

Appendix A

- Bacterial Source Tracking Results
- E. coli Data
- Quality Assurance/ Quality Control Data (QA/QC Data)

Bacterial Source Tracking Results

Bacterial source tracking is an analysis done to identify the source of fecal contamination in water samples. In July 2002, as part of this sampling program, one bacterial source tracking sample was collected at each of twelve sites. In September 2003 and March 2004 bacterial source tracking samples were collected on three dates at ten sites.

The bacterial source tracking work was undertaken to try to help determine whether the fecal contamination identified through *E. coli* sampling was from faulty septic systems, agricultural practices or a combination of both of these sources. This information was considered important in order to take action to reduce fecal contamination of the watercourses in Cloverdale used for irrigation of Ready-to-Eat produce. Corrective action would involve different government bodies to act on human sources compared to agricultural sources.

Method Used and Limitations of the Data

Environment Canada analyzed these samples through their North Vancouver laboratory, Pacific Environmental Sciences Centre, using a bacterial source tracking method developed by Dr. Kate Field from Oregon State University. For more information on this method see:

Bernhard, A.E. and K.G. Field. 2000. Identification of Nonpoint Sources of Fecal Pollution in Coastal Waters Using Host-Specific 16S Ribosomal DNA Genetic Markers from Fecal Anaerobes. *Appl. Environ. Microbiol.* April; 66 (4): 1587-1594

This method is based on detecting an intestinal bacterium called *Bacteroides* by amplifying a portion of a specific rDNA gene, 16S rDNA, using a technique called Polymerase Chain Reaction. Since *Bacteroides* sub-strains differ between types of host animal, identifying certain *Bacteroides* sub-strains in a sample can help identify the type of animal whose fecal material contaminated the water. This technique does not depend on culturing the bacteria. It involves comparing the *Bacteroides* rDNA in the sample to known "primers", or pieces of rDNA, from human *Bacteroides* sub-strains and ruminant animal *Bacteroides* sub-strains to look for a match. In order to confirm human contamination two types of human *Bacteroides* primers must be found in the sample. Similarly, in order to confirm ruminant contamination, two types of ruminant *Bacteroides* primers must be found in the sample. When only one primer is found the sample is considered "potentially" human or "potentially" ruminant, but cannot be confirmed as human or ruminant.

Bacterial source tracking was done in 2002, 2003 and 2004. All samples were collected in sterilized laboratory bottles and were delivered to the laboratory so they could be processed on the same day as they were collected. One limitation of the bacterial source tracking data from 2002 was that there were no field blanks or field replicates for this set of data. Blanks were used by the lab in their own analysis procedures. Sites were only sampled once for bacterial sources in 2002.

The bacterial source tracking methodology used in this study is capable of detecting human or ruminant primers for the intestinal bacterium *Bacteroides*. At the time of analysis there were no *Bacteroides* primers available for animals such as birds or horses. For this reason this methodology can be used as a "presence" tool only. The technique is not able to provide any quantitative measure of relative source proportions of human versus ruminant in a sample at this time. Although there may be fecal contamination from animals other than humans or ruminants the technique was not able to detect this. The use of this technique is an emerging science and at this point in time it is unclear how many samples

should be taken per site to properly characterize sources in areas dominated by non-point source pollution. This should be kept in mind when interpreting these results.

Bacterial Source Tracking Results

The Figure on page 53 in Appendix A provides a summary of the bacterial source tracking primers that were detected from 2002 to 2004 in the Nicomekl watershed. The most conclusive result obtained for each site is shown on this map.

Both human and ruminant primers were detected during this study. Ruminants are even-toed herbivorous hoofed mammals of the Order Artiodactyla and suborder Ruminantia that chew their cud and have complex three or four chambered stomachs. Ruminant animals include cattle, sheep, goats, bison, deer, antelopes, camels, giraffes and their relatives.

Upper Nicomekl River Tributaries

One bacterial source tracking sample was taken in July 2002 in Logan Creek at 20410 Langley By-Pass, Orchard Creek at 216 St and the Ditch on the South side of 56 Ave, east of the Langley By-Pass. All three results showed “definite ruminant” results and Orchard Creek showed “potential human” as well.

Nicomekl River Mainstem

In July 2002 one sample was taken at the Nicomekl River at 64 Ave, 200 St, 192 St and 176 St. All of these 2002 samples showed “definite ruminant”. The Nicomekl River at 192 St also showed “potential human” and at 200 St the results also showed “definite human”. In the summer of 2003 the Nicomekl River at 200 St was sampled four times and the results came back as “potential human” and “potential ruminant”. In the spring of 2004 the 200 St site was sampled three times and the results did not detect human or ruminant primers.

Cloverdale Tributaries to the Nicomekl River

In July 2002 one bacterial source tracking sample was taken at each of the following locations: Hall's Prairie Pump Station, Old Logging Ditch at 32 Ave, Burrows Ditch at the lift pump, Erickson Creek at 40 Ave and Erickson Creek at 32 Ave. The Hall's Prairie pump station result was “potential ruminant”. Old Logging Ditch at 32 Ave came back as “definite ruminant”. Burrows Ditch at the lift pump showed “definite human” and “definite ruminant” results. Both Erickson Creek at 40 Ave and at 32 Ave showed “definite ruminant” and at 40 Ave there was also “definite human”.

In August and September 2003 four samples were taken at each of three Burrows Ditch sites: 40 Ave, the lift pump, and 32 Ave. At 40 Ave during this sampling there were four “potential human” results, two “potential ruminant” results and two “definite ruminant” results. At the lift pump site there were four “potential human” results, one “potential ruminant” result and two “definite ruminant” results. At 32 Ave there were three “potential ruminant” results and one “no primers detected” result.

In March 2004 three samples were taken at each of the three Burrows Ditch sites: 40 Ave, the lift pump and 32 Ave. At 40 Ave there was one “potential human” result, two “definite human” results and two “potential ruminant” results. At the lift pump site during this sampling period there was one “potential human” result and two “no primers detected” results. At 32 Ave during this sampling period there were two “potential human” results and one “no primers detected” result.

In August and September 2003 three samples were taken at each of the three Erickson Creek mainstem sites: the pump station, 40 Ave, and 32 Ave. At the pump station during this sampling period there were two “potential human” results and three “potential ruminant” results. At 40 Ave there was one “potential

human” result, two “potential ruminant” result and one “definite ruminant” result. At 32 Ave there was two “potential human” results and three “potential ruminant” results.

In March 2004 three samples were taken at each of these same Erickson Creek sites. The pump station showed two “definite ruminant” results and one “no primers detected” result. At 40 Ave there were three “definite ruminant” results. At 32 Ave there was two “potential ruminant” results and one “no primers detected” result.

