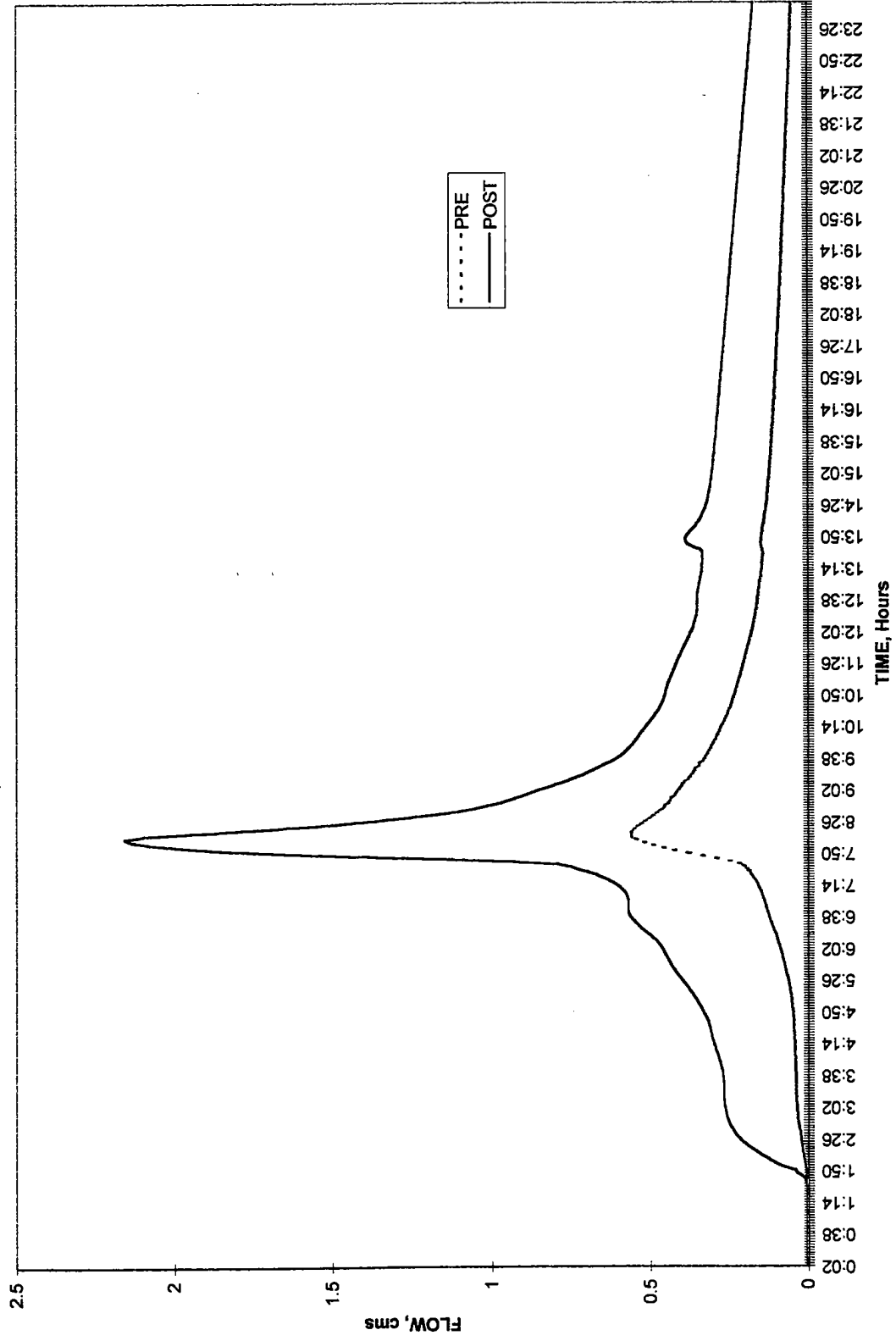


Figure H.
PRE AND POST DEVELOPMENT HYDROGRAPH
100 YEAR 24 HOUR STORM EVENT



APPENDIX A

TRAFFIC VOLUMES

East Newton Business Park

1999 Traffic Volumes

Growth Factor 3%

				1194			1298		
				406	788	0			
				SR	ST	SL			
				591	EL			WR	0
				0	ET			WT	0
				371	ER			WL	0
				NL			NT		
				162			707		
							NR		
							0		
				1159			869.5		
				1140			880		
				100	1040	0			
				SR	ST	SL			
				0	EL			WR	0
				60	ET			WT	0
				0	ER			WL	0
				0	70	20			
				SR	ST	SL			
				WR	0				
				WT	30				
				WL	70				
				NL	NT	NR			
				30	100	20			
				NL			NT		
				0			870		
							NR		
							0		
				1130			870		
				1140			870		
				0	1140	0			
				SR	ST	SL			
				0	EL			WR	0
				0	ET			WT	0
				0	ER			WL	0
				NL			NT		
				0			870		
							NR		
							0		
				1140			870		
				1140			870		
				70	850	220			
				SR	ST	SL			
				20	50	10			
				SR	ST	SL			
				WR	30				
				WT	670				
				WL	20				
				NL	NT	NR			
				10	70	10			
				NL			NT		
				80			700		
							NR		
							80		
				960			860		

