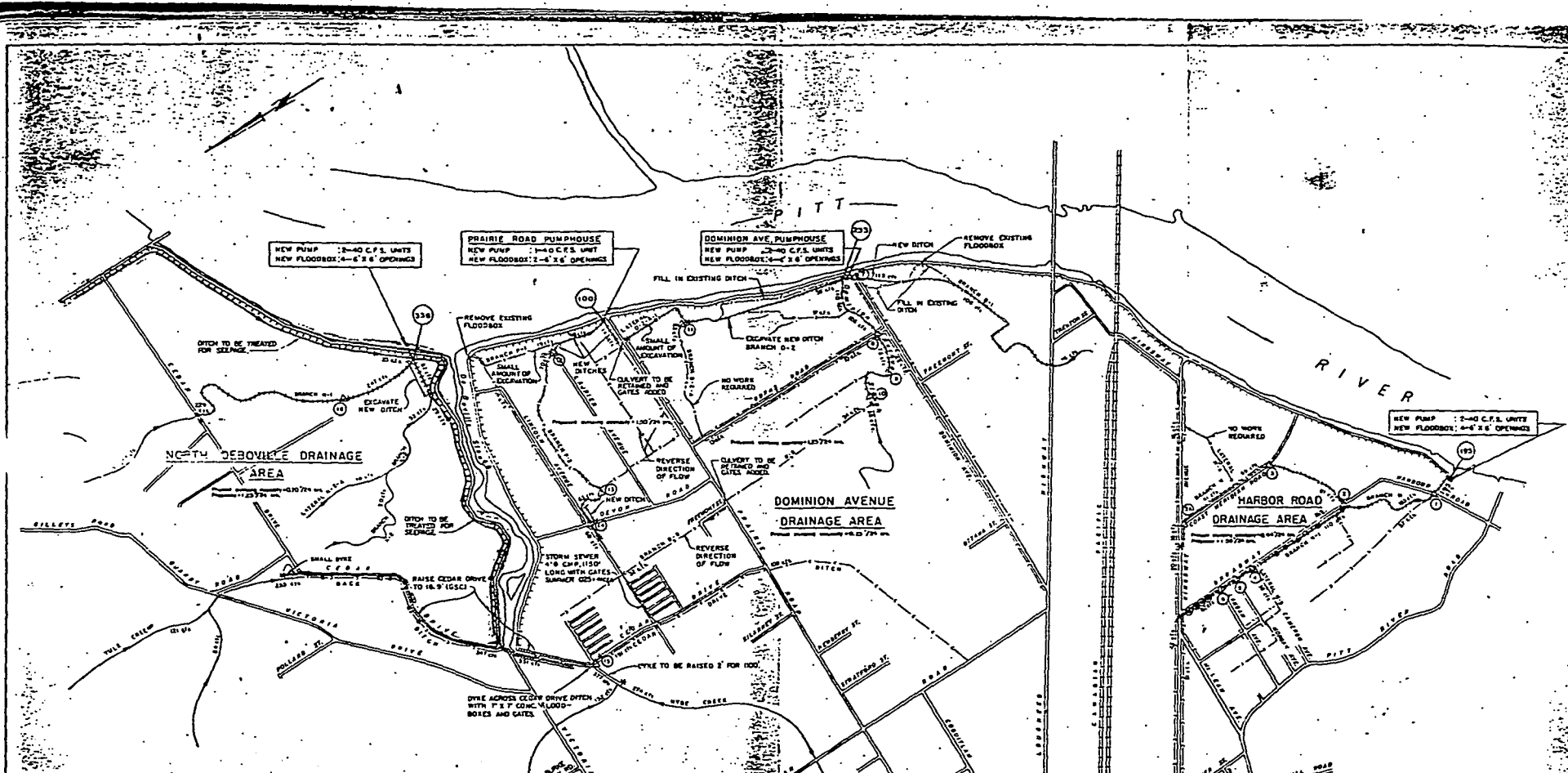


R. J. Henry, P. Eng.  
Assistant Inspector of Dykes

RJH:mr

Enclosures

c.c. to Mr. E.W.D. Bonham, P. Eng.  
Assistant Director - Engineering  
Victoria, B. C.



PROPOSED CULVERTS		
AREA	NO.	DIMENSIONS
HARBOR ROAD DRAINAGE AREA	1	3'-7" x 4" (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	2	CONCRETE 22' x 22' CONCRETE BOXES TO REMAIN
	3	1'-7" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	4	1'-7" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	5	3.5' HIGH x 5' WIDE x 2.5' LONG CONCRETE BOX
	6	3.5' HIGH x 5' WIDE x 2.5' LONG CONCRETE BOX
DOMINION AVE DRAINAGE AREA	7	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	8	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	9	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	10	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	11	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
	12	2'-0" x 2' (SPAN) x 11' x 20' LONG C.M.P. ARCHES
NORTH DEBOVILLE DRAINAGE AREA	13	2'-3" x 8' C.M.P. 10' LONG
	14	2'-3" x 8' C.M.P. 10' LONG
	15	2'-3" x 8' C.M.P. 10' LONG
	16	2'-3" x 8' C.M.P. 10' LONG

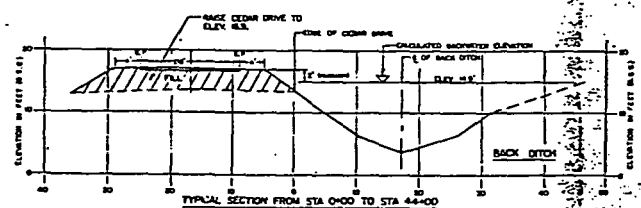
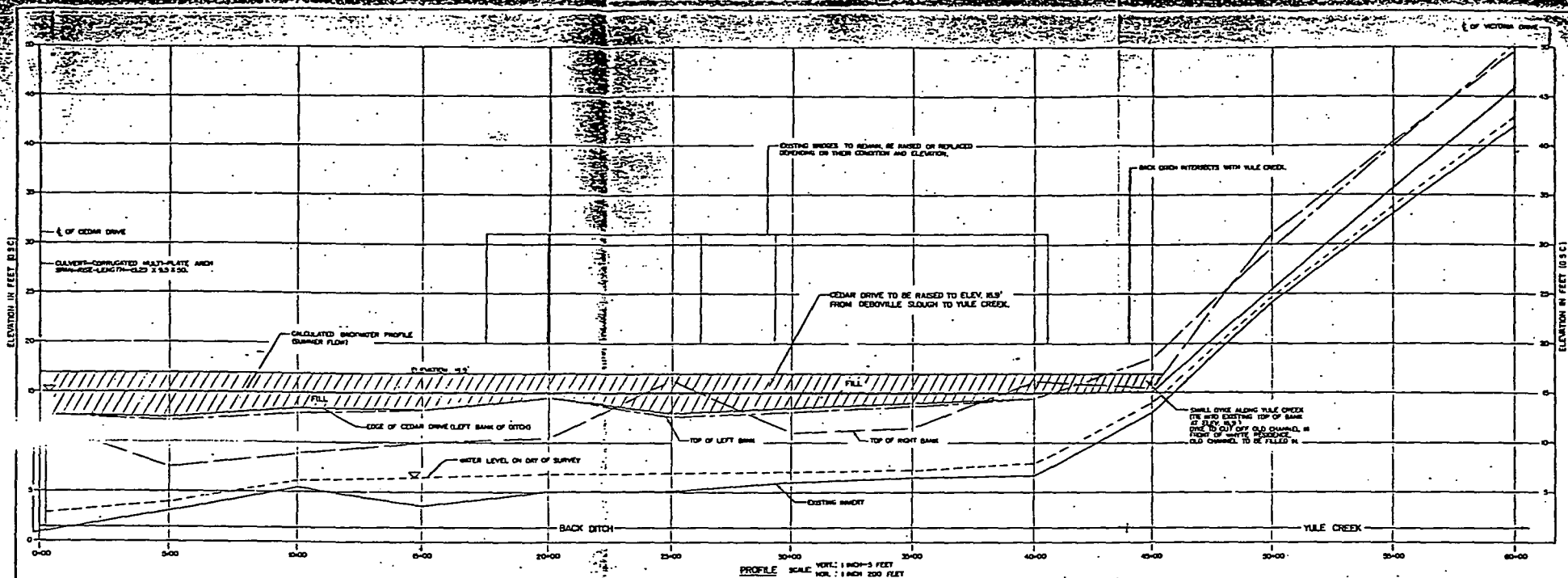
**NOTES**

1. DISCHARGES SHOWN ARE BASED ON DRAINAGE WINTER MONTHS WITH THE EXCEPTION OF CEDAR DRIVE DITCH AND WIDE CREEK WHICH ARE 0.
2. SOME OF THE DITCHES WHICH NO WORK IS REQUIRED, MAY REQUIRE SMALL SPYDS ALONG EITHER OR BOTH SIDES OR OTHER 18" DIA. x 2' DEEP SPYDS.
3. CULVERTS BELOW GRADE ROAD OR BRANCH DR. AND AT TERMINUS OF LATERAL DR. ARE TO BE BENTONITE BATES AND TO BE ADDED TO THESE CULVERTS AND OPENED ONLY WHEN THERE IS A PUMP OPERATING IN ONE OF THE CULVERTS AND DRAINAGE AREA SPYDS.

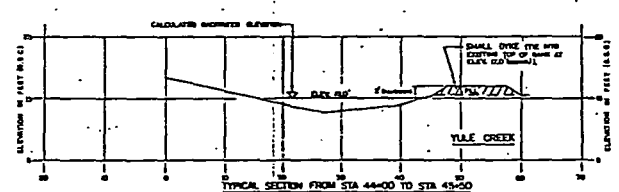
**LEGEND**

- 1. Ditch
- 2. Road
- 3. Street
- 4. Ditch or Branch
- 5. Water
- 6. Bridge
- 7. Drainage to be removed in 1954
- 8. Drainage to remain Existing Cuts

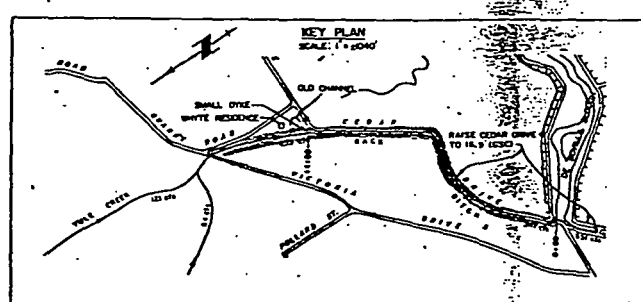
RECOMMENDED <i>[Signature]</i> DATE <i>[Date]</i>	DESIGNED <i>[Signature]</i> DATE <i>[Date]</i>
APPROVED <i>[Signature]</i> DATE <i>[Date]</i>	CHECKED <i>[Signature]</i> DATE <i>[Date]</i>
THE CORPORATION OF THE CITY OF FORT COCKERMAN <b>PLAN OF          FLOW PATTERN AND PROPOSED WORKS</b>	



CROSS SECTIONS  
SCALE: 1/4" = 10' FT.

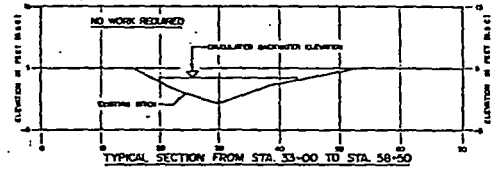
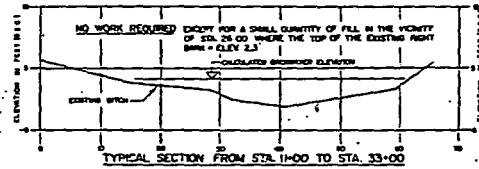
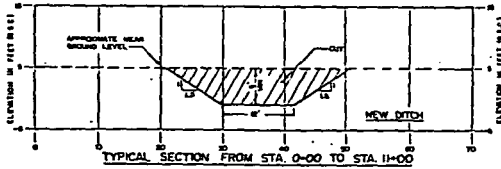
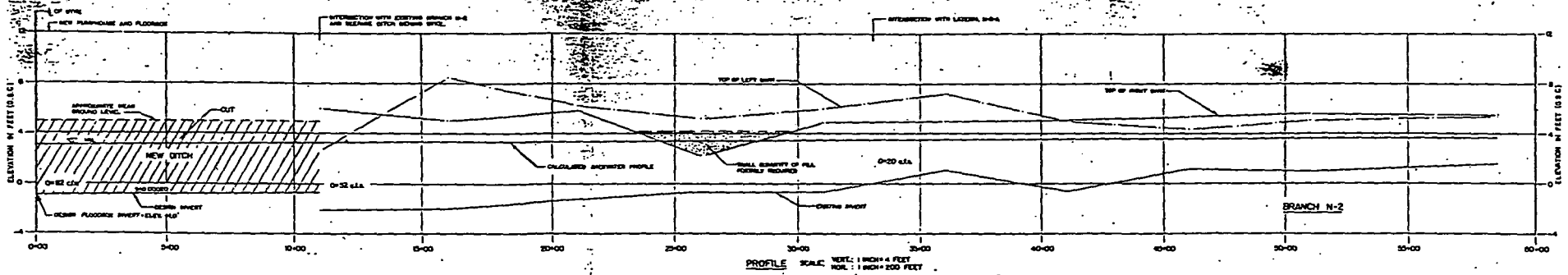


TYPICAL SECTION FROM STA 44+00 TO STA 48+00

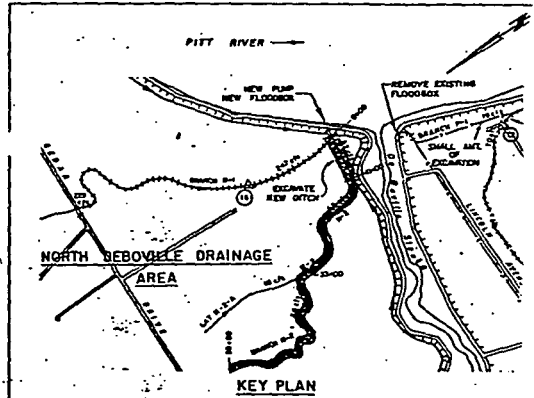


- 1. EXISTING BRIDGES OR PEOPLE APPROVED BRIDGES.
- 2. CALCULATED SEWER PROFILE - SUMMER FLOW.
- 3. EXISTING BRIDGES.
- 4. BACK DITCH AND SMALL DYKE - 18" DIA.
- 5. BACK DITCH - 18" DIA.
- 6. YULE CREEK - 18" DIA.
- 7. SMALL DYKE - 18" DIA.