A number of Erickson Creek tributaries were sampled in 2003 and 2004. Vandrish Brook at 29A Ave showed two “potential human” results, one “potential ruminant” result, one “definite ruminant” result and one “no primers detected” result in the 2003 sampling. In 2004 this site showed three “definite ruminant” results. The “Ditch” south of 40 Ave, west of 184 St was sampled in 2003 and showed two “potential human” results as well as three “potential ruminant” results. In 2004 this site showed one “definite ruminant” result and two “no primers detected” results. The “Ditch” north of 40 Ave, west of 184 St was sampled in 2003 and there was one “potential human” result as well as three “potential ruminant” results. In 2004 this site showed two “definite ruminant” results and one “no primers detected” result.

Bacterial Source Tracking Results

	Date Sampled	E. coli	Potential Human	Definite Human	Potential Ruminant	Definite Ruminant	No detection of Human or Ruminant
Upstream Tributaries to the Nicomekl River							
Logan Creek at 20410 Langley By-Pass (upstream site)	15-Jul-02	1180				■	
Orchard Creek at 216 St	15-Jul-02	250	■			■	
Ditch on South Side of 56 Ave, East of Langley Bypass	15-Jul-02	270				■	
Nicomekl River through the City of Langley and Cloverdale							
Nicomekl River at 64 Ave	15-Jul-02	430				■	
Nicomekl River at 200 St	15-Jul-02	580		■		■	
	27-Aug-03	238	■				
	03-Sep-03	148	■		■		
	10-Sep-03	180	■		■		
	17-Sep-03	200	■		■		
	03-Mar-04	720					■
	10-Mar-04	139					■
	17-Mar-04	87					■
Nicomekl River at 192 St	15-Jul-02	240	■			■	
Nicomekl River at 176 St	15-Jul-02	910				■	

	Date Sampled	E. coli	Potential Human	Definite Human	Potential Ruminant	Definite Ruminant	No detection of Human or Ruminant
Cloverdale Watercourses							
Hall's Prairie Pumpstation	15-Jul-02	108			■		
Old Logging Ditch at 32 Ave	15-Jul-02	110				■	
Burrows Ditch at 40 Ave	27-Aug-03	36	■		■		
	03-Sep-03	44	■			■	
	10-Sep-03	69	■			■	
	17-Sep-03	230	■		■		
	03-Mar-04	140	■		■		
	10-Mar-04	33		■			
	17-Mar-04	180		■	■		
Burrows Ditch at Lift Pump	15-Jul-02	460		■		■	
	27-Aug-03	240	■				
	03-Sep-03	54	■			■	
	10-Sep-03	49	■		■		
	17-Sep-03	61	■			■	
	03-Mar-04	258					■
	10-Mar-04	6	■				
	17-Mar-04	15					■
Burrows Ditch at 32 Ave	27-Aug-03	300			■		
	03-Sep-03	1170					■
	10-Sep-03	110			■		
	17-Sep-03	710			■		
	03-Mar-04	820	■				
	10-Mar-04	31	■				
	17-Mar-04	35					■
Erickson Creek at Pump Station	04-Sep-03	132	■		■		
	11-Sep-03	23	■		■		
	18-Sep-03	160			■		
	04-Mar-04	40				■	
	11-Mar-04	240					■
	18-Mar-04	4400				■	

	Date Sampled	E. coli	Potential Human	Definite Human	Potential Ruminant	Definite Ruminant	No detection of Human or Ruminant
Cloverdale Watercourses continued..							
Erickson Creek at 40 Ave	15-Jul-02	680		■		■	
	04-Sep-03	66			■		
	11-Sep-03	480	■			■	
	18-Sep-03	650			■		
	04-Mar-04	410				■	
	11-Mar-04	380				■	
	18-Mar-04	2800				■	
Erickson Creek at 32 Ave	15-Jul-02	126				■	
	04-Sep-03	88	■		■		
	11-Sep-03	100	■		■		
	18-Sep-03	680			■		
	04-Mar-04	9800					■
	11-Mar-04	59			■		
	18-Mar-04	1200			■		
Vandrishe Brook at 29A Ave	04-Sep-03	1710	■			■	
	11-Sep-03	6100	■		■		
	18-Sep-03	3500					■
	04-Mar-04	3200				■	
	11-Mar-04	1500				■	
	18-Mar-04	4600				■	
Ditch South of 40 Ave, West of 184 St	04-Sep-03	216	■		■		
	11-Sep-03	400	■		■		
	18-Sep-03	470			■		
	04-Mar-04	375				■	
	11-Mar-04	48					■
	18-Mar-04	290					■
Ditch North of 40 Ave, West of 184 St	04-Sep-03	240	■		■		
	11-Sep-03	450			■		
	18-Sep-03	930			■		
	04-Mar-04	1790				■	
	11-Mar-04	130				■	
	18-Mar-04	300					■

E. coli Sampling Results

Upper Nicomekl River Tributaries - 2002 E. coli Sampling Results

	Logan Creek at 20410 Langley By- Pass (upstream site)	Logan Creek at Langley Bypass, South of Kwantlen College (downstream site)	Orchard Creek at 216 St	Ditch on South Side of 56 Ave, East of Langley Bypass
02-Jul-02	536	62	662	88
04-Jul-02	920	920	1520	462
08-Jul-02	920	224	1300	1270
11-Jul-02	510	112	1260	160
15-Jul-02	1180	210	250	270

Nicomekl River Mainstem - 2002 to 2004 E. coli Sampling Results

	Nicomekl River at 64 Ave	Nicomekl River at 200 St	Nicomekl River at 192 St	Nicomekl River at 176 St	Nicomekl River at Old Logging Ditch Pump
02-Jul-02		350	238	64	53
04-Jul-02	192	554	294	82	40
08-Jul-02	700	930	870	690	36
11-Jul-02	262	220	76	56	26
15-Jul-02	430	580	240	910	26
22-Jul-02				116	
25-Jul-02				6	
31-Jul-02				118	
08-Aug-02				58	
15-Aug-02				38	
20-Aug-02				86	
28-Aug-02				32	
05-Sep-02				100	
11-Sep-02				130	
27-Aug-03		238			
03-Sep-03		148			
10-Sep-03		180			
15-Sep-03		590,540,610			
17-Sep-03		200			
03-Mar-04		720			
10-Mar-04		139			
17-Mar-04		87			
24-Mar-04		310, 230, 330			
31-Mar-04		240			