East Newton Business Park

1999 Traffic Volumes + Site Generated

FAR = 0.50

Growth Factor 3%

0.50

										1340			1630																															
										410			930			0																												
										SR			ST			SL																												
										590			EL						WR			0																						
										0			ET						WT			0																						
										420			ER						WL			0																						
																				NL			NT			NR																		
																				270			1040			0																		
																				1350						1310																		
																				1330						1320																		
																				100			1140			90																		
																				SR			ST			SL																		
																				0			70			20																		
										SR			ST			SL																												
0			EL						WR			0						10			EL			WR			220																	
60			ET						WT			30			68 Avenue			30			ET			WT			140																	
0			ER						WL			210						90			ER			WL			340																	
										NL			NT			NR																												
										30			100			60																												
																				NL			NT			NR																		
																				0			1090			70																		
																				1570						1160																		
																				1570						1160																		
																				0			1480			90																		
																				SR			ST			SL																		
																				0			EL						WR			220												
																				0			ET						WT			0												
																				0			ER						WL			340												
																				NL			NT			NR																		
																				0			940			70																		
																				1820						1010																		
																				1820						1000																		
																				410			1120			290																		
																				SR			ST			SL																		
																				160			50			10																		
										SR			ST			SL																												
60			EL						WR			30			64 Avenue			160			EL			WR			90																	
990			ET						WT			1010						790			ET			WT			570																	
30			ER						WL			20						90			ER			WL			20																	
										NL			NT			NR																												
										10			70			10																												
																				NL			NT			NR																		
																				80			750			80																		
																				1230						910																		

East Newton Business Park

2009 Traffic Volumes

Growth Factor 3%

BACKGROUND										1610			1740		
										550	1060	0			
										SR	ST	SL			
										790 EL			WR 0		
72 Avenue										0 ET			WT 0		
										500 ER			WL 0		
										NL	NT	NR			
										220	950	0			
										1560			1170		
										1540			1190		
										140	1400	0			
										SR	ST	SL			
10 EL		10	190	30		WR	50		20 EL					WR	0
180 ET		SR	ST	SL		WT	100	68 Avenue	0 ET					WT	0
10 ER						WL	90		120 ER					WL	0
										NL	NT	NR			
										50	240	30			
										1520			1170		
										1530			1170		
										0	1530	0			
										SR	ST	SL			
										0 EL			WR 0		
66 Avenue										0 ET			WT 0		
										0 ER			WL 0		
										NL	NT	NR			
										0	1170	0			
										1530			1170		
										1530			1160		
										90	1140	300			
										SR	ST	SL			
30 EL		30	120	20		WR	50		120 EL					WR	110
1230 ET		SR	ST	SL		WT	900	64 Avenue	1060 ET					WT	760
50 ER						WL	30		120 ER					WL	30
										NL	NT	NR			
										20	193	20			
										1290			1150		

East Newton Business Park

2009 Traffic Volumes + Site Generated

Growth Factor 3%

FAR = 0.50

										1750		2070			
										550		1200		0	
										SR		ST		SL	
										790		EL		WR 0	
72 Avenue										0		ET		WT 0	
										540		ER		WL 0	
										NL		NT		NR	
										330		1280		0	
										1740				1610	
										1720				1630	
										140		1490		90	
										SR		ST		SL	
										10		190		30	
										SR		ST		SL	
10 EL										WR 50				20 EL	
180 ET										WT 100		68 Avenue		30 ET	
10 ER										WL 230				120 ER	
										NL		NT		NR	
										50		240		60	
										0		1390		70	
										1950				1460	
										1960				1460	
										0		1870		90	
										SR		ST		SL	
										0		EL		WR 220	
66 Avenue										0		ET		WT 0	
										0		ER		WL 340	
										NL		NT		NR	
										0		1240		70	
										2210				1310	
										2200				1300	
										170		120		20	
										SR		ST		SL	
60 EL										WR 50				190 EL	
1300 ET										WT 1240		64 Avenue		1060 ET	
50 ER										WL 30				120 ER	
										NL		NT		NR	
										20		190		20	
										110		990		110	
										1560				1210	

APPENDIX B

WATER ANALYSIS

WATER MODEL SCHEMATIC

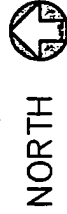
EAST NEWTON BUSINESS PARK
NEIGHBOURHOOD CONCEPT PLAN

LEGEND:

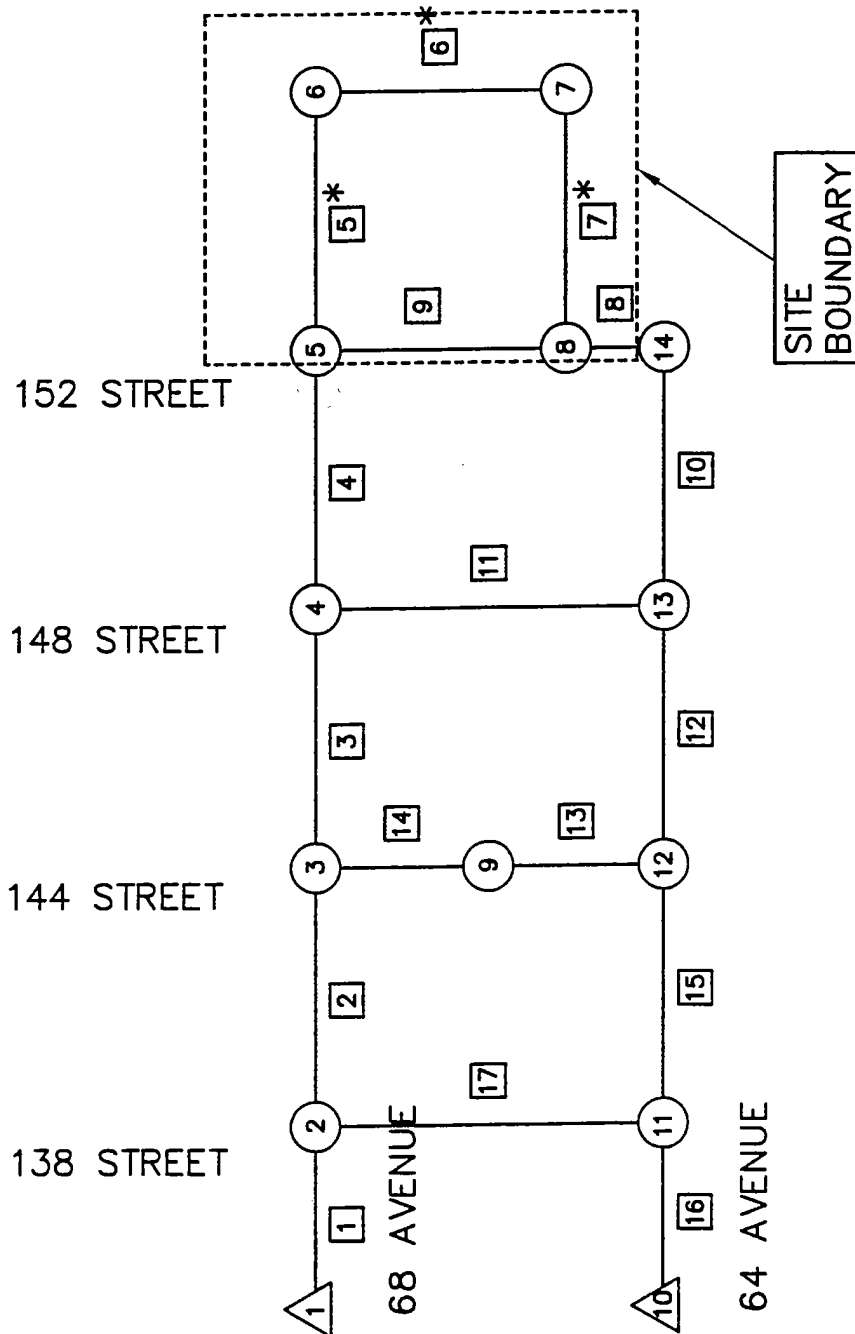
-  NODE NUMBER
-  PIPE NUMBER
-  SOURCE NODE
-  * PROPOSED PIPES

FIGURE 7

**APLIN
MARTIN**
CONSULTANTS LTD



Scale : N.T.S.
Date : SEPT. 1998



--- Diagnostic output 054 ---

Waterworks All-in-one - Water System Analysis Report

DATA : 97058W2.WK1

FIRST : East Newton Business Park
SECOND : 152 Street and 68 Avenue, Surrey
THIRD : Ultimate Fire Flows -Existing Conditions - 250L/s
FOURTH : 97058W2 - two sources

Short Report

The analysis uses Hazen-Williams's formula
Iteration termination threshold: 0.01000
Maximum number of iterations: 40

There are: 17 Pipes(s)
14 nodes(s)
2 sources(s)
0 booster pump(s)
0 pressure reducing valve(s)
0 check valve(s)
0 pressure sustaining valve(s)

The program terminated after 4 iterations.