RECOMMENDED	DATE	APPROVED	DATE	DESIGNED	DATE	DRAWN	DATE	CHECKED	DATE	FILE NO.	DATE	AS SHOWN	DATE	SEARCH	DATE
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>													
THE CORPORATION OF THE CITY OF FORT COULTLAM BACK DITCH ALONG CEDAR DRIVE PROFILE AND TYPICAL SECTIONS												SHEET NO. 4944-30 SHEET 1 OF 1 SHEET			



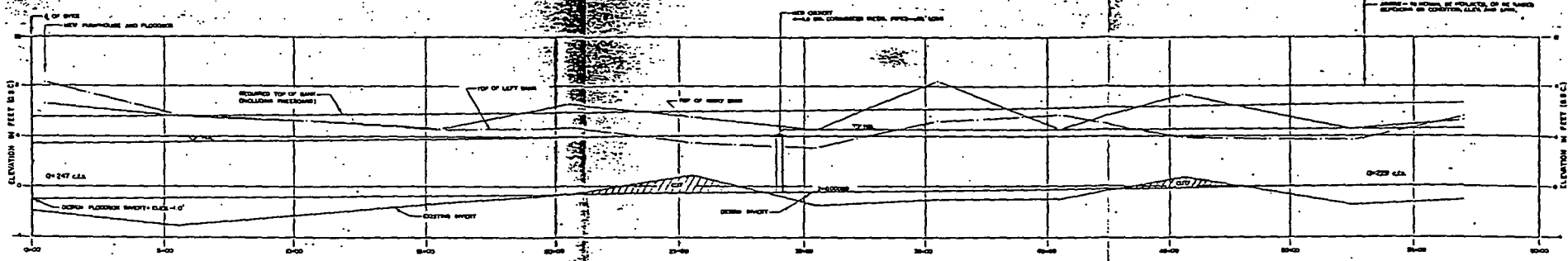
CROSS SECTIONS  
SCALE: 1 IN. = 10 FT.



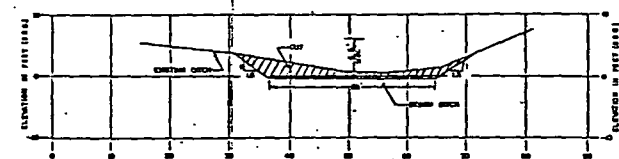
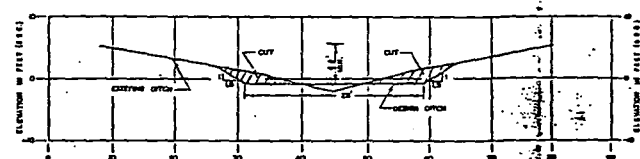
NOTES:  
1. ALL VERTICAL DISTANCES ON PROFILE ARE APPROXIMATE ONLY.  
2. BRANCH SPACES BEHIND SWP TO BE FILLED IN DURING SWP RE-CONSTRUCTION.

NO. 27	UNION	DATE	DATE	RECOMMENDED: <i>M. J. Miller</i> CHIEF ENGINEER	DESIGNED: <i>E. R. G. G.</i>	DRAWN: <i>E. S. G. G.</i>	CHECKED: <i>E. S. G. G.</i>	SCALE: AS SHOWN	DRAWING NO.: 4244-32	REVISED: <i>E. F. G. G. G.</i>	DATE: OCTOBER, 1971	PROJECT NO.: 4244-32	SHEET: 1 OF 1
				APPROVED: _____ CHIEF ENGINEER	THE CORPORATION OF THE CITY OF PORT COQUITLAM NORTH BEBOVILLE DRAINAGE AREA BRANCH N-2 PROFILE AND TYPICAL SECTIONS								

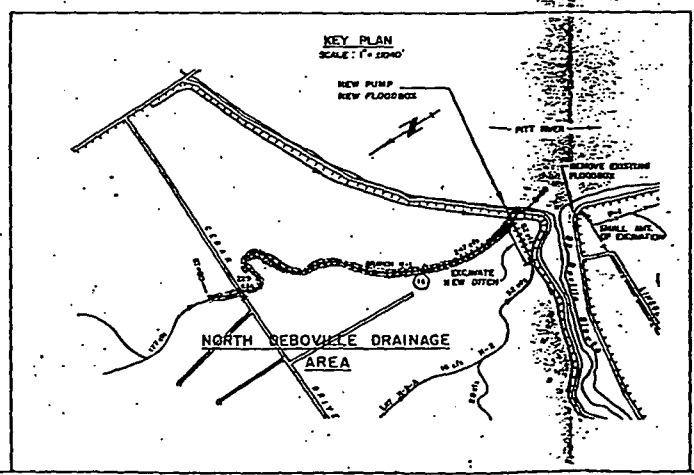




PROFILE SCALE: VERT: 1" = 4 FEET  
HOR: 1" = 200 FEET



TYPICAL CROSS SECTIONS  
SCALE: 1" = 10 FT.



NOTES:  
1. HORIZONTAL DIMENSIONS SHOWN ON PROFILE APPROXIMATE ONLY  
2. EXISTING DIMENSIONS SHOWN ON THIS PLAN TO BE MAINTAINED UNLESS OTHERWISE SPECIFIED

NO.	REV.	DESCRIPTION	DATE	RECOMMENDED: <i>[Signature]</i> DATE: <i>2-2-1974</i>	THE CORPORATION OF THE CITY OF FORT COCKLEMAN NORTH REBOVILLE DRAINAGE AREA PROFILE AND TYPICAL SECTIONS	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> SCALE: AS SHOWN DWG. NO. 4344-31	DRAWN BY: <i>[Signature]</i> DATE: MARCH, 1974 SHEET 1 OF 1
				APPROVED: <i>[Signature]</i> DATE:		DIVISION OF LAND, PLANS AND WATER RESOURCES WATER ENGINEERING SECTION OFFICE: 1000 COLLEGE FORT COCKLEMAN, FORT COCKLEMAN	CHECKED: <i>[Signature]</i> DATE:

DRAINAGE COMMITTEE MEETING

DATE: 1989 May 30 (Tuesday)

TIME: 12 NOON

LOCATION: ENGINEERING DEPARTMENT COMMITTEE ROOM

PARTICIPANTS:

ALDERMAN ROBINSON  
ALDERMAN OHIRKO  
ALDERMAN KINGSBURY  
NEIL NYBERG  
KEN WRIGHT  
VIC FRASER  
AL KERSEY

A G E N D A

1. Request for Proposals: Aquatic Environment Study: Coquitlam Lakes.
2. Request for Sydney Street Ditch Enclosure
3. Status Report: 1989 Ditch Elimination Program
4. 1990 Program Descriptions: Ditch Elimination Program

Lunch will be provided.

c.c. Mayor Sekora  
J. L. Tonn

D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J.L.Tonn, Municipal Manager      DEPARTMENT: Administration      DATE: 1989 May 30  
FROM: Neil Nyberg      DEPARTMENT: Engineering      FILE:  
SUBJECT: REQUEST FOR PROPOSALS: AQUATIC ENVIRONMENT STUDY -      OUR FILE: 01 03 06  
COQUITLAM LAKES

---

FOR DRAINAGE COMMITTEE

Reference: A. Engineering memo report 05 05 89/04 d 1989 April 21

1.00 BACKGROUND

1.01 Council Resolution #566, 1989 April 24 reads as follows:

"That Council authorize the Drainage Committee to assess consultants for an Environmental Management Plan as set out in the Terms of Reference of Appendix E;

That funding for the study should be a charge against the Drainage Development Cost Charge Reserve Fund;"

1.02 Urban lakes act as repositories for fecal material from pets and wildlife, waste oil and coatings, solvents, sodium chloride and a wide range of chemicals and substances leached from lawns, garbage containers are transported in the storm sewer system.

1.03 There are nine outlets into Como Lake, draining an area of 81.5 hectares. About 64 Ha are drained through Como Lake Avenue.

1.04 The objective of the study is to determine the 'base line' condition of surface water bodies. If the Municipality must move to protect the appearance and biota of Municipal lakes, there must be quantifiable factors against which one can measure progress or change. Without benchmark indicators, it is impossible to react to perceived environmental deterioration. Without identification of existing values, it is impossible to achieve stasis or betterment.

1.05 There are short-term possibilities for reducing the chance of accidental spills of oil or similar materials from reaching Como Lake. Enclosing the open ditches on Gatensbury, Grover, Regan, Cornell, Smith and Milford, and including oil intercepting chambers in the catch basins draining to the lake would, potentially, reduce the chance of an oily liquid being transported to the lake. Since ditch elimination commonly costs \$210/metre, a gross expenditure of \$90,000 would be required for Gatensbury. However, there is no way to measure or estimate the effort of such a change without a 'base line' study of the condition of Como Lake...now.

2.00 DISCUSSION

- 2.01 The Request for Proposals - Environmental Management Plan and Terms of Reference are attached. It is proposed to focus on Lafarge Lake first, because funds are available from the Development Cost Charge Reserve Fund for capital construction and engineering of drainage improvements.
- 2.02 There is virtually no limit on the amount of study that can be expended on a problem of the nature of 'environmental pollution'. A prototype study of Lafarge Lake will identify an appropriate level of effort and cost envelope for other bodies of surface water.
- 2.03 The Lafarge Lake study should establish the type of physical countermeasures required to protect against accidental spills. Improvements to the overall water quality, however, are likely to be more difficult and expensive to achieve.

3.00 RECOMMENDATION

- 3.01 That staff prepare a Development Cost Charge Reserve Expenditure Bylaw for an environmental assessment and design study of Lafarge Lake.
- 3.02 That the cost to extend a similar study to Como Lake be determined and presented to Council during the annual budget amendment review.



Neil Nyberg, P. Eng.  
Municipal Engineer

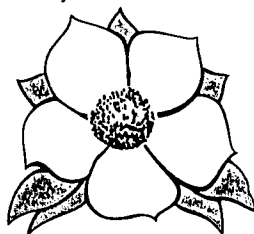
# DISTRICT OF COQUITLAM

1111 Brunette Avenue  
Coquitlam, B.C. V3K 1E9

Mayor: L. Sekora

Phone: (604) 526-3611

Fax: (604) 526-6014



ENGINEERING DEPARTMENT

File: 05 05 89-02

89 May 30

NO ITEM TO INSERT

Dear Sirs:

## REQUEST FOR PROPOSAL - ENVIRONMENTAL MANAGEMENT PLAN

The District of Coquitlam is requesting proposals for an Environmental Evaluation and Management Plan. Major requirements of the proposal are in two parts:

### Part A:

- . an analysis of the existing water quality conditions in LaFarge Lake and Como Lake,
- . an environmental risk assessment,
- . identification of counter-measures, and
- . pre-design of counter-measures approved by the District.

Detailed terms of reference are attached.

### Part B:

- . types, size and cost of oil separation systems available and their capacity to prevent potential problems.

Proposal submissions should be concise and deal with the work plan, schedule, personnel and cost of the study. Proposals will be evaluated on the basis of understanding of District requirements, competence of assigned personnel including the time allotted for all members of the project team, an effective work plan, references and value of the proposed output. The lowest or any proposal may not be accepted.

- 2 -

Proposals will be accepted at the Work Reception Counter of the Engineering Department, Coquitlam Municipal Hall, 1111 Brunette Avenue, Coquitlam, B. C., until 1400 h, 1989 May 29. Please address proposals to the attention of D. A. Kersey, A.Sc.T.

Reference material may be viewed at the Municipal Hall and will be lent out to the successful consultant. Should you have any questions, please contact Al Kersey, at 526-3611, local 238.