Cloverdale Tributaries to the Nicomekl River - 2002 E. coli Sampling Results

	Hall's Prairie Pumpstation	Ditch on East Side of 176St, South of Nicomekl River	Old Logging Ditch at Pump Station	Old Logging Ditch at 40 Ave	Old Logging Ditch at 32 Ave
02-Jul-02	330	148	15	60, 48, 87	32
04-Jul-02	1240	94	30	30, 28, 42	24
08-Jul-02	690	516	380	63, 52, 80	350
11-Jul-02	182	160	14	12, 6, 14	72
15-Jul-02	108	123	14	14, 12, 16	110
22-Jul-02			24		14
25-Jul-02			8		46
31-Jul-02			6		50
08-Aug-02			6		23
15-Aug-02			12		56
20-Aug-02			44		12
28-Aug-02			2		6
05-Sep-02			48		20
11-Sep-02				48	12

Cloverdale Tributaries to the Nicomekl River - 2002 to 2004 E. coli Sampling Results

	Burrows Ditch at Pump Station	Burrows Ditch at 40 Ave	Burrows Ditch at Lift Pump	Burrows Ditch at 32 Ave
02-Jul-02	22	108, 86, 140	412	
04-Jul-02	18	44, 42, 56	612	
08-Jul-02	34	156, 132, 182	328	
11-Jul-02	30	84, 70, 150	564	
15-Jul-02	58	26, 24, 32	460	
22-Jul-02	98	14, 12, 16	392	
25-Jul-02	6	12, 8, 16	240	
31-Jul-02	28	96, 102, 74		
08-Aug-02	83	7, 3, 10	21	
15-Aug-02	32	12, 10, 20	360	
20-Aug-02	6	8, 6, 30	66	
28-Aug-02	20	56, 34, 70	98	
05-Sep-02	46	460, 410, 480	42	
11-Sep-02	100	740, 710, 800	180	
27-Aug-03		36	240, 223, 243	300
03-Sep-03		44	54	1170
10-Sep-03		69	49, 39, 74	110
15-Sep-03		320	90	240
17-Sep-03		230, 200, 530	61	710
03-Mar-04		140	258, 255, 320	820
10-Mar-04		33	6	31
17-Mar-04		180	15	35
24-Mar-04		90	240	49
31-Mar-04		108, 107, 138	21	34

**Cloverdale Tributaries to the Nicomekl River
2002 to 2004 E. coli Sampling Results**

	Erickson Creek at Pump Station	Erickson Creek at 40 Ave	Erickson Creek at 32 Ave
02-Jul-02	118	214, 154, 308	474
04-Jul-02	4	450, 44, 484	452
08-Jul-02	46	1820, 1670, 1960	300
11-Jul-02	72	296, 242, 314	48
15-Jul-02	130	680, 670, 1170	126
22-Jul-02	0	328, 258, 338	202
25-Jul-02	110	170, 152, 230	144
31-Jul-02	122	850, 480, 1100	150
08-Aug-02	115	69, 67, 73	51
12-Aug-02		120	
15-Aug-02	64	60, 38, 78	352
20-Aug-02	100	140, 130, 150	280
28-Aug-02	120	64, 58, 68	84
05-Sep-02	650	45, 40, 50	150
11-Sep-02	110	210, 190, 250	200
28-Aug-03	25	196	23
04-Sep-03	132	66	88
11-Sep-03	23	480, 280, 910	100
15-Sep-03	64	140	78
18-Sep-03	160	650	680
04-Mar-04	40	410	9800
11-Mar-04	240	380	59
18-Mar-04	4400	2800, 600, 3100	1200
24-Mar-04	200	790	1360
31-Mar-04	250	350	143

Cloverdale Tributaries to the Nicomekl River - 2002 to 2004 E. coli Sampling Results

	Vandrishe Brook (tributary to Erickson) at 29A Ave	Vandrishe Brook at 2942 - 184 St	Vandrishe Brook East of 18507 - 28 Ave	Laura Brook (tributary to Erickson) at 2987-184 St	Breaks Brook (tributary to Erickson) at 29A Ave
22-Jul-02	928			134	80
25-Jul-02	1420			200	44
31-Jul-02	2100			184	64
08-Aug-02	287			38	42
15-Aug-02	606			270	56
20-Aug-02	820			240	48
28-Aug-02	1000	910	4	68	
05-Sep-02	250	3200	24	32	
11-Sep-02	230	400	2	16	
28-Aug-03	11000				
04-Sep-03	1600, 1580, 1710				
11-Sep-03	6100				
15-Sep-03	3200				
18-Sep-03	3500				
04-Mar-04	3200				
11-Mar-04	1100, 1100, 1500				
18-Mar-04	4600				
24-Mar-04	5300				
31-Mar-04	2500				

**Cloverdale Tributaries to the Nicomekl River
2002 to 2004 E. coli Sampling Results**

	Ditch flowing North on 184 St, south of 40 Ave	Ditch flowing West on 40 Ave, East of 184St	Ditch South of 40 Ave, West of 184 St	Ditch North of 40 Ave, West of 184 St
22-Jul-02	736	744		
25-Jul-02	470	680		
31-Jul-02	300	540		
08-Aug-02	76	34		
12-Aug-02	110			
15-Aug-02	186	8		
20-Aug-02	100	56		
28-Aug-02	56	340		
05-Sep-02	620	52		
11-Sep-02	120	210		
28-Aug-03			244	410
04-Sep-03			216	240
11-Sep-03			400	450
15-Sep-03			120	200
18-Sep-03			470	930
04-Mar-04			375	1790
11-Mar-04			48	130
18-Mar-04			290	300
24-Mar-04			2150	2610
31-Mar-04			41	67

2002 QA/QC for *E. coli* Sampling Field and Lab Blanks

	Field Blank	Lab Blank (Trip Blank)
Date	<i>E. coli</i> (CFU/100ml)	<i>E. coli</i> (CFU/100ml)
July 2, 2002	<1	<1
July 4, 2002	1	< 1
July 8, 2002	<1	<1
July 11, 2002	<1	<1
July 15, 2002	<1	<1
July 22, 2002	<1	<1
July 25, 2002	<1	<1
July 31, 2002	<1	<1
Aug 8, 2002	<1	<1
Aug 12, 2002	<1	<1
Aug 15, 2002	<1	<1
Aug 20, 2002	<1	<1
Aug 28, 2002	<1	<1
Sept 5, 2002	<1	<1
Sept 11, 2002	<1	<1