The maximum unbalanced head is: 0.00001 m

PIPE TABLE

PIPE TABLE									
<<--Input-->		Input				Output			
Pipe UpNode	DnNode	Length	Diameter	Roughness	Flow Velocity		HeadLoss		
Status		m	mm		l/s	m/s	m		
Open	1	2	120.00	450.00	125.00	153.83	0.97	0.26	
1	2	3	1225.00	300.00	125.00	132.30	1.87	14.45	
2	3	4	810.00	300.00	125.00	127.48	1.80	8.92	
3	4	5	800.00	300.00	125.00	138.18	1.96	10.23	
4	5	6	420.00	300.00	125.00	147.54	2.09	6.06	
5	6	7	410.00	300.00	125.00	102.46	1.45	3.01	
6	7	8	420.00	300.00	125.00	102.46	1.45	3.09	
7	8	14	385.00	300.00	125.00	111.82	1.58	3.33	
8	14	5	410.00	300.00	125.00	9.36	0.13	0.04	
9	5	13	805.00	300.00	125.00	111.82	1.58	6.95	
10	13	4	795.00	300.00	125.00	10.70	0.15	0.09	
11	4	12	800.00	300.00	125.00	122.52	1.73	8.10	
12	12	9	565.00	150.00	100.00	4.82	0.27	0.72	
13	9	3	230.00	300.00	125.00	4.82	0.07	0.01	
14	3	11	1225.00	300.00	125.00	117.70	1.67	11.63	
15	11	10	355.00	300.00	125.00	96.17	1.36	2.32	
16	10	2	795.00	200.00	100.00	21.53	0.69	3.54	
17	2								

NODE TABLE

NODE TABLE											
<--Input-->		Input		Demand		Output		<--Optional-->		>>Input-->	
Node	Elevation	m	l/s	Pressure	psi	HGL	XCoord	YCoord	Status	ON	
1	54.90				34.94	79.50					
2	53.30				36.84	79.24					
3	38.70				37.06	64.79					
4	36.90				26.95	55.88					
5	14.00				44.95	45.65					
6	4.00		250.00		50.55	39.59					
7	9.10				47.58	42.60					
8	13.80				45.29	45.69					
9	23.70				58.36	64.79					
10	50.30				39.37	78.02					
11	34.10				59.08	75.70					
12	19.40				63.44	64.07					
13	15.20				57.90	55.97					
14	5.70				61.52	49.01					

INFLOW TABLE

Node	Pumps	OpCurve	%Estimate	%Actual	Output Inflow l/s	Input Status
1	1	pump1	0.5	0.62	-153.83	ON
10	1	pump2	0.5	0.38	-96.17	

BOOST TABLE

Pipe	Pumps	OpCurve	Output Boost Status	Input Status
1	1	pump1	0.62	ON
10	1	pump2	0.38	

<< Booster data not available >>

REDUCING (PRV) TABLE

Pipe	Source Pressure	OpenK	CKV	PRV Loss CKV State
1	psi			m
10	psi			

<< PRV data not available >>

SUSTAINING (PSV) TABLE

Node	UpNode	DnNode	Pressure	Options	Output Demand Pressure
1			psi		psi
10			psi		psi

<< PSV data not available >>

CHECK (CKV) TABLE

Input	Output	Pipe	State
1			
10			

<< CKV data not available >>

PUMP1

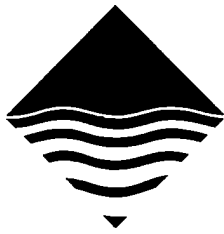
Input Flow l/s	Head m
0.00	24.60
250.00	24.60

PUMP2

Input Flow l/s	Head m
0.00	27.80
250.00	27.80

APPENDIX C

ENVIRONMENTAL ASSESSMENT



April 28, 1999

Aplin & Martin Consultants Ltd.
Suite 201, 12448 - 82nd Avenue
Surrey, B.C.
V3W 3E9

Attention: Mr. Len Robertson, P.Eng.
Project Engineer

Dear Mr. Robertson,

**RE: EAST NEWTON BUSINESS PARK - NCP
WATERCOURSE CLASSIFICATIONS**

Envirowest has conducted a field assessment of all watercourses within the proposed business park. The purpose of the assessment was to confirm or, where necessary, revise the current classifications as shown on the City of Surrey Watercourse Classification Map. Our findings are described below.

The current watercourse classification map indicates that the business park area includes streams of classes A(O) and C only. As revised, the map should include streams of classes A(O), B and C. Some mapped watercourses do not exist.

With development of the business park it is expected that all of the Class C watercourses and some portions of the class B watercourses will be eliminated. Class C watercourses, by the definition adopted by the City of Surrey and the environmental agencies, have insignificant habitat value and can be displaced without compensation. Class B watercourses, by definition, are not inhabited by salmonids but do provide food/nutrient value to downstream habitats. While the habitat value of Class B watercourses should be preserved, some distinction should be made between Class B habitats that cannot feasibly be re-created (such as ephemeral headwater ravines) and those that can feasibly be re-created. The Class B habitats within the study area are all manmade ditches/swales that were dry when assessed in the fall of 1998. These include the following watercourse sections:

- * 66th Avenue, south side, easternmost 60 m;
- * 66th Avenue, north side, easternmost 75 m;
- * 68th Avenue, south side, westernmost 350 m;
- * south of 68th Avenue, 15250 block;
- * 6750 block, 15250 to 15350 blocks; and,
- * north of 68th Avenue, 15250 block.

Table 1. Watercourse classifications for the East Newton Business Park.