Yours truly,

Neil Nyberg, P. Eng.  
Municipal Engineer



DAK/pin

Enc

TERMS OF REFERENCE  
COMO AND LAFARGE LAKES - ENVIRONMENTAL MANAGEMENT PLAN

SCOPE OF WORK

The Consultant shall produce an inventory of all existing information on the quality of the environment (water, sediments and biota) which receives storm water discharges from the study area (see drawing SF1790 - Sheet 5), together with a report which reviews and summarizes the information; the report shall also contain a list of sources from which the District can get access to, or get copies of, the existing information. The report will be used to determine the significance of storm water discharges to the receiving environment, and the improvements in quality which the District can expect by implementing mitigative measures within the storm sewer system. Areas to be covered include:

- a) Physical Hydrography.
- b) Water and Sediment Chemistry, including presence or absence of EPA priority pollutants.
- c) Marine Biology.
- d) Condition of Biota in the water column and in the sediments.

The District will require information on conditions in general for both lakes as well as local variations that may be attributable to sewerage and drainage works or other influences.

The Study will provide existing data for the following water areas:

1. Como Lake.
2. LaFarge Lake.

In particular, the District requires the Consultant to use existing information to:

- a) Draw general conclusions on the existing quality of each major portion of the receiving environment.
- b) Describe trends (seasonal, year-to-year, etc.) in quality, especially as these might relate to wastewater discharges and infrequent oil or chemical wastes.
- c) Compare existing water quality with typical standards for water use such as recreation, bathing, aquatic habitat, and aesthetics.
- d) Comment on the adequacy of existing information, and identify any areas where it is necessary to collect additional quality data on the receiving environment.
- e) Determine how much wastewater discharges affect existing water quality and identify sewerage improvements that could significantly reduce existing levels.
- f) Provide engineering pre-design of approved counter-measures identified above.

AVAILABLE INFORMATION

a) Reference books including:

- . "District of Coquitlam, Review of Town Centre Drainage Study"  
Ker, Priestman and Associates Ltd., 1984 April
- . "Westwood Plateau Drainage Study"  
Ker, Priestman and Associates, 1984 September  
Includes Appendix F; "Water Quality and Potential Pollution from  
Surface Runoff in Watersheds on the Westwood Plateau" by Ken J. Hall.
- . "Greater Vancouver Receiving Water Quality Conditions", Coastline  
Environmental Services Ltd. and Envirochem Services, 1987 August 12.

b) Engineering data including:

- . As-built records of storm sewers.
- . Estimated storm flows for the 1:10 and 1:100 year storm events.



D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J.L.Tonn, Municipal Manager      DEPARTMENT: Administration      DATE: 1989 May 29  
FROM: Neil Nyberg      DEPARTMENT: Engineering      FILE:  
SUBJECT: REQUEST FOR SYDNEY AVE DITCH ENCLOSURE      OUR FILE: 01 03 06

---

FOR DRAINAGE COMMITTEE

1.00 BACKGROUND


- 1.01 The Burquitlam Lions Care Centre by letter dated 1989 May 4, requested the ditch on Sydney Avenue be eliminated.
- 1.02 The District of Coquitlam Ditch Elimination Program is scheduled to complete the enclosure of all road side ditches in south-west Coquitlam in 1998.

2.00 DISCUSSION

- 2.01 In the current Ditch Elimination Program approved by Council on April 25, 1988, the ditch on Sydney Avenue is scheduled to be eliminated in 1993.

3.00 RECOMMENDATION

- 3.01 That the Committee determine whether Sydney Avenue should be eliminated in 1993 as scheduled or whether it should be expedited for the reasons outlined in the letter.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

# Burquitlam Lions Care Centre

Burquitlam Intermediate Care Society

*Nov 11*

*Doc. 101549*

560 Sydney Avenue, Coquitlam, B.C. V3K 6A4

Telephone 939-6485

May 4, 1989

*0506577 11*

ENGINEERING DEPT.		
COPIES TO:		
RECEIVED		
MAY 8 1989		
CIRC.	INIT.	DATE

Alderman Walter Ohirko  
Chairman -  
Land Use Committee  
District of Coquitlam  
1111 Brunette Avenue  
Coquitlam, B.C.  
V3K 1E8

Dear Sir:

Re: Ditch Enclosure on Sydney Avenue

I am writing this letter on behalf of the Boards of Directors of Burquitlam Senior Housing Society and the Burquitlam Intermediate Care Society, who operate L. J. Christmas Manor and Burquitlam Lions Care Centre.

The purpose is to request that consideration and priority be given to enclosing the ditch on Sydney Avenue, on the north side from Guilby Street, west, one block, to Burquitlam Lions Care Centre and Christmas Manor. As you will be aware, Sydney Avenue is the only entrance and exit to our facilities.

The existing situation is a very unsafe one in that the street is so narrow it virtually turns traffic into a one-way street. The traffic is heavy and when two cars pass, they are basically forced to drive on the sidewalk on the south side of the street.

This results in a most hazardous and unsafe condition for the Residents in both facilities, many of who go for walks on Sydney Avenue on a regular basis. A large number of these seniors are very slow walkers, some use walking aides, and the majority have hearing and sight impairment.

Alderman Walter Ohirko  
Chairman -  
Land Use Committee  
Re: Ditch Enclosure on Sydney Avenue

- 2 -

We trust that our request will receive your favourable consideration and if further information is required we will be pleased to provide same. Thank you.

Sincerely



Lyal Holmes  
President  
Board of Directors

/ch

c: Mayor Lou Sekora

c: Neil Nyberg, P.Eng.  
1 Municipal Engineer

D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J. L. Tonn, Municipal Manager    DEPARTMENT: Administration    DATE: 89 May 30  
 FROM: Neil Nyberg    DEPARTMENT: Engineering    FILE:  
 SUBJECT: STATUS REPORT - 1989 DITCH ELIMINATION PROGRAM    OUR FILE: 01 03 06

---

FOR DRAINAGE COMMITTEE

Reference A: - Project Description: 1989 Ditch Elimination Program

1.00 BACKGROUND

1.01 Council Resolution #492, 1989 March 28, adopted Bylaw 1985, 1989 to provide \$1,592,000 from the Coquitlam Drainage Works Reserve Fund.

• Area 5B Marmont/Lougheed Project		
14 ditch locations total 2,450 metres	\$	592,000
• Area 6 Laval Project		
13 ditch locations total 2,909 metres		660,000
• Area 7 Sheridan Project		
5 ditch locations total 1,013 metres		200,000
• Engineering Design for Five 1990 Projects		
Areas 8 to 12 inclusive		81,000
• Contingency for 1989 Projects		<u>59,000</u>
	Total	\$1,592,000

1.02 Construction of Area 5B Marmont/Lougheed and Area Sheridan was combined as one project. Contract Number 89-16 with Cicuto and Son was awarded 1989 March 28 by Council Resolution #445 for \$708,170. Contract Number 89-17 was also awarded to Cicuto and Son Ltd. by the same Council Resolution Number for \$600,000.

2.00 PROJECT STATUS

2.01 Both contracts are proceeding ahead of schedule. The attached project description schedule provides a street by street status report.


Work on Area 5B and 7 is about 20% complete, including Booth Avenue, Hie Avenue, Cayer Street and Brunette Avenue so far. Substantial completion is expected by 1989 July 31 and will be within budget.

Work on Area 6, Laval Project, is about 50% complete including Begin Street, Thomas Avenue, Therrien Street and Quadling Avenue. Laval Street is about 60% complete and Begin Street is 80% complete with asphalt repair and curbing proceeding at this time. Substantial completion is expected by 1989 June 27 and will be within budget.

- 2.02 The projected final cost for Area 6 is estimated to be in the order of \$605,000 or about \$55,000 under budget.
- 2.03 The gas explosion at 222 Begin Street remains under investigation by the insurance companies.

The owner is expected to be compensated by the contractor's insurance and the District will be saved harmless.

- 2.04 Quality control and adherence to schedule requires constant monitoring. Contractor Cicuto has been issued one reprimand for failing to comply with contract specifications. The contractor is now performing all work to the satisfaction of the District.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

  
DAK/pin

Encs

PROJECT DESCRIPTION

**1989 DITCH ELIMINATION PROGRAM**

File No.: 05 02 89-16  
05 02 89-17

Account No.: 533055-051, Area 5B  
533055-060, Area 6  
533055-070, Area 7

Finance: Drainage Reserve Fund: \$ 1,452,000.00  
Cash Deposits : \$ 14,019.07

PROJECT OBJECTIVES

In the context of the long term Council objective to eliminate all ditches in urban residential streets in southeast Coquitlam, this project will complete enclosure of existing roadside ditches in the Marmont/Nelson area 5B, the Laval area 6 and the Sheridan/Booth Area 7.

SCOPE

The 1989 Ditch Elimination Program will complete the remainder of drainage area 5 and all of drainage area 6 and 7 (see location sketch and list of locations). Approximate length of ditches to be enclosed is as follows:

Area 5	2450 m
Area 6	2909 m
Area 7	<u>1013 m</u>
1989 Total	6372 m

Proposed works will replace existing ditches with an enclosed storm sewer system. All existing drains will be connected. Boulevard treatment will generally include a 2.2 m gravel parking strip, a 0.6 - 1.2 m wide sod drainage swale, and topsoil and seed to restore disturbed areas. Asphalt curbs will be constructed where required. Driveway cuts will be restored to original condition.

SCHEDULE

Preliminary schedule is as follows:

	<u>Target</u>	<u>Actual</u>
Design funding	1988 07 18	1988 07 18
Design completion	1988 12 16	1989 02 14
Construction funding	1989 04 03	1989 03 28
Tenders available	1989 04 03	1989 02 20
Construction start	1989 05 01	1989 04 12
Construction	1989 09 29	

AME	START	END	STAT
Master Plan			
+ 1989 Ditch Elimination Program			
Area 6 Ditch Elimination			
+ Construction			
+ Main Line Construction			
- Begin St	a12-04-89	a27-04-89	C
- Thomas Ave : Marmont-Begin	a28-04-89	a03-05-89	C
- Therrien:N.Thomas	a04-05-89	a08-05-89	C
- Laval St.	a09-05-89	07-06-89	60%
- Cartier Ave:E.Begin	08-06-89	13-06-89	P
- Hammond Ave	14-06-89	22-06-89	P
- Vanier Ave	23-06-89	27-06-89	P
- Quadling:W.Begin	a11-05-89	a16-05-89	C
- Therrien:S.Quadling	a17-05-89	a18-05-89	C
- Cartier Ave:W.Begin	a19-05-89	25-05-89	80%
- Hachey Ave:W.Begin	26-05-89	31-05-89	P
- Thomas:E.Begin	01-06-89	13-06-89	P
- Casey	14-06-89	19-06-89	P
- Hachey Ave:W.Casey	20-06-89	21-06-89	P
- Tech St.	22-06-89	22-06-89	P
+ Restorations			
- Begin St	29-05-89	02-06-89	P
- Thomas Ave : Marmont-Begin	05-06-89	06-06-89	P
- Therrien:N.Thomas	07-06-89	12-06-89	P
- Laval St.	13-06-89	26-06-89	P
- Cartier Ave:E.Begin	27-06-89	28-06-89	P
- Hammond Ave	29-06-89	04-07-89	P
- Vanier Ave	05-07-89	06-07-89	P
- Quadling:W.Begin	07-07-89	10-07-89	P
- Therrien:S.Quadling	11-07-89	11-07-89	P
- Cartier Ave:W.Begin	12-07-89	13-07-89	P
- Hachey Ave:W.Begin	14-07-89	17-07-89	P
- Thomas:E.Begin	18-07-89	21-07-89	P
- Casey	24-07-89	25-07-89	P
- Hachey Ave:W.Casey	26-07-89	26-07-89	P
- Tech St.	27-07-89	27-07-89	P
- Substantial Completion	27-07-89	27-07-89	P

FOCUS

C : Completed      P : Planned      I : In progress      a : Actual date

1989 Ditch Elimination Program - Area 5 & 7  
Construction Schedule

30-05-89

AME	START	END	STAT
Master Plan			
+ 1989 Ditch Elimination Program			
+ Area 5 & 7 Ditch Elimination			
+ Construction			
+ Main Line Construction			
- Booth Ave	a24-04-89	a05-05-89	C
- Hie Ave	a05-05-89	a11-05-89	C
- Cayer	a12-05-89	a16-05-89	C
- Brunette Ave	a15-05-89	a19-05-89	C
- Sherridan Ave	a23-05-89	30-05-89	0%
- James/Nelson	31-05-89	06-06-89	P
- Alderson Ave	07-06-89	13-06-89	P
- Quadling:W.Marmont	14-06-89	20-06-89	P
- King St	21-06-89	22-06-89	P
- LeBleu St	23-06-89	28-06-89	P
- Quadling:W.LeBleu	29-06-89	13-07-89	P
- Delestre Ave	14-07-89	20-07-89	P
- Thomas Ave	23-06-89	29-06-89	P
- Stewart Ave	30-06-89	07-07-89	P
- Walls Ave	10-07-89	14-07-89	P
- Rochester Ave	17-07-89	21-07-89	P
- Madore Ave	28-06-89	05-07-89	P
- Dansey Ave	06-07-89	12-07-89	P
- Charland Ave	13-07-89	19-07-89	P
+ Restorations			
- Booth Ave	06-06-89	12-06-89	P
- Hie Ave	13-06-89	14-06-89	P
- Cayer	15-06-89	15-06-89	P
- Brunette Ave	16-06-89	19-06-89	P
- Sherridan Ave	20-06-89	22-06-89	P
- James/Nelson	23-06-89	26-06-89	P
- Alderson Ave	27-06-89	28-06-89	P
- Quadling:W.Marmont	29-06-89	30-06-89	P
- King St	04-07-89	04-07-89	P
- LeBleu St	05-07-89	06-07-89	P
- Quadling:W.LeBleu	07-07-89	12-07-89	P
- Delestre Ave	13-07-89	14-07-89	P
- Thomas Ave	17-07-89	18-07-89	P
- Stewart Ave	19-07-89	20-07-89	P
- Walls Ave	21-07-89	24-07-89	P
- Rochester Ave	25-07-89	26-07-89	P
- Madore Ave	27-07-89	28-07-89	P
- Dansey Ave	31-07-89	01-08-89	P
- Charland Ave	02-08-89	03-08-89	P
- Substantial Completion	31-08-89	01-09-89	P

FOCUS

C : Completed      P : Planned      I : In progress      a : Actual date



COST

A design contract has been awarded for \$35,731 against an authorized budget of \$60,000. Estimated, tendered and budgeted cost of construction are as follows:

	<u>Budget</u>	<u>Projected Cost</u>	<u>Variance</u>
Area 5B	\$ 592,000	\$ 521,000	\$ 71,000
Area 6	660,000	605,000	55,000
Area 7	<u>200,000</u>	<u>192,000</u>	<u>8,000</u>
	\$1,452,000	\$1,318,000	\$ 134,000

JUSTIFICATION

Ditch elimination programming is established by drainage areas and considers erosion potential, flooding potential, vehicle and pedestrian hazard, maintenance cost and appearance factors. The program normally operates within one or more drainage basins, concentrating on the lower reaches at the outset, and progressing towards the upstream streets as funding permits.