Triplicates

	Old Logging Ditch at 40 Ave			Burrows Ditch at 40 Ave			Erickson Creek at 40 Ave		
02-Jul-02	60	48	87	108	86	140	214	154	308
04-Jul-02	30	28	42	44	42	56	450	44	484
08-Jul-02	63	52	80	156	132	182	1,820	1,670	1,960
11-Jul-02	12	6	14	84	70	150	296	242	314
15-Jul-02	14	12	16	26	24	32	680	670	1170
22-Jul-02				14	12	16	328	258	338
25-Jul-02				12	8	16	170	152	230
31-Jul-02				96	102	74	850	480	1100
08-Aug-02				7	3	10	69	67	73
15-Aug-02				12	10	20	60	38	78
20-Aug-02				8	6	30	140	130	150
28-Aug-02				56	34	70	64	58	68
05-Sep-02				460	410	480	45	40	50
11-Sep-02				740	710	800	210	190	250

2003 QA/QC for *E. coli* Sampling

Field and Lab Blanks

	Field Blank	Lab Blank
Date	<i>E. coli</i> (CFU/100mL)	<i>E. coli</i> (CFU/100mL)
Aug 27, 2003	<1	
Aug 28, 2003	<1	
Sept 3, 2003	<1	<1
Sept 4, 2003	<1	<1
Sept 10, 2003	<1	<1
Sept 11, 2003	<1	<1
Sept 15, 2003	<1	<1
Sept 15, 2003	<1	<1
Sept 17, 2003	<1	<1
Sept 18, 2003	<1	<1

No Lab Blanks were taken on Aug 27 and 28, 2003

Triplicates

	Burrows at the Lift Pump			Burrows at 40 Ave		
Aug 27, 2003	223	240	243			
Sept 10, 2003	74	49	39			
Sept 17, 2003				530	230	200

	Vandrishe Brook at 29A			Erickson Creek at 40 Ave		
Sept 4, 2003	1600	1710	1580			
Sept 11, 2003				480	280	910

2003 Field QA/QC for Bacterial Source Tracking

Field Blanks (using De ionized Water)

	Field Blank
Date	Primers
Aug 27, 2003	None Detected
Sept 17, 2003	None Detected
Sept 18, 2003	None Detected

Triplicates

		Vandrishe Brook at 29A			Erickson Creek at 40 Ave		
Sept 4, 2003	<i>E.coli</i> CFU/100ml	1600	1710	1580			
	Bacterial Source Tracking Primers	Potential Ruminant, Potential Human	Definite Ruminant, Potential Human	Potential Ruminant, Potential Human			
Sept 11, 2003	<i>E.coli</i> CFU/100ml				480	280	910
	Bacterial Source Tracking Primers				Definite Ruminant, Potential Human	Potential Ruminant, Potential Human	Definite Ruminant, Potential Human

2004 QA/QC for *E. coli* Sampling

Field and Lab Blanks

	Field Blank	Lab Blank
Date	<i>E. coli</i> (CFU/100mL)	<i>E. coli</i> (CFU/100mL)
Mar 3, 2004	<1	<1
Mar 4, 2004	<1	<1
Mar 10, 2004	<1	<1
Mar 11, 2004	<1	<1
Mar 17, 2004	<1	<1
Mar 18, 2004	<1	<1
Mar 24, 2004	<1	<1
Mar 31, 2004	<1	<1

No Lab Blanks were taken on Aug 27 and 28, 2003

Triplicates

	Burrows at the Lift Pump			Vandrishe Brook at 29A Ave		
Mar 3, 2004	320	258	255			
Mar 11, 2004				1500	1100	1100

	Erickson Creek at 40 Ave			Nicomekl River at 200 St		
Mar 18, 2004	3100	600	2800			
Mar 24, 2004				330	230	310

	Burrows Ditch at 40 Ave		
Mar 31, 2004	138	107	108

2004 Field QA/QC for Bacterial Source Tracking

Field Blanks (using De ionized Water)

	Field Blank
Date	Primers
Mar 3, 2004	None Detected
Mar 4, 2004	None Detected

Triplicates

		Vandrishe Brook at 29A			Erickson Creek at 40 Ave		
Mar 11, 2004	<i>E.coli</i> CFU/100ml	1500	1100	1100			
	Bacterial Source Tracking Primers	Definite Ruminant	None	None			
Mar 18, 2004	<i>E.coli</i> CFU/100ml				3100	600	2800
	Bacterial Source Tracking Primers				Definite Ruminant	Definite Ruminant	Definite Ruminant

Loadings Information

Loadings provide a way to compare one tributary watercourse to another in terms of their relative contribution of pollution to a system. This can help to prioritize where to focus your pollution reduction initiatives. These values are not as useful in Cloverdale as in other free flowing systems. In Cloverdale watercourses are impounded during the summer because of flapgates at the mouth so it is difficult to get good flow data for these systems.

The Table below provides crude instantaneous estimates of *E. coli* loadings from 2002 data for sites in the Erickson Creek and Old Logging Ditch drainages where flow could be measured. Of the sites considered the ones with the highest loadings were Erickson Creek at 32 Ave, Vandrish Brook at 29A Ave, the Ditch flowing North on 184 St, South of 40 Ave, and the Ditch flowing West on 40 Ave, East of 184 St. Of the sites considered, the ones with the lowest loadings were Old Logging Ditch at 32 Ave and Breaks Brook at 29A Ave.

Estimates of Instantaneous *E. coli* loadings from 2002 Data

Site	Sampling Period	Number of Dates Sampled (n)	Loading Range (<i>E. coli</i> per day)	Geometric Mean Loading (<i>E. coli</i> per day)	Estimate of Average Flow (L/s)
Erickson Creek Drainage Area					
Erickson Creek at 32 Ave	July 2 - Sept 11, 2002	14	8.17E+10 - 1.53E+12	3.30E+11	24
Vandrishe Brook at 29A Ave	July 22 - Sept 11, 2002	9	1.74E+11 - 1.49E+12	5.69E+11	10
Laura Brook at 2987-184 St	July 22 - Sept 11, 2002	9	1.33E+10 - 2.70E+11	9.16E+10	12
Breaks Brook at 29A Ave	July 22 - Aug 20, 2002	5	1.22E+10 - 7.05E+10	2.21E+10	6
Ditch flowing North on 184th St, South of 40 Ave	July 22 - Sept 11, 2002	9	1.70E+11 - 3.85E+12	9.35E+11	56
Ditch flowing West on 40th Ave, East of 184 St	July 22 - Sept 11, 2002	9	6.85E+09 - 1.03E+12	1.09E+11	10
Old Logging Ditch Drainage Area					
Old Logging Ditch at 32 Ave	July 2 - Sept 11, 2002	14	9.75E+09 - 1.12E+12	7.47E+10	28

Appendix B

Rainfall Data –

Greater Vancouver Sewerage and Drainage District Site SSU48 – Cloverdale PS, 164 St and Hwy 10

Upper Nicomekl River Tributaries

Logan Creek at 20410 Langley By-Pass (upstream site)