Location	Photo Numbers	Current Classification	Revised Classification
66th Avenue - south side	1 - 2	Class C - all 500 m	Class C - western 440 m Class B - eastern 60 m
66th Avenue - north side	3 - 4	Class C - western 200 m Class A(O) - eastern 300 m	Class C - western 425 m Class B - eastern 75 m
North of 66th Avenue at 15350 block	5	Class A(O)	Does not exist
66th Avenue to 68th Avenue at 15450 block	6	Class A(O)	Class B
68th Avenue - south Side	7 - 8	Class A(O)	Class B - western 350 m Class A(O) - east of study area
68th Avenue - north side	9 - 10	Class A(O)	Class C - western 300 m Class A(O) - eastern 75 m and beyond study area
South of 68th Avenue at 15400 block	11	Class A(O)	Does not exist
South of 68th Avenue at 15250 block	12	Class A(O)	Class B
6750 block between 15250 and 15350 blocks	13	Class A(O)	Class B
North of 68th Avenue at 15300 block	14	Class A(O)	Does not exist
North of 68th Avenue at 15250 block	15	Class A(O)	Class B

The proposed wetland to be constructed at the northeast corner of the study area will accommodate sufficient habitat features to offset the loss of these Class B habitats. The

proposed wetland/pond will provide sedimentation and biofiltration functions primarily within about one-half of the area, with food/nutrient production and wildlife habitat within the other half. The lands surrounding the wetland/pond would be landscaped to maximize fish and wildlife values.

Upgrading of the Class A(O) watercourse east of the study area (along the 68th Avenue right-of-way) is anticipated. This will require impact mitigation that may also include compensation habitat.

Attachments A and B show the existing and revised watercourse maps. Pending approval and development of the business park, the watercourse map will require further updating to reflect the ultimate drainage configuration.

Photographs referred to in Table 1 are presented in Attachment C.

Please note that, under the terms of the memorandum of Agreement regarding the watercourse classification system, revisions to the current watercourse classifications require the endorsement of the Ministry of Environment, Lands and Parks and the Department of Fisheries and Oceans.

Yours truly,

ECL ENVIROWEST CONSULTANTS LIMITED



Ian W. Whyte
Senior Project Manager

IWW/
attach.

APPENDIX D

Storm Analysis

1.0 APPENDIX D – STORM ANALYSIS

1.1 FUNCTIONAL PLAN FOR EAST NEWTON PUMP STATION

The Functional Plan for East Newton Pump Station report was being produced by CH2M Gore & Storrie Ltd./Kerr Wood Leidal Associates Ltd. concurrently with this report. A cooperative effort was made between these firms and Aplin & Martin Consultants Ltd. in the selection and use of hydrologic and hydraulic parameters.

1.2 RAINFALL DATA

Rainfall data derived from the Surrey Municipal Hall rain gauge was used for hydrologic analysis of the East Newton study area. The data represents a statistical reduction of raw rainfall data collected between 1963 and 1990. Rainfall totals are listed in Table A.

Table A
Surrey Municipal Hall Rainfall Data

	5 Year Return Period				100 Year Return Period			
Storm Duration (hours)	2	6	12	24	2	6	12	24
Total Rainfall (mm)	17.7	32.5	47.3	67.7	26.2	47.8	69.4	99.1

For the two and six hour storm durations, the Atmospheric Environment Service (AES) BC coast distribution was used to generate the design storms. For the 12 and 24 hour storms the US Soil Conservation Service (SCS) type IA was used. The design storms are generated as hyetographs that are used as input data in the hydrologic model.

1.3 STUDY AREA DISCRETIZATION

Analysis of the study area is accomplished by defining discrete elements (subcatchments and conduits) within the greater area. Plans of the pre- and post-development catchments are shown in Figures A and B respectively. Schematic diagrams of the catchments as used in the computer modelling are shown in Figures C and D.

1.4 HYDROLOGIC MODELING

Hydrologic modelling of the study area was completed using the SWMM RUNOFF module of the computer program XP-SWMM.

APPENDIX E

UTILITY LETTERS

October 26, 1998

Mr. L.P. Robertson, P.Eng.
Project Engineer
Aplin and Martin Consultants Ltd.
Suite 201 - 12448 - 82nd Avenue
Surrey, BC V3W 3E9

Dear Mr. Robertson:

Re: Transit Facilities for the East Newton Business Park Neighbourhood Concept Plan

This is in response to your correspondence of October 8, 1998, regarding Transit Facilities for the East Newton Business Park Neighbourhood Concept Plan.