Project description approved by: \_\_\_\_\_

LIST OF LOCATIONS

1989 DITCH ELIMINATION PROGRAM

AREA 5B

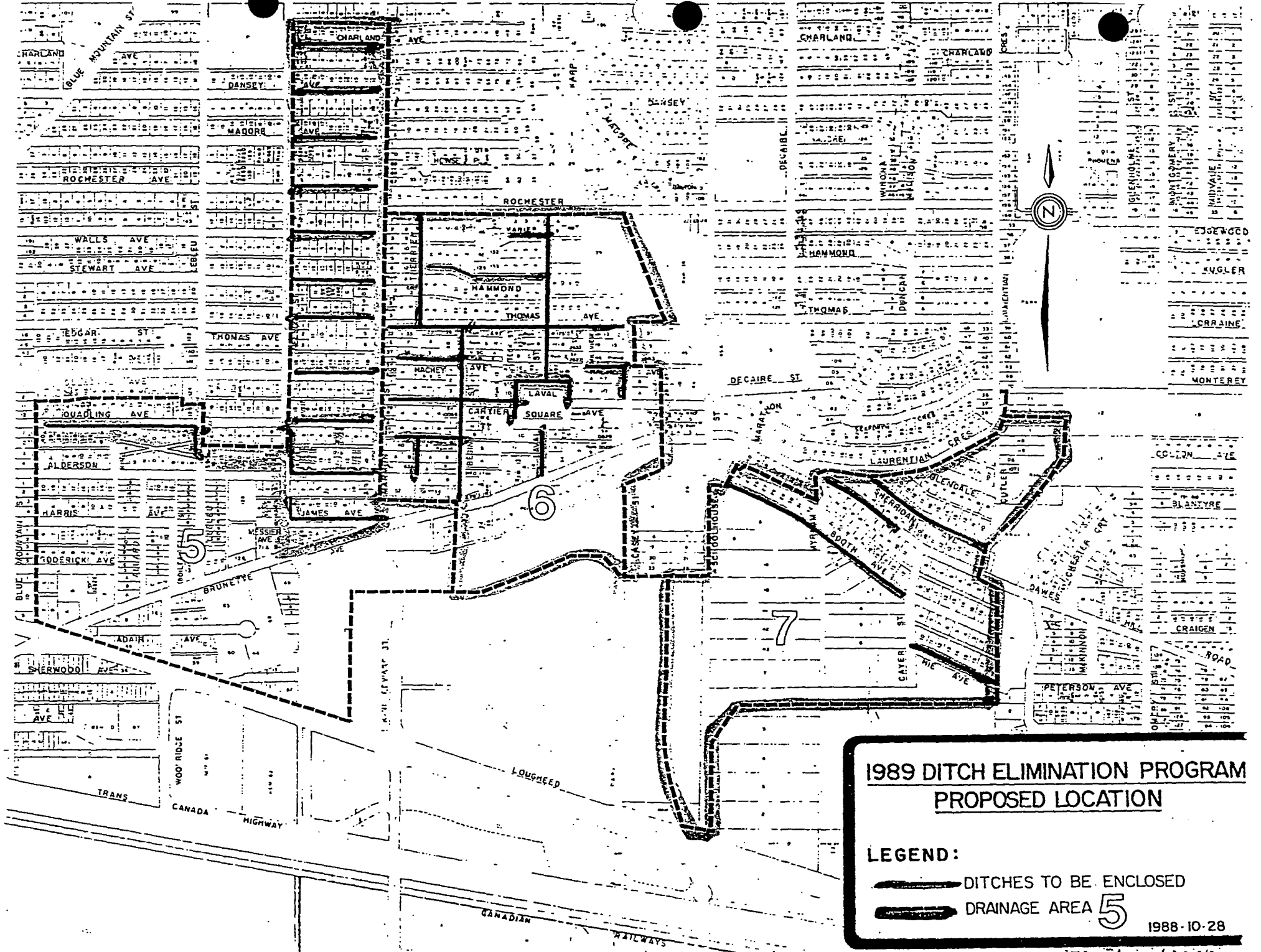
<u>Street</u>	<u>From</u>	<u>To</u>	<u>Street</u>	<u>From</u>	<u>To</u>
Quadling	Blue Mountain	LeBleu	LeBleu	Quadling	Alderson
James/Nelson	Nelson #1057 & James	#214 N.P.L.	Alderson	Nelson	Marmont
Nelson	Alderson	Quadling	Quadling	Nelson	Marmont
Delestre	Nelson	Marmont	Thomas	Nelson	Marmont
Stewart	Nelson	Marmont	Walls	Nelson	Marmont
Rochester	Nelson	Marmont	Madore	Nelson	Marmont
Dansey	Nelson	Marmont	Charland	Nelson	Marmont

AREA 6

Therrien	Rochester	Thomas	Therrien	Quadling	Brunette
Laval St/Sq.	Rochester	Brunette	Begin	Thomas	Brunette
Casey	Hachey	Cartier	Vanier	1144 Vanier	Laval
Hammond	Therrien	Laval	Thomas	Marmont	Casey
Hachey	Marmont	Begin	Hachey	Millview	Casey
Cartier	Marmont	Laval	Quadling	Marmont	Begin



AREA 7

Brunette	Myrnam	Cayer	Sheridan	Laurentian	East End
Booth	Schoolhouse	Cayer	Hie/Cayer	East End	Lane N. of Hie



**1989 DITCH ELIMINATION PROGRAM  
PROPOSED LOCATION**

**LEGEND:**

-  DITCHES TO BE ENCLOSED
-  DRAINAGE AREA 5

1988-10-28

AGENDA NO. 504-4

D I S T R I C T   O F   C O Q U I T L A M

Inter Office Memo

TO: J.L. Tonn, Municipal Manager      DEPARTMENT: Administration      DATE: 1989 May 29  
FROM: Neil Nyberg      DEPARTMENT: Engineering      FILE:  
SUBJECT: 1990 PROGRAM DESCRIPTION - DITCH ELIMINATION      OUR FILE: 01 03 06

---

FOR DRAINAGE COMMITTEE

1.00 BACKGROUND


- 1.01 In 1988 Council endorsed the Accelerated Ditch Elimination Program to be complete in 1998 with a residual fund balance of \$8,125,000, assuming an annual inflation rate of 4% and prevailing interest rates of 8%.
- 1.02 Council Resolution #492, 1989, March 28 adopted Bylaw 1985, 1989 to include \$81,000 for Engineering Design for five 1990 Projects.

2.00 DISCUSSION

- 2.01 Requests for Proposals for 1990 Ditch Elimination Projects will be issued 1989 June 14. A copy of the Terms of Reference is attached.
- 2.02 The design work should be complete by mid-December in time to attract early-season competition tenders in ~~1990~~ 1989.
- 2.03 A copy of the Ditch Elimination Program cost and schedule projections prepared 1989 May 29 is attached using a projected annual inflation rate of 5% and anticipated prevailing interest rate of 10%.

3.00 CONCLUSION

- 3.01 The accelerated Ditch Elimination Program is expected to be complete in 1998 with a residual fund of \$7,712,000.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

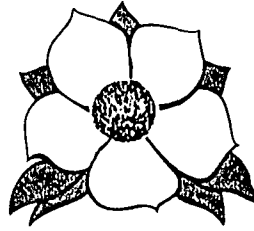
DAK/fb  
Encls.

# DISTRICT OF COQUITLAM

1111 Brunette Avenue  
Coquitlam, B.C. V3K 1E9

Mayor: L. Sekora

Phone: (604) 526-3611  
Fax: (604) 526-6014



ENGINEERING DEPT.

File: 05 06 89-01

1989 May 30

## Re: REQUEST FOR PROPOSALS

### 1990 DITCH ELIMINATION PROGRAM DESIGN

The District of Coquitlam is requesting proposals for engineering design for the 1990 Ditch Elimination Program for areas 8 to 12A. The terms of reference and list of locations are attached.

The design objective is to have the ditch elimination design, cost estimate and design brief completed by 1989 December 15.

Proposals submissions should be concise and deal with the project design, methodology, term, schedule and approximate cost. A project schedule and level of effort table should be included. Proposal evaluation will be based primarily on the ability of the consultant, the work plan and the appropriate level of effort to ensure a high quality design which minimizes construction conflicts and revisions.

Proposals will be accepted at the work reception counter of the Engineering Department, Coquitlam Municipal Hall, until June 21, 1989. Notice of award is expected by June 28, 1989.

Reference material may be viewed at the Municipal Hall. Contact John Anderson, Supervisor of Drafting, at 526-3611, local 228, to arrange a viewing time. Please contact the Project Manager, Al Kersey, at 526-3611, local 238, for any other information.

Yours truly,

A handwritten signature in black ink, appearing to read "Al Kersey".

D.A. Kersey, A.Sc.T.  
Senior Project Technologist

JDM/fb  
Attachments

cc: John Anderson

Code	Street	From	To	Est. Pipe Length (m)
Area Number 8				
8.11	Girard Ave	Hart St	Lougheed Hwy	50
8.12	Hart St	Alderson Ave	Girard Ave	90
8.21	Alderson Ave	Lougheed Hwy	Allison St	20
8.22	Allison St	Quadling Ave	Edgar Ave	180
8.23	Quadling Ave	701 Quadling Ave	729 Quadling Ave	120
8.24	Delestre Ave	701 Delestre Ave	Walker St	190
8.31	Edgar Ave	Walker St	Blue Mountain St	300
8.32	Burns St	Edgar Ave	Stewart Ave	100
8.33	Stewart Ave	Burns St	Blue Mountain St	200
8.34	Shaw Ave	Walker St	Blue Mountain St	300
8.41	Walker St	Rochester Ave	414 Walker St	110
8.42	Joyce St	Blue Mountain St	Austin Ave	260
8.43	Dansev Ave	Joyce St	Blue Mountain St	95
8.44	Charland Ave	Joyce St	915 Charland Ave	95
8.51	Mentmore St	Austin Ave	Dennison Ave	140
8.52	Roxham St	Austin Ave	Dennison Ave	140
8.53	Dennison Ave	Roxham St	Blue Mountain St	200

Area 8 Total Length (m) : 2590

## Area Number 9

9.11	Hart St	Henderson Ave	Girard Ave	180
9.12	Roderick Ave	649 Roderick	704 Roderick	100
9.13	Gauthier Ave	615 Gauthier Ave	647 Gauthier Ave	230
9.14	Jackson St	221 Jackson St	215 Jackson St	30
9.21	Bernatchey St	Gauthier Ave	Alderson Ave	120
9.22	Alderson Ave	Allison St	815 Alderson Ave	120
9.23	Allison Ave	Alderson Ave	Quadling	90
9.24	Gauthier Ave	Thrift St	812 Gauthier Ave	90
9.25	Thrift St	Gauthier Ave	Alderson Ave	100
9.26	Burns St	Alderson Ave	324 Burns St	220

Area 9 Total Length (m) : 1280

## Area Number 10

10.11	Whiting Way & Stubs	Cochrane Ave	Webster Ave	70
10.12	Rutland Crt	Perth Ave	607 Rutland Crt	50

Area 10 Total Length (m) : 120

## Area Number 11

11.11	Shaw/Clayton	561 Shaw Ave	Rochester Ave	170
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Area 11 Total Length (m) : 170