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
15:45	02-Jul-02	536	0.0	0.0	0.0	16.4
14:35	04-Jul-02	920	0.0	0.0	0.0	0.0
16:50	08-Jul-02	920	8.4	9.2	9.2	9.2
12:00	11-Jul-02	510	0.0	0.0	0.0	9.2
9:40	15-Jul-02	1180	0.0	0.0	0.0	0.0

Logan Creek at Langley Bypass, South of Kwantlen College (downstream site)

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
16:01	02-Jul-02	62	0.0	0.0	0.0	15.6
14:50	04-Jul-02	920	0.0	0.0	0.0	0.0
16:10	08-Jul-02	224	8.4	9.2	9.2	9.2
12:20	11-Jul-02	112	0.0	0.0	0.0	9.2
9:55	15-Jul-02	210	0.0	0.0	0.0	0.0

Orchard Creek at 216 St

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
16:30	02-Jul-02	662	0.0	0.0	0.0	15.6
15:20	04-Jul-02	1520	0.0	0.0	0.0	0.0
16:30	08-Jul-02	1300	8.4	9.2	9.2	9.2
12:30	11-Jul-02	1260	0.0	0.0	0.0	9.2
10:30	15-Jul-02	250	0.0	0.0	0.0	0.0

Ditch on South Side of 56 Ave, East of Langley Bypass

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
16:15	02-Jul-02	88	0.0	0.0	0.0	15.6
15:00	04-Jul-02	462	0.0	0.0	0.0	0.0
	08-Jul-02	1270	8.4	9.2	9.2	9.2
12:40	11-Jul-02	160	0.0	0.0	0.0	9.2
10:15	15-Jul-02	270	0.0	0.0	0.0	0.0

Rainfall Data – Nicomekl River Mainstem

Nicomekl River at 176 Street

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
13:51	02-Jul-02	64	0.0	0.0	0.0	20.4
11:35	04-Jul-02	82	0.0	0.0	0.0	0.0
14:25	08-Jul-02	690	9.2	9.2	9.2	9.2
11:50	11-Jul-02	56	0.0	0.0	0.0	9.2
14:00	15-Jul-02	910	0.0	0.0	0.0	0.0
	22-Jul-02	116	0.0	0.0	0.0	0.0
13:15	25-Jul-02	6	0.0	0.0	0.0	0.0
16:30	31-Jul-02	118	2.0	2.0	2.0	2.0
15:25	08-Aug-02	58	0.0	0.0	3.2	3.2
13:55	15-Aug-02	38	0.0	0.0	0.0	0.0
	20-Aug-02	86	0.0	0.0	0.0	0.0
16:40	28-Aug-02	32	0.0	0.0	0.0	0.0
15:50	05-Sep-02	100	0.0	0.0	6.4	19.0
16:30	11-Sep-02	130	0.0	0.0	12.6	15.2

Nicomekl River at 200 Street

2002, 2003 and 2004

Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
15:00	02-Jul-02	350	0.0	0.0	0.0	16.4
16:29	04-Jul-02	554	0.0	0.0	0.0	0.0
15:30	08-Jul-02	930	9.2	9.2	9.2	9.2
12:00	11-Jul-02	220	0.0	0.0	0.0	9.2
9:05	15-Jul-02	580	0.0	0.0	0.0	0.0
10:20	27-Aug-03	238	0.0	0.0	0.0	0.0
10:11	03-Sep-03	148	0.0	0.0	0.0	0.0
9:06	10-Sep-03	180	1.2	1.2	1.2	9.6
9:31	15-Sep-03	540	0.0	9.0	9.0	9.0
9:42	17-Sep-03	200	3.0	11.2	11.2	20.2
9:18	03-Mar-04	720	9.2	9.2	9.2	9.2
9:20	10-Mar-04	139	0.0	3.4	14.2	29.4
9:39	17-Mar-04	87	0.4	0.8	0.8	1.6
9:56	24-Mar-04	310	5.2	5.2	5.2	5.2
9:42	31-Mar-04	240	0.0	0.0	0.0	0.0

Rainfall Data – Cloverdale Tributaries to the Nicomekl River

Old Logging Ditch at Pump Station

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
11:20	02-Jul-02	15	0.0	0.0	0.0	22.2
10:25	04-Jul-02	30	0.0	0.0	0.0	0.0
11:00	08-Jul-02	380	9.2	9.2	9.2	9.2
10:41	11-Jul-02	14	0.0	0.0	0.0	9.2
16:30	15-Jul-02	14	0.0	0.0	0.0	0.0
9:30	22-Jul-02	24	0.0	0.0	0.0	0.0
9:10	25-Jul-02	8	0.0	0.0	0.0	0.0
15:08	31-Jul-02	6	2.0	2.0	2.0	2.0
11:50	08-Aug-02	6	0.0	0.0	3.2	3.2
9:25	15-Aug-02	12	0.0	0.0	0.0	0.0
10:20	20-Aug-02	44	0.0	0.0	0.0	0.0
11:50	28-Aug-02	2	0.0	0.0	0.0	0.0
10:34	05-Sep-02	48	0.0	0.0	8.2	19.0

Old Logging Ditch at 40 Ave

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
12:05	02-Jul-02	60	0.0	0.0	0.0	21.6
10:10	04-Jul-02	30	0.0	0.0	0.0	0.0
10:45	08-Jul-02	63	9.2	9.2	9.2	9.2
10:30	11-Jul-02	12	0.0	0.0	0.0	9.2
16:20	15-Jul-02	14	0.0	0.0	0.0	0.0

Old Logging Ditch at 32 Ave

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
13:30	02-Jul-02	32	0.0	0.0	0	20.4
9:34	04-Jul-02	24	0.0	0.0	0.0	0.0
9:30	08-Jul-02	350	9.2	9.2	9.2	9.2
9:30	11-Jul-02	72	0.0	0.0	0.0	9.2
15:30	15-Jul-02	110	0.0	0.0	0.0	0.0
10:20	22-Jul-02	14	0.0	0.0	0.0	0.0
10:10	25-Jul-02	46	0.0	0.0	0.0	0.0
14:30	31-Jul-02	50	2.0	2.0	2.0	2.0
12:45	08-Aug-02	23	0.0	0.0	3.2	3.2
10:10	15-Aug-02	56	0.0	0.0	0.0	0.0
11:00	20-Aug-02	12	0.0	0.0	0.0	0.0
10:55	28-Aug-02	6	0.0	0.0	0.0	0.0
11:10	05-Sep-02	20	0.0	0.0	6.6	19.0
12:15	11-Sep-02	12	0.0	0.0	14.6	15.2