We have had the opportunity to review the two alternate land use plans and road classifications for the proposed business park. Our comments are as follows:

1. BC Transit's Ten Year Plan and Five Year Plan contain provisions for improved services along 152nd Street between Guildford and the Semiahmoo Town Centre. It is planned that a more frequent #345 service will be provided as the demand increases along the 152nd Street corridor. At this time, we do not have any plans for providing a local service within the East Newton Business Park. It is notable that the proposed Business Park is with 450 metres walking distance of an existing bus service (#345 route). Upon the further completion of the Business Park and the availability of more information on employment levels, the Greater Vancouver Transportation Authority (GVTA) may consider providing a more direct service, if demand warrants. This could take the form of transportation alternatives to the site, developed in conjunction with future businesses locating here.
2. The advance street plans for both scenarios (Concept A3 and Concept A4) appear to be reasonable in regard to facilitating internal access to the site and providing access from the site to 152nd Street. The City of Surrey should ensure that sidewalks are provided along the proposed streets and along 152nd Avenue. In addition, the City should ensure that bus stops and boarding areas are user-friendly, clearly visible from the street and are well-lit at night.

3. Existing bus stops are located as follows:

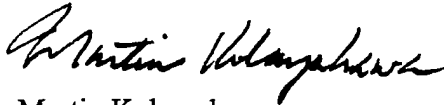
- southbound 152nd Street @ 66A Avenue (farside); southbound 152nd Street @ 68th Avenue (farside)
- northbound 152nd Street @ 66 Avenue (farside); northbound 152nd Street @ 68th Avenue (farside)

Upon the development of 66A Avenue to serve the site, the bus stop situated at northbound 152nd Street @ 66 Avenue (farside) will be relocated to northbound 152nd Street @ 66A Avenue (farside). In addition, if the speed limit along 152nd Street is 70 km/hr (or more), bus bays should be provided for all of the bus stops serving the business park. If the speed limit is less than 70 km/hr, bus bays will not be required. The City of Surrey is responsible for the provision of bus bays. Finally, bus shelters should be provided for all of these bus stops. The City of Surrey should request that the advertising agency responsible for bus shelters situate shelters at these locations.

3. Concept A4 includes a land use designation for "Live & Work", which will provide people with the opportunity to live and work in the same building. We understand that the Live & Work land use designation is an experiment by the City of Surrey. If this arrangement works, it could potentially reduce the transportation demand for commuting purposes to the business park. Additionally, the Live & Work arrangement could potentially increase potential transit ridership during off-peak periods. On these grounds, we would support the scenario that contains the "Live & Work" designation (Concept A4). Within Concept A4, we do not support the alternative land use option (inset map) as it reduces the area designated for Live & Work purposes.

We appreciate having the opportunity to comment on the East Newton Business Park Neighbourhood Concept Plan. Please forward copies of more detailed planning documents of this plan to BC Transit as the development process proceeds.

Yours truly,



Martin Kobayakawa
Transportation Planner

- c. G. Leicester
B. Lambert
J. Prokop
K. Chow
M. Lai, City of Surrey
W. Whelan, City of Surrey

26 October 1998

Your File # 97058

Aplin & Martin Consultants Ltd.
12448 82nd Ave.-suite 201
Surrey, BC

Attention: Mr. Len Robertson,
Project Engineer.

Dear Sir:

**Re: East Newton Business Park - NCP
at 68th Avenue and East of 152nd St., Surrey**

Thank-you for your letter of October 9th 1998, BC Hydro is looking forward to working together with you on this project.

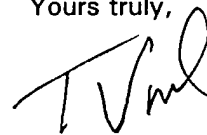
The existing distribution system on 152nd street would be adequate to serve the initial phases of your project. However, depending on the final total power requirements and timing of the development, a System Improvement Contribution of up to \$50,000.00 may be required to upgrade our capacity.

In a development of this nature, the existing distribution lines on the internal roads would remain overhead unless the City intends on requesting beautification of the area by converting any existing lines to an underground system.

BC Hydro would like as much advance notice of any plans for undergrounding, in order to establish adequate corridors, cost sharing and scheduling requirements.

If you have any questions or wish to discuss this further, please call me at 543-6031.

Yours truly,



Tom Vine
Service Planner
LMS/FV Region

cc: Ms. Wendy Whelan, City Of Surrey, Planning Department
Mr. Terry Einarson, P.Eng, BC Hydro , Senior Engineer, Transmission and Distribution.



Your File #: 97058
Exch: Newton
Date: October 29, 1998

Sullivan Station
15079 - 64th Avenue
Surrey, BC
V3S 1X9

Aplin & Martin Consultants Ltd.
#201 - 12448 82 Avenue
Surrey, BC
V3W 3E9

Attention: L.B. Robertson
Project Engineer

Dear Sir:

Re: East Newton Business Park - NCP
At 68 Avenue and East of 152 Street

BC Tel presently has no copper pairs to feed a project of this size along 152 St. To provide service to this project would require a feeder addition from the Newton Central Office at 72 Ave. and 128 St. This is very costly and not feasible to do. The best solution would be to place a "WIC" on your property within a 3m x 5m right of way. This could be on the corner of the Biofiltration (wetlands) at 68 Ave. & 153 St.

By placing a "WIC", you would also receive the benefit of fibre-fed electronic switching as opposed to a copper pair back to the Newton Central Office.