## Area Number 12a

12.11	Brunette Ave	Hillside Ave	1837 Brunette Ave	260
12.12	Logan St	Hillside Ave	Kaptey Ave	100
12.13	Wiltshire Ave	Brunette Ave	Montgomery St	200
12.21	Montgomery St	Hillside Ave	Dawes Hill Road	310
12.22	Hillside Ave	Montgomery St	Finnigan St	160
12.23	Kaptey Ave	Montgomery St	Finnigan St	220

1990 Ditch Elimination Program  
List of Locations

Code	Street	From	To	Est. Pipe Length (m)
Area Number 12a				
12.24	Baltic	Kaptey Ave	Dawes Hill Road	210
12.25	Finnigan St	Hillside Ave	Dawes Hill Road	280

Area 12a Total Length (m) : 1740

Program Total Length (m) : 5900  
=====

10 YEAR DITCH ELIMINATION PROGRAM FINANCIAL MODEL

Revised 1989 May 25

Print Date : 89-05-29

HISTORICAL DATA

Year Area	Annual Investment (\$)	Investment Present Value (PV\$)	Interest Proceeds (FV\$)	DEP Fund Balance (\$)	Bylaw Amount (\$)	Total Cost (\$)	Length of Storm Sewers (m)	Unit Cost (\$/m)	Interest Bearing Funds (FV\$)
1983	4,000,000	7,086,000		4,000,000					4,000,000
1983 1	0	0	255,000	4,255,068	255,068	255,000	2,100	121.43	4,000,000
1984 1-2	0	0	324,000	4,324,168	190,000	185,000	1,000	185.00	4,139,000
1985 2-3	0	0	353,000	4,486,927	482,950	470,000	3,200	146.88	4,017,000
1986 3	0	0	412,000	4,416,017	400,000	439,900	2,130	206.53	3,976,000
1987 4	1,000,000	1,210,000	304,000	5,320,077	314,000	314,000	1,600	196.25	5,006,000
1988 4-5a	2,000,000	2,200,000	434,000	7,440,000	440,000	390,000	2,184	178.57	7,050,000
Totals :	\$7,000,000	\$10,496,000	\$2,082,000		\$2,082,018	\$2,053,900	12,214	\$168.16	\$32,188,000

NOTE : PROPOSED PROGRAM GOVERNED BY DITCH ENCLOSURE LENGTHS

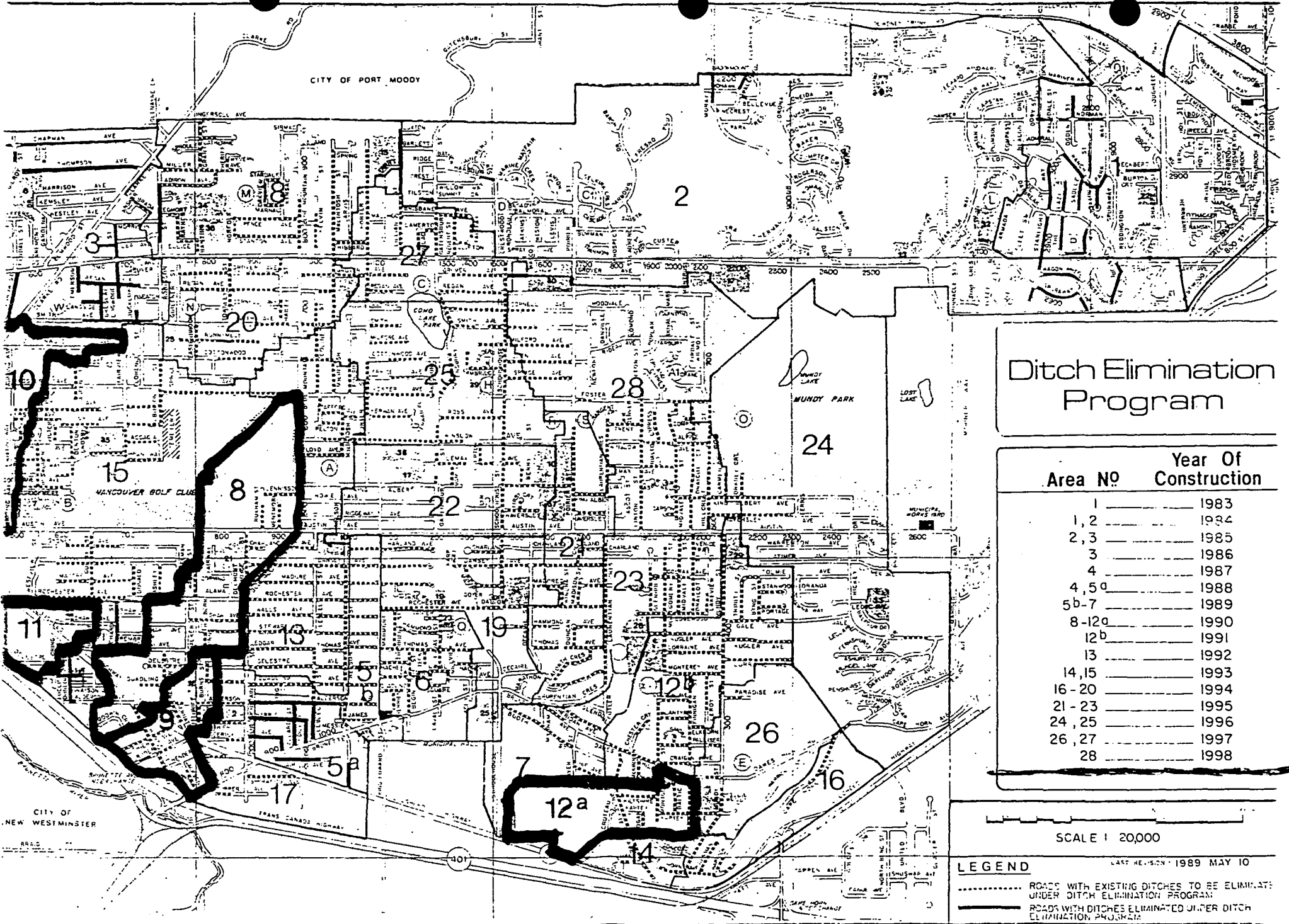
ASSUMPTIONS : 10 Years To Program Completion - Reference Year = 1989  
 \$1,000,000 Annual Investment  
 10.00% Average Annual Interest Rate  
 \$210.00 Present Value Unit Cost of Construction (\$/m)  
 5.00% Average Annual Construction Cost Variance

RESULTS :	Future Value	Present Value
Total Investment	\$16,000,000	\$16,830,000
Residual Fund Balance	\$7,712,000	\$2,973,310
Net Investment	\$8,288,000	\$13,856,690

Year Area	DEP Fund Balance (April) (FV\$)	Storm Sewers (m)	Unit Cost (FV\$/m)	Total Cost (FV\$)	Investment To DEP Fund (FV\$)	Interest Bearing Funds (FV\$)	Interest Proceeds (FV\$)	Investment Present Value (PV\$)
1987 5-7b	7,440,000	5,770	210.00	1,212,000	1,000,000	7,228,000	723,000	1,000,000
1990 8-12a	7,951,000	5,900	220.50	1,301,000	1,000,000	7,650,000	765,000	909,000
1971 12b	8,415,000	6,600	231.53	1,528,000	1,000,000	7,887,000	789,000	826,000
1992 13	8,676,000	6,300	243.10	1,532,000	1,000,000	8,144,000	814,000	751,000
1993 14-15	8,958,000	5,920	255.26	1,511,000	1,000,000	8,447,000	845,000	683,000
1994 16-20	9,292,000	6,480	268.02	1,737,000	1,000,000	8,555,000	856,000	621,000
1995 21-23	9,411,000	5,900	281.42	1,660,000	1,000,000	8,751,000	875,000	564,000
1996 24-25	9,626,000	7,000	295.49	2,068,000	1,000,000	8,558,000	856,000	513,000
26-27	9,414,000	5,100	310.27	1,582,000	1,000,000	8,832,000	883,000	467,000
1998 27-28	9,715,000	8,300	325.78	2,704,000		7,011,000	701,000	0
1999	7,712,000							0
Projected Totals :		63,270		\$16,835,000	\$9,000,000		\$8,107,000	\$6,334,000
Program Totals :		75,484		\$18,917,018	\$16,000,000		\$10,189,000	\$16,830,000



CITY OF PORT MOODY



# Ditch Elimination Program

Area No	Year Of Construction
1	1983
1, 2	1984
2, 3	1985
3	1986
4	1987
4, 5 <sup>a</sup>	1988
5 <sup>b</sup> - 7	1989
8 - 12 <sup>a</sup>	1990
12 <sup>b</sup>	1991
13	1992
14, 15	1993
16 - 20	1994
21 - 23	1995
24, 25	1996
26, 27	1997
28	1998

SCALE 1 20,000

**LEGEND**  
 ..... ROADS WITH EXISTING DITCHES TO BE ELIMINATED UNDER DITCH ELIMINATION PROGRAM  
 ——— ROADS WITH DITCHES ELIMINATED UNDER DITCH ELIMINATION PROGRAM

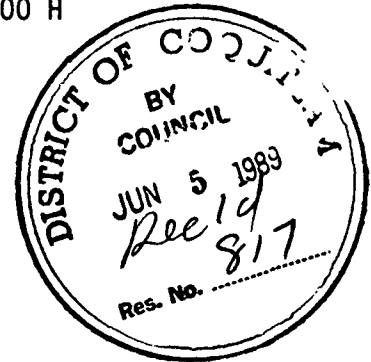
CITY OF NEW WESTMINSTER

LAST REVISION - 1989 MAY 10

MINUTES OF A MEETING OF THE DRAINAGE COMMITTEE  
HELD AT COQUITLAM MUNICIPAL HALL AT 1200 H  
TUESDAY, 1989 MAY 30

ATTENDING:

Alderman Brian Robinson, Chairman,      Neil Nyberg  
Alderman Walter Ohirko                      Ken Wright  
Mayor Lou Sekora                              Al Kersey  
   Vic Fraser



Call to Order

42-1 Request for Proposals: Aquatic Environment Study: Coquitlam Lakes  
The Engineering Department has prepared a request for proposals to prepare an environmental protection plan for Coquitlam Lakes. The first priority will be Lafarge Lake, followed by Como Lake.

The environmental protection plan will involve three stages:

- . a base line evaluation study to be completed by 1989 September;
- . a construction plan to be prepared in 1989 September and possible extension to Como Lake;
- . expansion and evaluation of the study for other areas.

Council  
Action  
Required

1. That staff prepare a Development Cost Charge Reserve Expenditure Bylaw for an environmental assessment and design study for Lafarge Lake.
2. That the cost of a similar study to Como Lake be determined and presented to Council during the annual budget amendment review.
3. That an environmental protection public awareness program be implemented immediately, including:
  - a. a letter to residents in the Como Lake drainage area;
  - b. a newsletter addressing the 'yellow fish' symbol and the need for responsible waste disposal; and
  - c. a public information component to the environmental impact study on Lafarge Lake.

*APP'D B  
Co. R55  
#618/89*

42-2 Request for Sydney Avenue Ditch Enclosure  
The Committee recommended that Mr. Holmes, President, Burquitlam Lions Care Centre, be contacted by the Municipal Engineer to explain the priority system and to confirm that the project will be undertaken no later than 1993.

42-3 Status Report, 1989 Ditch Elimination Program  
The Committee reviewed Engineering memo report dated 1989 May 30.

43-4

1990 Program Descriptions: Ditch Elimination Program

The Committee reviewed Engineering memo report dated 1989 May 29. The Municipal Engineer suggested that the next Drainage Committee meeting include a field trip to study completed work, work in progress and area where ditch elimination is scheduled for 1990.

MEETING ADJOURNED: 1300 H

## DISTRICT OF COQUITLAM

Inter Office Memo

TO: J.L.Tonn, Municipal Manager DEPARTMENT: Administration DATE: 1989 May 30  
FROM: Neil Nyberg DEPARTMENT: Engineering FILE:  
SUBJECT: REQUEST FOR PROPOSALS: AQUATIC ENVIRONMENT STUDY - OUR FILE: 01 03 06  
COQUITLAM LAKES

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FOR DRAINAGE COMMITTEE

Reference: A. Engineering memo report 05 05 89/04 d 1989 April 21

1.00 BACKGROUND

1.01 Council Resolution #566, 1989 April 24 reads as follows:

"That Council authorize the Drainage Committee to assess consultants for an Environmental Management Plan as set out in the Terms of Reference of Appendix E;

That funding for the study should be a charge against the Drainage Development Cost Charge Reserve Fund;"

- 1.02 Urban lakes act as repositories for fecal material from pets and wildlife, waste oil and coatings, solvents, sodium chloride and a wide range of chemicals and substances leached from lawns, garbage containers are transported in the storm sewer system.
- 1.03 There are nine outlets into Como Lake, draining an area of 81.5 hectares. About 64 Ha are drained through Como Lake Avenue.
- 1.04 The objective of the study is to determine the 'base line' condition of surface water bodies. If the Municipality must move to protect the appearance and biota of Municipal lakes, there must be quantifiable factors against which one can measure progress or change. Without benchmark indicators, it is impossible to react to perceived environmental deterioration. Without identification of existing values, it is impossible to achieve stasis or betterment.
- 1.05 There are short-term possibilities for reducing the chance of accidental spills of oil or similar materials from reaching Como Lake. Enclosing the open ditches on Gatensbury, Grover, Regan, Cornell, Smith and Milford, and including oil intercepting chambers in the catch basins draining to the lake would, potentially, reduce the chance of an oily liquid being transported to the lake. Since ditch elimination commonly costs \$210/metre, a gross expenditure of \$90,000 would be required for Gatensbury. However, there is no way to measure or estimate the effort of such a change without a 'base line' study of the condition of Como Lake...now.