Burrows Ditch at Pump Station

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
11:40	02-Jul-02	22	0.0	0.0	0.0	22.2
10:50	04-Jul-02	18	0.0	0.0	0.0	0.0
13:30	08-Jul-02	34	9.2	9.2	9.2	9.2
10:57	11-Jul-02	30	0.0	0.0	0.0	9.2
	15-Jul-02	58	0.0	0.0	0.0	0.0
9:05	22-Jul-02	98	0.0	0.0	0.0	0.0
8:50	25-Jul-02	6	0.0	0.0	0.0	0.0
14:40	31-Jul-02	28	2.0	2.0	2.0	2.0
11:30	08-Aug-02	83	0.0	0.0	3.2	3.2
9:05	15-Aug-02	32	0.0	0.0	0.0	0.0
10:00	20-Aug-02	6	0.0	0.0	0.0	0.0
12:00	28-Aug-02	20	0.0	0.0	0.0	0.0
10:15	05-Sep-02	46	0.0	0.0	8.2	19.0
11:20	11-Sep-02	100	0.0	0.0	15.2	15.2

Burrows Ditch at 40 Ave

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
12:20	02-Jul-02	108	0.0	0.0	0.0	21.6
10:50	04-Jul-02	44	0.0	0.0	0.0	0.0
11:25	08-Jul-02	156	9.2	9.2	9.2	9.2
11:17	11-Jul-02	84	0.0	0.0	0.0	9.2
	15-Jul-02	26	0.0	0.0	0.0	0.0
14:50	22-Jul-02	14	0.0	0.0	0.0	0.0
12:40	25-Jul-02	12	0.0	0.0	0.0	0.0
15:40	31-Jul-02	96	2.0	2.0	2.0	2.0
14:50	08-Aug-02	7	0.0	0.0	3.2	3.2
13:25	15-Aug-02	12	0.0	0.0	0.0	0.0
15:00	20-Aug-02	8	0.0	0.0	0.0	0.0
12:20	28-Aug-02	56	0.0	0.0	0.0	0.0
14:30	05-Sep-02	460	0.0	0.0	6.4	19.0
11:30	11-Sep-02	740	0.0	0.0	15.2	15.2
12:30	27-Aug-03	36	0.0	0.0	0.0	0.0
11:37	03-Sep-03	44	0.0	0.0	0.0	0.0
10:19	10-Sep-03	69	1.2	1.2	1.2	9.6
10:27	15-Sep-03	320	0.0	9.0	9.0	9.0
11:02	17-Sep-03	230	0.0	11.2	11.2	20.2
10:30	03-Mar-04	140	10.2	10.2	10.2	10.2
10:17	10-Mar-04	33	0.0	3.4	13.6	29.4
10:41	17-Mar-04	180	0.0	0.8	0.8	1.6
10:44	24-Mar-04	90	5.2	5.2	5.2	5.2
10:35	31-Mar-04	108	0.0	0.0	0.0	0.0

Burrows Ditch at the Lift Pump

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
10:40	02-Jul-02	412	0.0	0.0	0.0	22.2
10:02	04-Jul-02	612	0.0	0.0	0.0	0.0
10:15	08-Jul-02	328	9.2	9.2	9.2	9.2
10:00	11-Jul-02	564	0.0	0.0	0.0	9.2
15:40	15-Jul-02	460	0.0	0.0	0.0	0.0
10:00	22-Jul-02	392	0.0	0.0	0.0	0.0
9:40	25-Jul-02	240	0.0	0.0	0.0	0.0
12:10	08-Aug-02	21	0.0	0.0	3.2	3.2
9:50	15-Aug-02	360	0.0	0.0	0.0	0.0
10:50	20-Aug-02	66	0.0	0.0	0.0	0.0
11:30	28-Aug-02	98	0.0	0.0	0.0	0.0
10:45	05-Sep-02	42	0.0	0.0	8.2	19.0
11:50	11-Sep-02	180	0.0	0.0	15.2	15.2
12:13	27-Aug-03	240	0.0	0.0	0.0	0.0
11:14	03-Sep-03	54	0.0	0.0	0.0	0.0
10:00	10-Sep-03	49	1.2	1.2	1.2	9.6
10:12	15-Sep-03	90	0.0	9.0	9.0	9.0
10:41	17-Sep-03	61	0.4	11.2	11.2	20.2

10:17	03-Mar-04	258	10.2	10.2	10.2	10.2
10:05	10-Mar-04	6	0.0	3.4	13.6	29.4
10:24	17-Mar-04	15	0.0	0.8	0.8	1.6
10:33	24-Mar-04	240	5.2	5.2	5.2	5.2
10:20	31-Mar-04	21	0.0	0.0	0.0	0.0

Burrows Ditch at 32 Ave

2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
11:07	27-Aug-03	300	0.0	0.0	0.0	0.0
10:53	03-Sep-03	1170	0.0	0.0	0.0	0.0
9:38	10-Sep-03	110	1.2	1.2	1.2	9.6
9:58	15-Sep-03	240	0.0	9.0	9.0	9.0
10:17	17-Sep-03	710	0.4	11.2	11.2	20.2
9:51	03-Mar-04	820	9.2	9.2	9.2	9.2
9:47	10-Mar-04	31	0.0	3.4	14.2	29.4
10:06	17-Mar-04	35	0.0	0.8	0.8	1.6
10:18	24-Mar-04	49	5.2	5.2	5.2	5.2
10:05	31-Mar-04	34	0.0	0.0	0.0	0.0

Erickson Creek Pump Station

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
10:05	02-Jul-02	118	0.0	0.0	0.0	22.2
12:00	04-Jul-02	4	0.0	0.0	0.0	0.0
14:13	08-Jul-02	46	9.2	9.2	9.2	9.2
11:30	11-Jul-02	72	0.0	0.0	0.0	9.2
14:30	15-Jul-02	130	0.0	0.0	0.0	0.0
15:10	22-Jul-02	0	0.0	0.0	0.0	0.0
12:55	25-Jul-02	110	0.0	0.0	0.0	0.0
16:15	31-Jul-02	122	2.0	2.0	2.0	2.0
15:15	08-Aug-02	115	0.0	0.0	3.2	3.2
13:40	15-Aug-02	64	0.0	0.0	0.0	0.0
15:30	20-Aug-02	100	0.0	0.0	0.0	0.0
16:15	28-Aug-02	120	0.0	0.0	0.0	0.0
14:50	05-Sep-02	650	0.0	0.0	6.4	19.0
16:20	11-Sep-02	110	0.0	0.0	12.6	15.2
14:51	28-Aug-03	25	0.0	0.0	0.0	0.0
11:15	04-Sep-03	132	0.0	0.0	0.0	0.0
10:15	11-Sep-03	23	8.4	9.8	9.8	9.8
15:15	16-Sep-03	64	11.2	11.2	20.2	20.2
10:22	18-Sep-03	160	6.8	7.2	18.0	18.0