For further information, please contact Rob Birch at 436-8452 or fax 599-4976.

Yours truly,

A handwritten signature in cursive script that reads "Rob Birch". The signature is written in dark ink and is positioned below the "Yours truly," text.

Rob Birch
Facilities Management - Newton
Network Planning & Standards

RB/kv

BC Gas Utility Ltd.

16705 Fraser Highway
Surrey, British Columbia
Canada V3S 2X7

Tel (604) 576-7000
Fax (604) 576-7155



November 03, 1998

Aplin & Martin Consultants Ltd.
Att: L. B. Robertson
12448-82nd Avenue
Surrey, B.C.
V3W 3E9

Your File: 97058

Dear Mr. Robertson:

**Re: Newton Community Plan @ 66 Avenue to 68 Ave and East of
152nd Street, Surrey, B.C.**

We reviewed your submission and have the following comments:

1. There is a 323mm diameter intermediate pressure 1900 kPa / 175psig gas pipeline located approximately 1.0m west of the 168mm diameter distribution pressure 420 kPa / 60psig gas main on the west side of 152nd Avenue. All proposed road/utility works, over/near the 323mm IP 1900 kPa gas pipeline on 152nd Street, require Pipeline Crossing Permits as per the Pipelines Act.
2. There are approximately 30 existing gas customers in the subject area, indicated by the circled addresses on the enclosed Plate Maps 16-H-3 and 16-I-12. The gas supply to these customers must be maintained until the houses are demoed.
3. The existing 60mm DP/ST (420 kPa) gas main on the north side of 68th Avenue will supply gas to customers on the north side of 68th Avenue.
4. We will design new gas mains from the existing 168mm DP/ST (420kPa) gas main on the west side of 152nd Avenue to the Business Park, via the easterly extension of 66A Avenue, using our typical "double main" design i.e.: PE Gas mains on both sides of the new/alterd 20m wide streets.
5. Future development(s) to the north, east or south may affect the sizing of our gas mains in of the NCP development.

Contact the undersigned at 583-0549, if you require any further information.

Yours truly,

A handwritten signature in black ink that reads "Norman McKinnon".

N.J. McKinnon, ASCT
Tech 2 - Utility Planner



Rogers Cablesystems Limited
Surrey, Abbotsford & Fraser Divisions
10445 138th Street
Surrey, B.C. V3T 4X3
Phone: (604) 436-1111
Fax (604) 930-3407

January 5, 1999

Aplin & Martin Consultants Ltd
Suite 201 - 12448 - 82 Avenue
Surrey, B.C.
V5W 3E9

Your File #97058

ATTENTION: L.B. Robertson, P. Eng

Dear Sir:

RE: EAST NEWTON BUSINESS PARK - NCP at 68 AVENUE, EAST OF 152 STREET

After reviewing the above mentioned project, I have determined that there will be minimal impact on our existing services to provide cable to the new business park.

If you have any questions, please call me at 930-3424.

Sincerely
ROGERS CABLE T.V. LIMITED

A handwritten signature in black ink, appearing to read "M. Jensen", followed by a long horizontal line.

Michael Jensen
Project Coordinator

APPENDIX F

- 1. CAPITAL WORKS COSTS FOR DCCS AT BUILDOUT**
 - 2. CAPITAL WORKS FOR PROPOSED LEVY**
-

**CAPITAL WORKS COSTS FOR DEVELOPMENT COST CHARGES AT BUILDOUT
(1998 DOLLARS)**

A. Arterial Roads

1. Sidewalks (835 m @ \$75/m)	\$62,600
2. 152 St./68 Ave. Traffic Signal	\$90,000
3. 152 Street/66A Avenue Traffic Signal	\$90,000
4. 152 St./66A Ave. Bus Bay	\$6,800
5. 152 St./66A Ave. South Bound Left Turn Median	\$20,300
6. 152 St./68 Ave. South Bound Left Turn Median	\$20,300
Total Arterial Roadworks	\$290,000

B. Sanitary Works

1. Lift Station & Appurtenances	
a) Civil / Mechanical / Electrical	\$575,000
- Static Head = 15.5 m	
- Duplex Pumping Unit = 20 HP each	
b) Emergency Pump Generator	\$87,500
c) Flow Measurement	\$17,500
d) Site Preparation Civil Works (fencing, parking)	\$9,800
2. 250 Diameter Force Main (430 m @ \$390/m)	\$167,700
3. Connection to GVS&DD Sewer	\$4,500
Total Sanitary Works	\$862,000

C. Storm Works

1. 68 Avenue Ditch Upgrading	\$30,000
2. Drainage Pump Station	\$1,493,000
Total Storm Works	\$1,523,000
TOTAL CAPITAL WORKS	\$2,675,000

**CAPITAL WORKS FOR PROPOSED LEVY
(1998 DOLLARS)**

A. Storm Works

1. Biofiltration Pond		\$592,400
2. Land Acquisition	(0.75 acres and 1.55 acres in Floodplaiin)	<u>\$331,000</u>
	Total Storm Works	\$923,400
	TOTAL CAPITAL WORKS	\$923,400