## 2.00 DISCUSSION

- 2.01 The Request for Proposals - Environmental Management Plan and Terms of Reference are attached. It is proposed to focus on Lafarge Lake first, because funds are available from the Development Cost Charge Reserve Fund for capital construction and engineering of drainage improvements.
- 2.02 There is virtually no limit on the amount of study that can be expended on a problem of the nature of 'environmental pollution'. A prototype study of Lafarge Lake will identify an appropriate level of effort and cost envelope for other bodies of surface water.
- 2.03 The Lafarge Lake study should establish the type of physical countermeasures required to protect against accidental spills. Improvements to the overall water quality, however, are likely to be more difficult and expensive to achieve.

## 3.00 RECOMMENDATION

- 3.01 That staff prepare a Development Cost Charge Reserve Expenditure Bylaw for an environmental assessment and design study of Lafarge Lake.
- 3.02 That the cost to extend a similar study to Como Lake be determined and presented to Council during the annual budget amendment review.



Neil Nyberg, P. Eng.  
Municipal Engineer

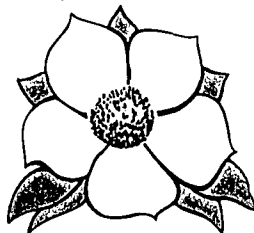
# DISTRICT OF COQUITLAM

1111 Brunette Avenue  
Coquitlam, B.C. V3K 1E9

Mayor: L. Sekora

Phone: (604) 526-3611

Fax: (604) 526-6014



ENGINEERING DEPARTMENT

File: 05 05 89-02

89 May 30

NO ITEM TO INSERT

Dear Sirs:

## REQUEST FOR PROPOSAL - ENVIRONMENTAL MANAGEMENT PLAN

The District of Coquitlam is requesting proposals for an Environmental Evaluation and Management Plan. Major requirements of the proposal are in two parts:

### Part A:

- . an analysis of the existing water quality conditions in LaFarge Lake and Como Lake,
- . an environmental risk assessment,
- . identification of counter-measures, and
- . pre-design of counter-measures approved by the District.

Detailed terms of reference are attached.

### Part B:

- . types, size and cost of oil separation systems available and their capacity to prevent potential problems.

Proposal submissions should be concise and deal with the work plan, schedule, personnel and cost of the study. Proposals will be evaluated on the basis of understanding of District requirements, competence of assigned personnel including the time allotted for all members of the project team, an effective work plan, references and value of the proposed output. The lowest or any proposal may not be accepted.

- 2 -

Proposals will be accepted at the Work Reception Counter of the Engineering Department, Coquitlam Municipal Hall, 1111 Brunette Avenue, Coquitlam, B. C., until 1400 h, 1989 May 29. Please address proposals to the attention of D. A. Kersey, A.Sc.T.

Reference material may be viewed at the Municipal Hall and will be lent out to the successful consultant. Should you have any questions, please contact Al Kersey, at 526-3611, local 238.

Yours truly,

Neil Nyberg, P. Eng.  
Municipal Engineer



DAK/pin

Enc

TERMS OF REFERENCE  
COMO AND LAFARGE LAKES - ENVIRONMENTAL MANAGEMENT PLAN

SCOPE OF WORK

The Consultant shall produce an inventory of all existing information on the quality of the environment (water, sediments and biota) which receives storm water discharges from the study area (see drawing SF1790 - Sheet 5), together with a report which reviews and summarizes the information; the report shall also contain a list of sources from which the District can get access to, or get copies of, the existing information. The report will be used to determine the significance of storm water discharges to the receiving environment, and the improvements in quality which the District can expect by implementing mitigative measures within the storm sewer system. Areas to be covered include:

- a) Physical Hydrography.
- b) Water and Sediment Chemistry, including presence or absence of EPA priority pollutants.
- c) Marine Biology.
- d) Condition of Biota in the water column and in the sediments.

The District will require information on conditions in general for both lakes as well as local variations that may be attributable to sewerage and drainage works or other influences.

The Study will provide existing data for the following water areas:

1. Como Lake.
2. LaFarge Lake.

In particular, the District requires the Consultant to use existing information to:

- a) Draw general conclusions on the existing quality of each major portion of the receiving environment.
- b) Describe trends (seasonal, year-to-year, etc.) in quality, especially as these might relate to wastewater discharges and infrequent oil or chemical wastes.
- c) Compare existing water quality with typical standards for water use such as recreation, bathing, aquatic habitat, and aesthetics.
- d) Comment on the adequacy of existing information, and identify any areas where it is necessary to collect additional quality data on the receiving environment.
- e) Determine how much wastewater discharges affect existing water quality and identify sewerage improvements that could significantly reduce existing levels.
- f) Provide engineering pre-design of approved counter-measures identified above.



AVAILABLE INFORMATION

a) Reference books including:

- . "District of Coquitlam, Review of Town Centre Drainage Study"  
Ker, Priestman and Associates Ltd., 1984 April
- . "Westwood Plateau Drainage Study"  
Ker, Priestman and Associates, 1984 September  
Includes Appendix F; "Water Quality and Potential Pollution from  
Surface Runoff in Watersheds on the Westwood Plateau" by Ken J. Hall.
- . "Greater Vancouver Receiving Water Quality Conditions", Coastline  
Environmental Services Ltd. and Envirochem Services, 1987 August 12.

b) Engineering data including:

- . As-built records of storm sewers.
- . Estimated storm flows for the 1:10 and 1:100 year storm events.

## D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J.L.Tonn, Municipal Manager      DEPARTMENT: Administration      DATE: 1989 May 29  
FROM: Neil Nyberg      DEPARTMENT: Engineering      FILE:  
SUBJECT: REQUEST FOR SYDNEY AVE DITCH ENCLOSURE      OUR FILE: 01 03 06

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FOR DRAINAGE COMMITTEE1.00 BACKGROUND

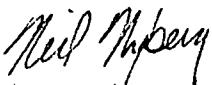
- 1.01 The Burquitlam Lions Care Centre by letter dated 1989 May 4, requested the ditch on Sydney Avenue be eliminated.
- 1.02 The District of Coquitlam Ditch Elimination Program is scheduled to complete the enclosure of all road side ditches in south-west Coquitlam in 1998.

2.00 DISCUSSION

- 2.01 In the current Ditch Elimination Program approved by Council on April 25, 1988, the ditch on Sydney Avenue is scheduled to be eliminated in 1993.

3.00 RECOMMENDATION

- 3.01 That the Committee determine whether Sydney Avenue should be eliminated in 1993 as scheduled or whether it should be expedited for the reasons outlined in the letter.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

# Burquitlam Lions Care Centre

Burquitlam Intermediate Care Society

*Handwritten:* N.W.N.  
DUC F-15847

560 Sydney Avenue, Coquitlam, B.C. V3K 6A4

Telephone 939-6485

May 4, 1989

*Handwritten:* 05 0 6 5 1 1 1

ENGINEERING DEPT.		
COPIES TO:		
RECEIVED		
MAY 8 1989		
CIRC.	INIT.	DATE

Alderman Walter Ohirko  
Chairman -  
Land Use Committee  
District of Coquitlam  
1111 Brunette Avenue  
Coquitlam, B.C.  
V3K 1E8

Dear Sir:

Re: Ditch Enclosure on Sydney Avenue

I am writing this letter on behalf of the Boards of Directors of Burquitlam Senior Housing Society and the Burquitlam Intermediate Care Society, who operate L. J. Christmas Manor and Burquitlam Lions Care Centre.

The purpose is to request that consideration and priority be given to enclosing the ditch on Sydney Avenue, on the north side from Guilby Street, west, one block, to Burquitlam Lions Care Centre and Christmas Manor. As you will be aware, Sydney Avenue is the only entrance and exit to our facilities.

The existing situation is a very unsafe one in that the street is so narrow it virtually turns traffic into a one-way street. The traffic is heavy and when two cars pass, they are basically forced to drive on the sidewalk on the south side of the street.

This results in a most hazardous and unsafe condition for the Residents in both facilities, many of who go for walks on Sydney Avenue on a regular basis. A large number of these seniors are very slow walkers, some use walking aides, and the majority have hearing and sight impairment.

Alderman Walter Ohirko  
Chairman -  
Land Use Committee  
Re: Ditch Enclosure on Sydney Avenue

- 2 -

We trust that our request will receive your favourable consideration and if further information is required we will be pleased to provide same. Thank you.

Sincerely



Lyal Holmes  
President  
Board of Directors

/ch

c: Mayor Lou Sekora

c: Neil Nyberg, P.Eng.  
1 Municipal Engineer

D I S T R I C T O F C O Q U I T L A M

Inter Office Memo

TO: J. L. Tonn, Municipal Manager    DEPARTMENT: Administration    DATE: 89 May 30  
 FROM: Neil Nyberg    DEPARTMENT: Engineering    FILE:  
 SUBJECT: STATUS REPORT - 1989 DITCH ELIMINATION PROGRAM    OUR FILE: 01 03 06

---

FOR DRAINAGE COMMITTEE

Reference A: - Project Description: 1989 Ditch Elimination Program

1.00 BACKGROUND

1.01 Council Resolution #492, 1989 March 28, adopted Bylaw 1985, 1989 to provide \$1,592,000 from the Coquitlam Drainage Works Reserve Fund.

• Area 5B Marmont/Lougheed Project	
14 ditch locations total 2,450 metres	\$ 592,000
• Area 6 Laval Project	
13 ditch locations total 2,909 metres	660,000
• Area 7 Sheridan Project	
5 ditch locations total 1,013 metres	200,000
• Engineering Design for Five 1990 Projects	
Areas 8 to 12 inclusive	81,000
• Contingency for 1989 Projects	<u>59,000</u>
Total	\$1,592,000

1.02 Construction of Area 5B Marmont/Lougheed and Area Sheridan was combined as one project. Contract Number 89-16 with Cicuto and Son was awarded 1989 March 28 by Council Resolution #445 for \$708,170. Contract Number 89-17 was also awarded to Cicuto and Son Ltd. by the same Council Resolution Number for \$600,000.

2.00 PROJECT STATUS

2.01 Both contracts are proceeding ahead of schedule. The attached project description schedule provides a street by street status report.

Work on Area 5B and 7 is about 20% complete, including Booth Avenue, Hie Avenue, Cayer Street and Brunette Avenue so far. Substantial completion is expected by 1989 July 31 and will be within budget.

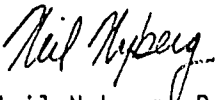
Work on Area 6, Laval Project, is about 50% complete including Begin Street, Thomas Avenue, Therrien Street and Quadling Avenue. Laval Street is about 60% complete and Begin Street is 80% complete with asphalt repair and curbing proceeding at this time. Substantial completion is expected by 1989 June 27 and will be within budget.

2.02 The projected final cost for Area 6 is estimated to be in the order of \$605,000 or about \$55,000 under budget.

2.03 The gas explosion at 222 Begin Street remains under investigation by the insurance companies.

The owner is expected to be compensated by the contractor's insurance and the District will be saved harmless.

2.04 Quality control and adherence to schedule requires constant monitoring. Contractor Cicuto has been issued one reprimand for failing to comply with contract specifications. The contractor is now performing all work to the satisfaction of the District.

  
Neil Nyberg, P. Eng.  
Municipal Engineer

  
DAK/pin

Encs

PROJECT DESCRIPTION

**1989 DITCH ELIMINATION PROGRAM**

File No.: 05 02 89-16  
05 02 89-17

Account No.: 533055-051, Area 5B  
533055-060, Area 6  
533055-070, Area 7

Finance: Drainage Reserve Fund: \$ 1,452,000.00  
Cash Deposits : \$ 14,019.07

PROJECT OBJECTIVES

In the context of the long term Council objective to eliminate all ditches in urban residential streets in southeast Coquitlam, this project will complete enclosure of existing roadside ditches in the Marmont/Nelson area 5B, the Laval area 6 and the Sheridan/Booth Area 7.

SCOPE

The 1989 Ditch Elimination Program will complete the remainder of drainage area 5 and all of drainage area 6 and 7 (see location sketch and list of locations). Approximate length of ditches to be enclosed is as follows:

Area 5	2450 m
Area 6	2909 m
Area 7	<u>1013 m</u>
1989 Total	6372 m

Proposed works will replace existing ditches with an enclosed storm sewer system. All existing drains will be connected. Boulevard treatment will generally include a 2.2 m gravel parking strip, a 0.6 - 1.2 m wide sod drainage swale, and topsoil and seed to restore disturbed areas. Asphalt curbs will be constructed where required. Driveway cuts will be restored to original condition.