10:00	04-Mar-04	40	6.6	16.8	16.8	16.8
10:26	11-Mar-04	240	0.0	0.0	3.4	13.6
10:42	18-Mar-04	4400	10.6	10.6	11.4	11.4
11:35	24-Mar-04	200	5.2	5.2	5.2	5.2
11:45	31-Mar-04	250	0	0	0	0

Erickson Creek at 40 Ave

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
12:40	02-Jul-02	214	0.0	0.0	0.0	21.6
12:50	04-Jul-02	450	0.0	0.0	0.0	0.0
13:45	08-Jul-02	1,820	9.2	9.2	9.2	9.2
13:11	11-Jul-02	296	0.0	0.0	0.0	9.2
15:00	15-Jul-02	680	0.0	0.0	0.0	0.0
14:42	22-Jul-02	328	0.0	0.0	0.0	0.0
12:20	25-Jul-02	170	0.0	0.0	0.0	0.0
15:55	31-Jul-02	850	2.0	2.0	2.0	2.0
14:40	08-Aug-02	69	0.0	0.0	3.2	3.2
	12-Aug-02	120	0.0	0.0	0.0	0.0
13:15	15-Aug-02	60	0.0	0.0	0.0	0.0
14:45	20-Aug-02	140	0.0	0.0	0.0	0.0
14:45	28-Aug-02	64	0.0	0.0	0.0	0.0
14:15	05-Sep-02	45	0.0	0.0	6.4	19.0
15:35	11-Sep-02	210	0.0	0.0	12.6	15.2
14:21	28-Aug-03	196	0.0	0.0	0.0	0.0
10:53	04-Sep-03	66	0.0	0.0	0.0	0.0
9:58	11-Sep-03	480	8.6	9.8	9.8	9.8
11:11	15-Sep-03	140	0.0	9.0	9.0	9.0
9:59	18-Sep-03	650	6.8	9.8	18.0	18.0
9:43	04-Mar-04	410	7.6	16.8	16.8	16.8
10:05	11-Mar-04	380	0.0	0.0	3.4	13.6
10:18	18-Mar-04	2800	10.6	10.6	11.4	11.4
11:20	24-Mar-04	790	5.2	5.2	5.2	5.2
11:25	31-Mar-04	350	0	0	0	0

Erickson Creek at 32 Ave

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
13:15	02-Jul-02	474	0.0	0.0	0.0	20.4
12:15	04-Jul-02	452	0.0	0.0	0.0	0.0
11:50	08-Jul-02	300	9.2	9.2	9.2	9.2
12:40	11-Jul-02	48	0.0	0.0	0.0	9.2
15:20	15-Jul-02	126	0.0	0.0	0.0	0.0
10:40	22-Jul-02	202	0.0	0.0	0.0	0.0
10:35	25-Jul-02	144	0.0	0.0	0.0	0.0
14:50	31-Jul-02	150	2.0	2.0	2.0	2.0
13:05	08-Aug-02	51	0.0	0.0	3.2	3.2
10:30	15-Aug-02	352	0.0	0.0	0.0	0.0
11:41	20-Aug-02	280	0.0	0.0	0.0	0.0
12:35	28-Aug-02	84	0.0	0.0	0.0	0.0
11:30	05-Sep-02	150	0.0	0.0	6.6	19.0
13:00	11-Sep-02	200	0.0	0.0	14.0	15.2
12:53	28-Aug-03	23	0.0	0.0	0.0	0.0
9:51	04-Sep-03	88	0.0	0.0	0.0	0.0
8:56	11-Sep-03	100	9.8	9.8	9.8	9.8
10:36	15-Sep-03	78	0.0	9.0	9.0	9.0
9:13	18-Sep-03	680	6.8	9.8	18.0	18.0

9:05	04-Mar-04	9800	7.6	16.8	16.8	16.8
9:16	11-Mar-04	59	0.0	0.0	3.4	14.2
9:25	18-Mar-04	1200	10.6	11.0	11.4	11.4
10:55	24-Mar-04	1360	5.2	5.2	5.2	5.2
10:47	31-Mar-04	143	0.0	0.0	0.0	0.0

Vandrishe Brook at 29A Ave

2002, 2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
12:15	22-Jul-02	928	0.0	0.0	0.0	0.0
11:25	25-Jul-02	1420	0.0	0.0	0.0	0.0
15:25	31-Jul-02	2100	2.0	2.0	2.0	2.0
14:00	08-Aug-02	287	0.0	0.0	3.2	3.2
11:00	15-Aug-02	606	0.0	0.0	0.0	0.0
12:30	20-Aug-02	820	0.0	0.0	0.0	0.0
13:20	28-Aug-02	1000	0.0	0.0	0.0	0.0
12:00	05-Sep-02	250	0.0	0.0	6.4	19.0
14:10	11-Sep-02	230	0.0	0.0	12.6	15.2
13:28	28-Aug-03	11000	0.0	0.0	0.0	0.0
10:20	04-Sep-03	1600	0.0	0.0	0.0	0.0
9:13	11-Sep-03	6100	8.6	9.8	9.8	9.8
10:52	15-Sep-03	3200	0.0	9.0	9.0	9.0
9:27	18-Sep-03	3500	6.8	9.8	18.0	18.0

9:16	04-Mar-04	3200	7.6	16.8	16.8	16.8
9:37	11-Mar-04	1100	0.0	0.0	3.4	14.2
9:38	18-Mar-04	4600	10.6	11.0	11.4	11.4
11:02	24-Mar-04	5300	5.2	5.2	5.2	5.2
10:59	31-Mar-04	2500	0.0	0.0	0.0	0.0

Ditch flowing North on 184 St, south of 40 Ave

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
14:00	22-Jul-02	736	0.0	0.0	0.0	0.0
12:00	25-Jul-02	470	0.0	0.0	0.0	0.0
15:55	31-Jul-02	300	2.0	2.0	2.0	2.0
14:15	08-Aug-02	76	0.0	0.0	3.2	3.2
	12-Aug-02	110	0.0	0.0	0.0	0.0
13:05	15-Aug-02	186	0.0	0.0	0.0	0.0
13:40	20-Aug-02	100	0.0	0.0	0.0	0.0
15:50	28-Aug-02	56	0.0	0.0	0.0	0.0
13:45	05-Sep-02	620	0.0	0.0	6.4	19.0
14:50	11-Sep-02	120	0.0	0.0	12.6	15.2