The storm sewer levy was calculated as follows:

$$\frac{\text{Total Biofiltration Pond Costs}}{\text{Total Area of Business Park Lots}} = \frac{\$923,400}{70.19 \text{ Acre} + 0.77 \text{ Acre}} = \$13,013 / \text{Acre}$$

Use \$13,000/Acre

APPENDIX G

UNIT RATES FOR NCP PROJECTS



CITY OF SURREY

Engineering Department

14245 - 56 Avenue, Surrey, British Columbia, Canada V3X 3A2

Phone: (604) 591-4175

Fax: (604) 591-8693

FACSIMILE TRANSMITTAL FORM

TO:

Name: All NCP Consultants

Company: _____

Fax No.: (604)

(area code)

Phone No.: (604)

(area code)

FROM:

Name: Chris JA Whitlock

Title: NCP Coordinator

File No.: 2350-000

Date: Feb 16, 1996

Total Number of Pages: 2
(including cover page)

Original to Follow: Yes: ☐ By Mail: ☐ By Courier: ☐
No: ☒

COMMENTS: RE: Unit Rates for Roads/Utilities within NCP areas

Please use the following rates for NCP Road cost estimates within your Stage 2 financial plan (includes Engineering, Administration, Taxes):

Sidewalk	\$50/m
Concrete Curbing	\$25/m
Boulevard Strip	\$14/m
Pavement Widening	\$30/sq.m.
Streetlights and Conduit	\$100/m
Asphalt Overlay	\$6/sq.m.

RECEIVED		
ENGINEERING LTD.		
FILE No. _____		
DISTRIBUTION		
NAME	INT	EXT

Unit Rates for Sanitary/Storm/Water are attached. Please call with any questions you may have.

Best Regards
Chris JA Whitlock

This message is intended only for the use of the addressee and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

1995 Unit Rates

Pipe (mm)	Sanitary & Storm Construction Cost Only*	Sanitary & Storm +50%**	Pipe (mm)	*Construction Cost Only	Water +50%**
250	\$240 /m	\$360 /m	200	\$250 /m	\$375 /m
300	\$250 /m	\$375 /m	250	\$260 /m	\$390 /m
375	\$290 /m	\$435 /m	300	\$280 /m	\$420 /m
450	\$320 /m	\$480 /m	350	\$310 /m	\$465 /m
525	\$340 /m	\$510 /m	400	\$320 /m	\$480 /m
600	\$380 /m	\$570 /m	450	\$350 /m	\$525 /m
675	\$420 /m	\$630 /m			
750	\$510 /m	\$765 /m			
900	\$620 /m	\$930 /m			
1050	\$720 /m	\$1,080 /m			
1200	\$840 /m	\$1,260 /m			
1350	\$970 /m	\$1,455 /m			
1500	\$1,110 /m	\$1,665 /m			

* Construction Cost is the estimated cost to supply and install per meter the required pipe.
 Pertinents such as catchbasins, manholes, tees, hydrants, valves, house services, restoration, rehab., etc. are included.
 Major Facilities such as Diversion structure, PRV stations, Lift stations, etc. are not included.

** A 50% factor is used to cover all other costs including GST, design & admin., project contingency, etc.
 For all NCP's, this 50% factor must be applied to generate total cost estimates and the basis for funding requirements.

road access or oversizing of the water main required). Phase Four completes the extensions of the cul-de-sacs and servicing and allows for flexibility in the lot sizing as dictated by market demands.

3.5 FINANCING OPTIONS

Table 3.3.2 in Section 3.3 demonstrates that there is a shortfall of DCC revenue (\$557,378) from the study area to pay for the sewage lift station. However, this project is identified in the City's 10 Year Capital Plan and is scheduled for construction, dependent on need, in 2002. Collectively, the two East Newton NCP's (north and south sectors) and the Business Park will eventually generate sufficient sanitary DCC revenue to cover the sewage lift station costs. Therefore, there is no need to impose a levy for collection of the shortfall from the East Newton Business Park NCP.

Funds are available for drainage pump station through DCCs and the City's planned schedule to construct the drainage pump station in 2004.

The sole financing issue therefore revolves around the timing for the construction of the works. For development of the Business Park to proceed, there are a number of options available:

- proponents could wait until the residential uplands develop at which time their DCCs would be used to reimburse the upland developers;
- proponents could proceed ahead of the upland residential development and enter into an agreement with the City to recover their costs through a Development Works Agreement or DCC rebate; or
- proponents could wait for the City to construct the works in accordance with the City's 10 Year Capital Plan.

3.6 CONCLUSIONS

Any of the financial options are achievable. The least risk for a proponent is to wait until 2004 when the sewage lift station and the drainage pump station have been constructed.

The developer can proceed sooner than the scheduled construction of the works by frontending the costs and seeking an agreement with the City to recover the costs as development proceeds in other benefiting areas.

- End of Document -