SCHEDULE

Preliminary schedule is as follows:

	<u>Target</u>	<u>Actual</u>
Design funding	1988 07 18	1988 07 18
Design completion	1988 12 16	1989 02 14
Construction funding	1989 04 03	1989 03 28
Tenders available	1989 04 03	1989 02 20
Construction start	1989 05 01	1989 04 12
Construction	1989 09 29	

1989 Ditch Elimination Program - Area 6  
Construction Schedule

30-05-89

1

NAME	START	END	STAT
Master Plan			
+ 1989 Ditch Elimination Program			
+ Area 6 Ditch Elimination			
+ Construction			
+ Main Line Construction			
- Begin St	a12-04-89	a27-04-89	C
- Thomas Ave : Marmont-Begin	a28-04-89	a03-05-89	C
- Therrien:N.Thomas	a04-05-89	a08-05-89	C
- Laval St.	a09-05-89	07-06-89	60%
- Cartier Ave:E.Begin	08-06-89	13-06-89	P
- Hammond Ave	14-06-89	22-06-89	P
- Vanier Ave	23-06-89	27-06-89	P
- Quadling:W.Begin	a11-05-89	a16-05-89	C
- Therrien:S.Quadling	a17-05-89	a18-05-89	C
- Cartier Ave:W.Begin	a19-05-89	25-05-89	80%
- Hachey Ave:W.Begin	26-05-89	31-05-89	P
- Thomas:E.Begin	01-06-89	13-06-89	P
- Casey	14-06-89	19-06-89	P
- Hachey Ave:W.Casey	20-06-89	21-06-89	P
- Tech St.	22-06-89	22-06-89	P
+ Restorations			
- Begin St	29-05-89	02-06-89	P
- Thomas Ave : Marmont-Begin	05-06-89	06-06-89	P
- Therrien:N.Thomas	07-06-89	12-06-89	P
- Laval St.	13-06-89	26-06-89	P
- Cartier Ave:E.Begin	27-06-89	28-06-89	P
- Hammond Ave	29-06-89	04-07-89	P
- Vanier Ave	05-07-89	06-07-89	P
- Quadling:W.Begin	07-07-89	10-07-89	P
- Therrien:S.Quadling	11-07-89	11-07-89	P
- Cartier Ave:W.Begin	12-07-89	13-07-89	P
- Hachey Ave:W.Begin	14-07-89	17-07-89	P
- Thomas:E.Begin	18-07-89	21-07-89	P
- Casey	24-07-89	25-07-89	P
- Hachey Ave:W.Casey	26-07-89	26-07-89	P
- Tech St.	27-07-89	27-07-89	P
- Substantial Completion	27-07-89	27-07-89	P

FOCUS

C : Completed      P : Planned      I : In progress      a : Actual date



1989 Ditch Elimination Program -Area 5b & 7  
Construction Schedule

30-05-89

AME	START	END	STAT
Master Plan			
+ 1989 Ditch Elimination Program			
+ Area 5 & 7 Ditch Elimination			
+ Construction			
+ Main Line Construction			
- Booth Ave	a24-04-89	a05-05-89	C
- Hie Ave	a05-05-89	a11-05-89	C
- Cayer	a12-05-89	a16-05-89	C
- Brunette Ave	a15-05-89	a19-05-89	C
- Sherridan Ave	a23-05-89	30-05-89	0%
- James/Nelson	31-05-89	06-06-89	P
- Alderson Ave	07-06-89	13-06-89	P
- Quadling:W.Marmont	14-06-89	20-06-89	P
- King St	21-06-89	22-06-89	P
- LeBleu St	23-06-89	28-06-89	P
- Quadling:W.LeBleu	29-06-89	13-07-89	P
- Delestre Ave	14-07-89	20-07-89	P
- Thomas Ave	23-06-89	29-06-89	P
- Stewart Ave	30-06-89	07-07-89	P
- Walls Ave	10-07-89	14-07-89	P
- Rochester Ave	17-07-89	21-07-89	P
- Madore Ave	28-06-89	05-07-89	P
- Dansey Ave	06-07-89	12-07-89	P
- Charland Ave	13-07-89	19-07-89	P
+ Restorations			
- Booth Ave	06-06-89	12-06-89	P
- Hie Ave	13-06-89	14-06-89	P
- Cayer	15-06-89	15-06-89	P
- Brunette Ave	16-06-89	19-06-89	P
- Sherridan Ave	20-06-89	22-06-89	P
- James/Nelson	23-06-89	26-06-89	P
- Alderson Ave	27-06-89	28-06-89	P
- Quadling:W.Marmont	29-06-89	30-06-89	P
- King St	04-07-89	04-07-89	P
- LeBleu St	05-07-89	06-07-89	P
- Quadling:W.LeBleu	07-07-89	12-07-89	P
- Delestre Ave	13-07-89	14-07-89	P
- Thomas Ave	17-07-89	18-07-89	P
- Stewart Ave	19-07-89	20-07-89	P
- Walls Ave	21-07-89	24-07-89	P
- Rochester Ave	25-07-89	26-07-89	P
- Madore Ave	27-07-89	28-07-89	P
- Dansey Ave	31-07-89	01-08-89	P
- Charland Ave	02-08-89	03-08-89	P
- Substantial Completion	31-08-89	01-09-89	P

FOCUS

C : Completed      P : Planned      I : In progress      a : Actual date

COST

A design contract has been awarded for \$35,731 against an authorized budget of \$60,000. Estimated, tendered and budgeted cost of construction are as follows:

	<u>Budget</u>	<u>Projected Cost</u>	<u>Variance</u>
Area 5B	\$ 592,000	\$ 521,000	\$ 71,000
Area 6	660,000	605,000	55,000
Area 7	<u>200,000</u>	<u>192,000</u>	<u>8,000</u>
	\$1,452,000	\$1,318,000	\$ 134,000

JUSTIFICATION

Ditch elimination programming is established by drainage areas and considers erosion potential, flooding potential, vehicle and pedestrian hazard, maintenance cost and appearance factors. The program normally operates within one or more drainage basins, concentrating on the lower reaches at the outset, and progressing towards the upstream streets as funding permits.

Project description approved by: \_\_\_\_\_

LIST OF LOCATIONS

1989 DITCH ELIMINATION PROGRAM

AREA 5B

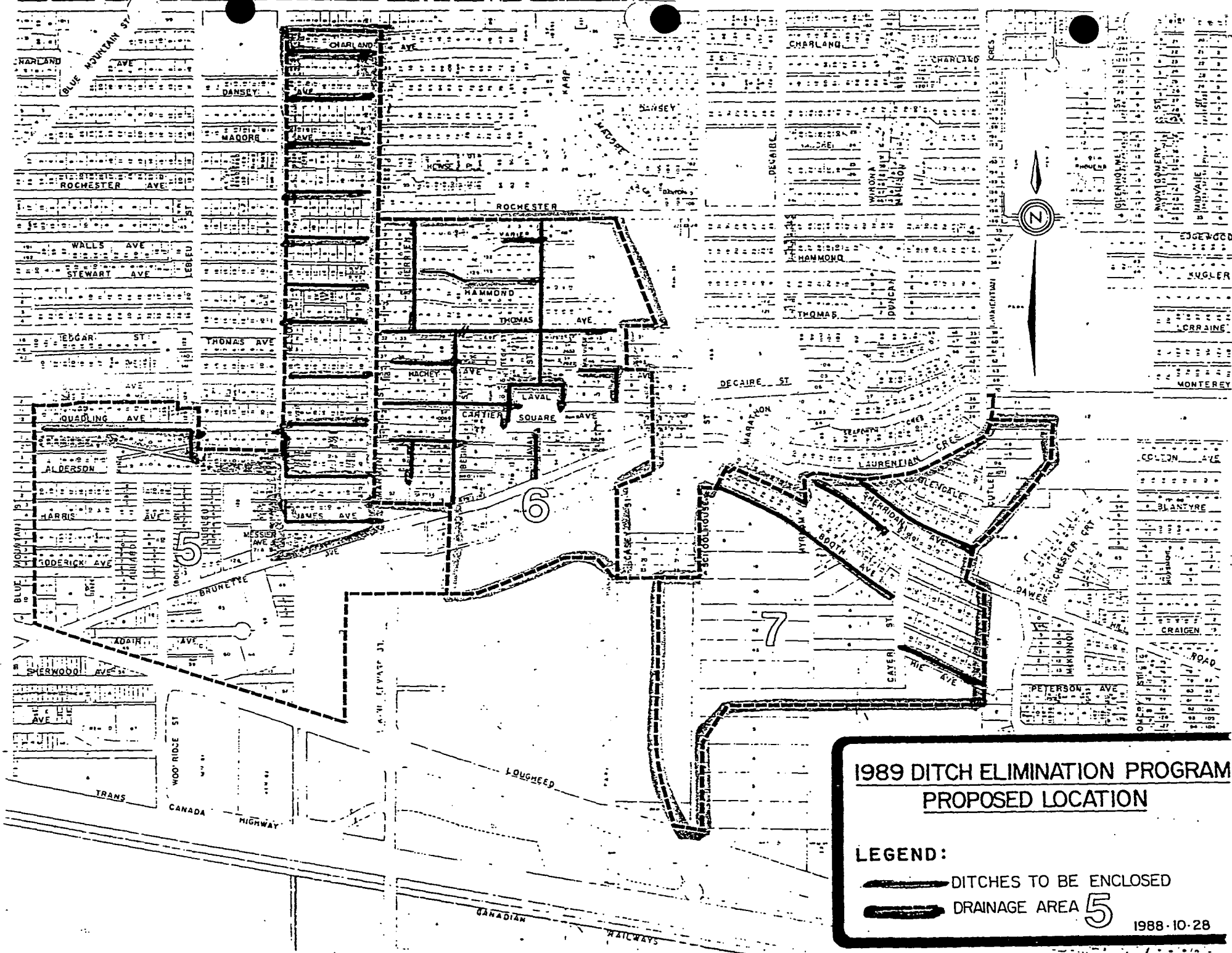
<u>Street</u>	<u>From</u>	<u>To</u>	<u>Street</u>	<u>From</u>	<u>To</u>
Quadling	Blue Mountain	LeBleu	LeBleu	Quadling	Alderson
James/Nelson	Nelson #1057 & James	#214 N.P.L.	Alderson	Nelson	Marmont
Nelson	Alderson	Quadling	Quadling	Nelson	Marmont
Delestre	Nelson	Marmont	Thomas	Nelson	Marmont
Stewart	Nelson	Marmont	Walls	Nelson	Marmont
Rochester	Nelson	Marmont	Madore	Nelson	Marmont
Dansey	Nelson	Marmont	Charland	Nelson	Marmont

AREA 6

Therrien	Rochester	Thomas	Therrien	Quadling	Brunette
Laval St/Sq.	Rochester	Brunette	Begin	Thomas	Brunette
Casey	Hachey	Cartier	Vanier	1144 Vanier	Laval
Hammond	Therrien	Laval	Thomas	Marmont	Casey
Hachey	Marmont	Begin	Hachey	Millview	Casey
Cartier	Marmont	Laval	Quadling	Marmont	Begin



AREA 7

Brunette	Myrnam	Cayer	Sheridan	Laurentian	East End
Booth	Schoolhouse	Cayer	Hie/Cayer	East End	Lane N. of Hie



**1989 DITCH ELIMINATION PROGRAM  
PROPOSED LOCATION**

**LEGEND:**

-  DITCHES TO BE ENCLOSED
-  DRAINAGE AREA 5

1988-10-28

AGENDA NO. 4

D I S T R I C T   O F   C O Q U I T L A M

Inter Office Memo

TO: J.L. Tonn, Municipal Manager      DEPARTMENT: Administration      DATE: 1989 May 29  
FROM: Neil Nyberg                      DEPARTMENT: Engineering      FILE:  
SUBJECT: 1990 PROGRAM DESCRIPTION - DITCH ELIMINATION      OUR FILE: 01 03 06

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FOR DRAINAGE COMMITTEE

1.00 BACKGROUND


- 1.01 In 1988 Council endorsed the Accelerated Ditch Elimination Program to be complete in 1998 with a residual fund balance of \$8,125,000, assuming an annual inflation rate of 4% and prevailing interest rates of 8%.
- 1.02 Council Resolution #492, 1989, March 28 adopted Bylaw 1985, 1989 to include \$81,000 for Engineering Design for five 1990 Projects.

2.00 DISCUSSION

- 2.01 Requests for Proposals for 1990 Ditch Elimination Projects will be issued 1989 June 14. A copy of the Terms of Reference is attached.
- 2.02 The design work should be complete by mid-December in time to attract early-season competition tenders in 1990.
- 2.03 A copy of the Ditch Elimination Program cost and schedule projections prepared 1989 May 29 is attached using a projected annual inflation rate of 5% and anticipated prevailing interest rate of 10%.

3.00 CONCLUSION

- 3.01 The accelerated Ditch Elimination Program is expected to be complete in 1998 with a residual fund of \$7,712,000.