Ditch flowing West on 40 Ave, East of 184 St

2002 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
14:10	22-Jul-02	744	0.0	0.0	0.0	0.0
11:55	25-Jul-02	680	0.0	0.0	0.0	0.0
15:50	31-Jul-02	540	2.0	2.0	2.0	2.0
14:10	08-Aug-02	34	0.0	0.0	3.2	3.2
12:55	15-Aug-02	8	0.0	0.0	0.0	0.0
14:00	20-Aug-02	56	0.0	0.0	0.0	0.0
16:00	28-Aug-02	340	0.0	0.0	0.0	0.0
13:55	05-Sep-02	52	0.0	0.0	6.4	19.0
15:05	11-Sep-02	210	0.0	0.0	12.6	15.2

Ditch South of 40 Ave, West of 184 St

2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
13:47	28-Aug-03	244	0	0	0	0
10:44	04-Sep-03	216	0	0	0	0
9:37	11-Sep-03	400	8.6	9.8	9.8	9.8
11:05	15-Sep-03	120	0	9.0	9.0	9.0
9:54	18-Sep-03	470	6.8	9.8	18.0	18.0
9:31	04-Mar-04	375	7.6	16.8	16.8	16.8
9:54	11-Mar-04	48	0.0	0.0	3.4	14.2
9:58	18-Mar-04	290	10.6	11.0	11.4	11.4
11:14	24-Mar-04	2150	5.2	5.2	5.2	5.2
11:16	31-Mar-04	41	0	0	0	0

Ditch North of 40 Ave, West of 184 St

2003 and 2004 Data

Precipitation (mm) in previous:

Time	Sampling date	E. coli / 100ml	24 hours	48 hours	72 hours	96 hours
13:50	28-Aug-03	410	0	0	0	0
10:46	04-Sep-03	240	0	0	0	0
9:32	11-Sep-03	450	8.6	9.8	9.8	9.8
11:00	15-Sep-03	200	0	9.0	9.0	9.0
9:44	18-Sep-03	930	6.8	9.8	18.0	18.0
9:27	04-Mar-04	1790	7.6	16.8	16.8	16.8
9:49	11-Mar-04	130	0.0	0.0	3.4	14.2
9:52	18-Mar-04	300	10.6	11.0	11.4	11.4
11:11	24-Mar-04	2610	5.2	5.2	5.2	5.2
11:11	31-Mar-04	67	0	0	0	0

Appendix C Photographs



Nicomekl River taken looking upstream from 176 St (Summer 2002)



Irrigation pump in Nicomekl River at Burrows Ditch (May 2003)



**Old Logging Ditch at 40 Ave taken
looking Northward (Summer 2002)**



**Old Logging Ditch at 40 Ave taken
looking Southward (July 2004)**



**Old Logging Ditch just
North of 32 Ave (May 2003)**



Old Logging Ditch just North of 32 Ave (September 2002)



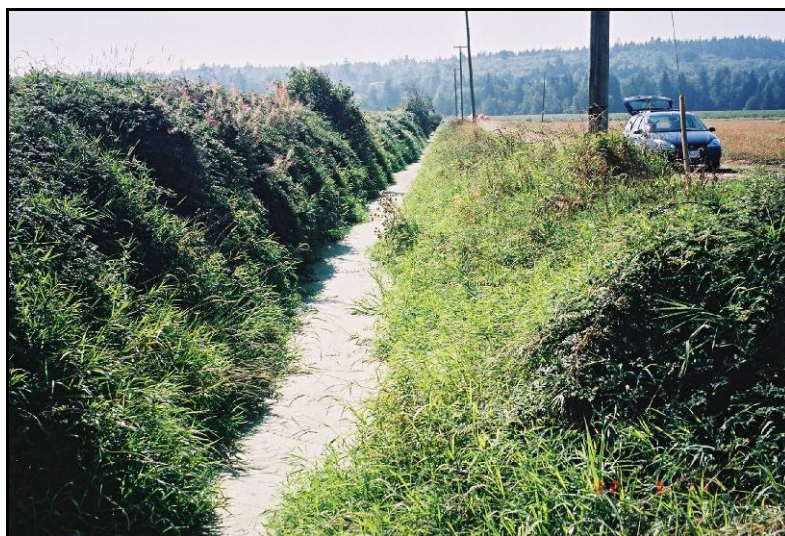
Burrows Ditch at the Pump Station (summer 2002)



Burrows Ditch looking North from 40 Ave (summer 2002)



**Burrows Ditch looking South from 40 Ave
(Summer 2002)**



**Burrows Ditch taken looking South
from the Lift Pump towards 32 Ave
(Summer 2002)**



**Burrows Ditch just North
of 32 Ave (July 2004)**



**Erickson Creek at the Pump Station
(summer 2002)**



**Erickson Creek taken looking
South from the Pump Station
(Summer 2002)**

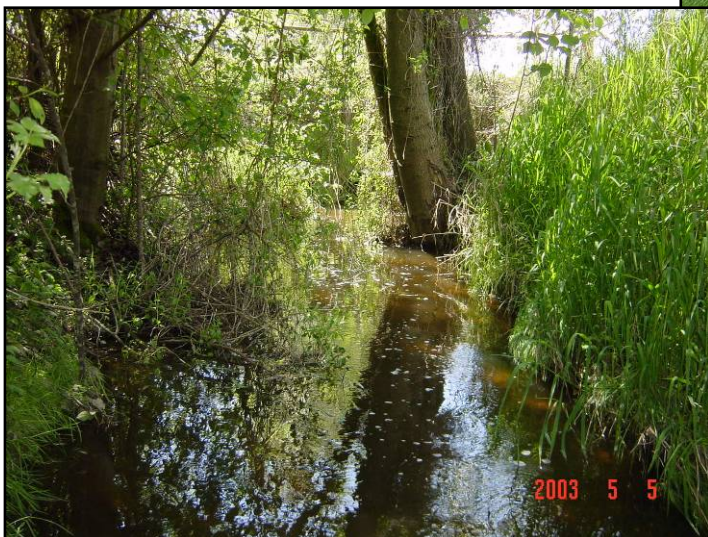


**Erickson Creek at 40 Ave
taken looking North ward
(Summer 2002)**



**Erickson Creek at 40 Ave taken
looking South ward (July 2004)**

**Erickson Creek just North of 32
Avenue looking North ward
(downstream) (May 2003)**



**Erickson Creek just North of 32
Avenue looking South ward
(upstream) (May 2003)**

**Ditch flowing North on 184 St,
South of 40 Ave (May 2003)**



**Ditch flowing West on 40 Ave, East
of 184 St (May 2003)**





**Ditch South of 40 Ave, West of
184 St (July 2004)**



**Ditch North of 40 Ave, West of
184 St (July 2004)**



**Vandrishe Brook just North of 29A Ave
(Summer 2002)**