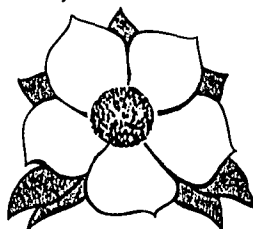
Neil Nyberg, P. Eng.  
Municipal Engineer

# DISTRICT OF COQUITLAM

1111 Brunette Avenue  
Coquitlam, B.C. V3K 1E9

Mayor: L. Sekora

Phone: (604) 526-3611  
Fax: (604) 526-6014



ENGINEERING DEPT.

File: 05 06 89-01

1989 May 30

**Re: REQUEST FOR PROPOSALS**

**1990 DITCH ELIMINATION PROGRAM DESIGN**

The District of Coquitlam is requesting proposals for engineering design for the 1990 Ditch Elimination Program for areas 8 to 12A. The terms of reference and list of locations are attached.

The design objective is to have the ditch elimination design, cost estimate and design brief completed by 1989 December 15.

Proposals submissions should be concise and deal with the project design, methodology, term, schedule and approximate cost. A project schedule and level of effort table should be included. Proposal evaluation will be based primarily on the ability of the consultant, the work plan and the appropriate level of effort to ensure a high quality design which minimizes construction conflicts and revisions.

Proposals will be accepted at the work reception counter of the Engineering Department, Coquitlam Municipal Hall, until June 21, 1989. Notice of award is expected by June 28, 1989.

Reference material may be viewed at the Municipal Hall. Contact John Anderson, Supervisor of Drafting, at 526-3611, local 228, to arrange a viewing time. Please contact the Project Manager, Al Kersey, at 526-3611, local 238, for any other information.

Yours truly,

A handwritten signature in black ink, appearing to read "D.A. Kersey". The signature is written in a cursive style with a large initial "D".

D.A. Kersey, A.Sc.T.  
Senior Project Technologist

JDM/fb  
Attachments

cc: John Anderson

Code	Street	From	To	Est. Pipe Length (m)
-----				
Area Number 8				
8.11	Girard Ave	Hart St	Lougheed Hwy	50
8.12	Hart St	Alderson Ave	Girard Ave	90
8.21	Alderson Ave	Lougheed Hwy	Allison St	20
8.22	Allison St	Quadling Ave	Edgar Ave	180
8.23	Quadling Ave	701 Quadling Ave	729 Quadling Ave	120
8.24	Delestre Ave	701 Delestre Ave	Walker St	190
8.31	Edgar Ave	Walker St	Blue Mountain St	300
8.32	Burns St	Edgar Ave	Stewart Ave	100
8.33	Stewart Ave	Burns St	Blue Mountain St	200
8.34	Shaw Ave	Walker St	Blue Mountain St	300
8.41	Walker St	Rochester Ave	414 Walker St	110
8.42	Joyce St	Blue Mountain St	Austin Ave	260
8.43	Dansev Ave	Joyce St	Blue Mountain St	95
8.44	Charland Ave	Joyce St	915 Charland Ave	95
8.51	Mentmore St	Austin Ave	Dennison Ave	140
8.52	Roxham St	Austin Ave	Dennison Ave	140
8.53	Dennison Ave	Roxham St	Blue Mountain St	200

-----  
Area 8 Total Length (m) : 2590

## Area Number 9

9.11	Hart St	Henderson Ave	Girard Ave	180
9.12	Roderick Ave	649 Roderick	704 Roderick	100
9.13	Gauthier Ave	615 Gauthier Ave	647 Gauthier Ave	230
9.14	Jackson St	221 Jackson St	215 Jackson St	30
9.21	Bernatchey St	Gauthier Ave	Alderson Ave	120
9.22	Alderson Ave	Allison St	815 Alderson Ave	120
9.23	Allison Ave	Alderson Ave	Quadling	90
9.24	Gauthier Ave	Thrift St	812 Gauthier Ave	90
9.25	Thrift St	Gauthier Ave	Alderson Ave	100
9.26	Burns St	Alderson Ave	324 Burns St	220

-----  
Area 9 Total Length (m) : 1280

## Area Number 10

10.11	Whiting Way & Stubs	Cochrane Ave	Webster Ave	70
10.12	Rutland Crt	Perth Ave	607 Rutland Crt	50

-----  
Area 10 Total Length (m) : 120

## Area Number 11

11.11	Shaw/Clayton	561 Shaw Ave	Rochester Ave	170
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Area 11 Total Length (m) : 170

## Area Number 12a

12.11	Brunette Ave	Hillside Ave	1837 Brunette Ave	260
12.12	Logan St	Hillside Ave	Kaptey Ave	100
12.13	Wiltshire Ave	Brunette Ave	Montgomery St	200
12.21	Montgomery St	Hillside Ave	Dawes Hill Road	310
12.22	Hillside Ave	Montgomery St	Finnigan St	160
12.23	Kaptey Ave	Montgomery St	Finnigan St	220

Code	Street	From	To	Est. Pipe Length (m)
-----				
Area Number 12a				
12.24	Baltic	Kaptey Ave	Dawes Hill Road	210
12.25	Finnigan St	Hillside Ave	Dawes Hill Road	280
				-----
Area 12a Total Length (m) :				1740
Program Total Length (m) :				5900
				=====



10 YEAR DITCH ELIMINATION PROGRAM FINANCIAL MODEL

Revised 1989 May 25

Print Date : 89-05-29

HISTORICAL DATA

Year Area	Annual Investment (\$)	Investment Present Value (PV\$)	Interest Proceeds (FV\$)	DEP Fund Balance (\$)	Bylaw Amount (\$)	Total Cost (\$)	Length of Storm Sewers (m)	Unit Cost (\$/m)	Interest Bearing Funds (FV\$)
1983	4,000,000	7,086,000		4,000,000					4,000,000
1983 1	0	0	255,000	4,255,068	255,068	255,000	2,100	121.43	4,000,000
1984 1-2	0	0	324,000	4,324,168	190,000	185,000	1,000	185.00	4,139,000
1985 2-3	0	0	353,000	4,486,927	482,950	470,000	3,200	146.88	4,017,000
1986 3	0	0	412,000	4,416,017	400,000	439,900	2,130	206.53	3,976,000
1987 4	1,000,000	1,210,000	304,000	5,320,077	314,000	314,000	1,600	196.25	5,006,000
1988 4-5a	2,000,000	2,200,000	434,000	7,440,000	440,000	390,000	2,184	178.57	7,050,000
Totals :	\$7,000,000	\$10,496,000	\$2,082,000		\$2,082,018	\$2,053,900	12,214	\$168.16	\$32,188,000

NOTE : PROPOSED PROGRAM GOVERNED BY DITCH ENCLOSURE LENGTHS

ASSUMPTIONS :  
 10 Years To Program Completion - Reference Year = 1989  
 \$1,000,000 Annual Investment  
 10.00% Average Annual Interest Rate  
 \$210.00 Present Value Unit Cost of Construction (\$/m)  
 5.00% Average Annual Construction Cost Variance

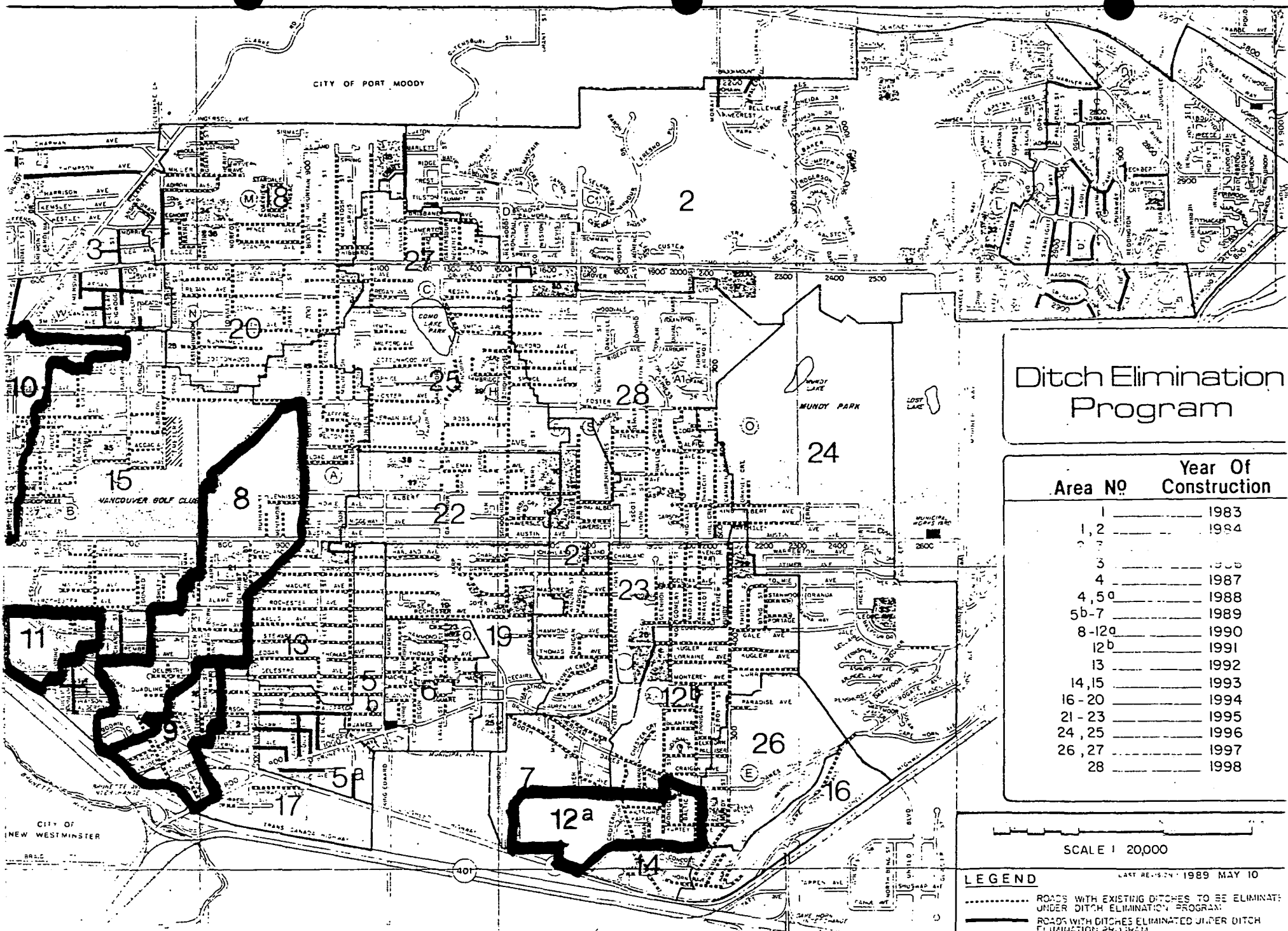
RESULTS :	Future Value	Present Value
Total Investment	\$16,000,000	\$16,830,000
Residual Fund Balance	\$7,712,000	\$2,973,310
Net Investment	\$8,288,000	\$13,856,690

Year Area	DEP Fund Balance (April) (FV\$)	Storm Sewers (m)	Unit Cost (FV\$/m)	Total Cost (FV\$)	Investment To DEP Fund (FV\$)	Interest Bearing Funds (FV\$)	Interest Proceeds (FV\$)	Investment Present Value (FV\$)
1989 5-7b	7,440,000	5,770	210.00	1,212,000	1,000,000	7,228,000	723,000	1,000,000
1990 8-12a	7,951,000	5,900	220.50	1,301,000	1,000,000	7,650,000	765,000	909,000
1991 12b	8,415,000	6,600	231.53	1,528,000	1,000,000	7,887,000	789,000	826,000
1992 13	8,676,000	6,300	243.10	1,532,000	1,000,000	8,144,000	814,000	751,000
1993 14-15	8,958,000	5,920	255.26	1,511,000	1,000,000	8,447,000	845,000	683,000
1994 16-20	9,292,000	6,480	268.02	1,737,000	1,000,000	8,555,000	856,000	621,000
1995 21-23	9,411,000	5,900	281.42	1,660,000	1,000,000	8,751,000	875,000	564,000
1996 24-25	9,626,000	7,000	295.49	2,068,000	1,000,000	8,558,000	856,000	513,000
1997 26-27	9,414,000	5,100	310.27	1,582,000	1,000,000	8,832,000	883,000	467,000
1998 27-28	9,715,000	8,300	325.78	2,704,000		7,011,000	701,000	0
1999	7,712,000							0

Projected Totals : 63,270 \$16,835,000 \$9,000,000 \$8,107,000 \$6,334,000

Program Totals : 75,484 \$18,917,018 \$16,000,000 \$10,189,000 \$16,830,000

CITY OF PORT MOODY



# Ditch Elimination Program

Area No	Year Of Construction
1	1983
1, 2	1984
3	1985
4	1987
4, 5, 6	1988
5b-7	1989
8-12a	1990
12b	1991
13	1992
14, 15	1993
16-20	1994
21-23	1995
24, 25	1996
26, 27	1997
28	1998

SCALE 1:20,000

**LEGEND** LAST REVISED 1989 MAY 10

..... ROADS WITH EXISTING DITCHES TO BE ELIMINATED UNDER DITCH ELIMINATION PROGRAM

———— ROADS WITH DITCHES ELIMINATED UNDER DITCH ELIMINATION PROGRAM