Norwich Western Link

Environmental Statement Chapter 13: Geology and Soils

Appendix 13.2: Generic Quantitative Risk Assessment

Sub Appendix F: Screening Tables

Author: WSP

Document Reference: 3.13.02f

Version Number: 00

Date: March 2024

Contents

1 Introduction 3

1 Introduction

1.1.1 WSP UK Ltd was commissioned by NCC to complete a Generic Quantitative Risk Assessment following an intrusive site investigation undertaken by a contractor. This appendix contains tables which compare the soil and water results against relevant screening criteria to indicate whether chemical contaminants exceed these criteria from collected samples.

1.1.2 We have included a summary of key information shown in this document in an accessible format in section 1.1.1. However, some users may not be able to access all technical details that are included in the rest of this document. If you require this document in a more accessible format, please contact norwichwesternlink@norfolk.gov.uk

Groundwater Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Groundwater/Aquifer (DWS or equivalent)

Determinant	No. Samples	Min ng/L	Mean ng/L	Max ng/L	DWS ng/L	Source/ Notes	# DWS Exceeds	BH14 Deep	BH14 Shallow	BH3	BH15 Shallow	BH15 Deep	BH13 Shallow	BH13 Deep	BH19 Deep	BH19 Shallow	BH16 Deep	BH16 Shallow	WS103 2.6	BH020 Deep	BH020 Shallow
pH	**100**	6.83	7.3207	7.69	6.5<pH<10		0	7.37	7.16	7.36	7.54	7.5	7.47	7.46	7.51	7.52	7.58	7.61	7.39	7.49	7.46
Conductivity @ 20 deg.C	**100**	10	696.08	1061	2500		0	695	722	700	756	756	865	863	677	678	672	513	306	726	723
BOD (settled, 5 day)	**100**	1	1.44	13	#N/A	#N/A	0	<1	13	1	2	2	<1	1	1	1	4	2	3	3	2
Alkalinity by titration (total) (pH 4.5) (w)	**100**	65	214	320	#N/A	#N/A	0	255000	235000	220000	200000	200000	275000	275000	160000	165000	190000	165000	120000	180000	185000
Alkalinity by titration (bicarbonate) (w)	**100**	65	214	320	#N/A	#N/A	0	255000	235000	220000	200000	200000	275000	275000	160000	165000	190000	165000	120000	180000	185000
Hardness, Total as CaCO3	**100**	2	348.04	721	No GAC		0	358000	355000	332000	282000	286000	327000	328000	326000	314000	193000	198000	109000	357000	301000
Ammoniacal nitrogen as N (w)	**100**	20	134.4	1320	389	#N/A	**8**	**610**	**470**	80	70	80	**890**	**900**	60	120	60	30	70	110	130
Ammonium / Ammoniacal nitrogen as NH4 (w)	**100**	26	174.2	1704	500	#N/A	**8**	**788**	**607**	108	94	99	**1153**	**1164**	76	153	73	42	91	140	172
Chloride	**100**	8000	52210	100000	No GAC		0	57000	55000	31000	93000	95000	55000	54000	61000	60000	74000	51000	8000	50000	50000
Bromine	**100**	0.5	232.505	1000	#N/A	#N/A	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Fluoride (w)	**100**	100	471.3	2950	#N/A	#N/A	0	370	560	<100	2950	2480	460	260	150	350	1560	1180	180	190	380
Nitrite (w)	**100**	100	456	6000	#N/A	#N/A	0	800	1200	<100	800	800	900	800	<100	<100	700	<100	<100	100	500
Nitrate as N	**100**	100	52756	119000	50000		**61**	10800	21200	**83100**	14400	17600	15000	13600	**74100**	**72300**	3100	<100	10600	**80600**	**78300**
Nitrogen, Total Oxidised TOxN (w)	**100**	100	12042	26900	#N/A	#N/A	0	2700	5200	18800	3500	4200	3700	3300	16700	16300	900	<100	2400	18200	17800
Phosphate (orthophosphate) as PO4 (w)	**99**	#VALUE!	#VALUE!	#VALUE!	#N/A	#N/A	0	<20	<20	120	50	<20	180	190	60	40	<20	<20	70	<20	<20
Phosphorus,Total (dissolved)	**100**	20	84.24	1556	#N/A	#N/A	0	<20	<20	54	41	<20	86	62	24	<20	<20	<20	57	<20	<20
Sulphate (w)	**100**	1000	54590	130000	250000	#N/A	0	59000	50000	31000	54000	48000	112000	104000	53000	56000	50000	<1000	7000	69000	66000
DOC (w)	**100**	200	2633	14100	#N/A	#N/A	0	2400	2300	2200	900	1000	13700	14100	900	900	2400	2800	13300	1200	900
Oil & Grease (total) (w)	**99**	1000	22585.859	2086000	#N/A	#N/A	0	2000	2000	1000	2000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Arsenic (diss.filt)	**100**	1	1.2	5	10		0	<1	<1	<1	<1	<1	1	1	<1	<1	4	4	<1	<1	<1
Boron (diss.filt)	**100**	11	33.64	103	1000		0	31	32	22	44	44	39	39	23	22	33	32	30	28	28
Cadmium (diss.filt)	**100**	0.05	0.0506	0.1	5		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	**100**	1	125.5	202	#N/A	#N/A	0	131000	13000	126000	86000	87000	118000	119000	121000	116000	57000	58000	40000	131000	110000
Copper (diss.filt)	**100**	1	16.81	53	2000		0	13	6	9	8	6	14	10	4	2	5	5	8	5	13
Chromium (diss.filt)	**100**	1	1.03	2	50	Assumes Cr6	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (diss.filt)	**100**	10	241.99	3430	200		**17**	**2120**	**2100**	24	32	38	42	45	18	11	**1530**	**1600**	78	18	11
Lead (diss.filt)	**100**	< 1	< 1	< 1	10		0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	**100**	1	209.37	1650	50		**64**	**473**	**480**	4	**874**	**885**	**206**	**209**	3	2	**1640**	**1650**	11	**190**	**190**
Magnesium (diss.filt)	**100**	1000	8410	109000	#N/A	#N/A	0	7000	7000	4000	17000	17000	8000	8000	6000	6000	13000	13000	2000	7000	6000
Nickel (diss.filt)	**100**	1	4.05	17	20		0	6	5	<1	3	3	17	17	<1	<1	3	3	2	4	4
Potassium (diss.filt)	**100**	1000	4900	104000	#N/A	#N/A	0	4000	4000	1000	9000	10000	5000	4000	2000	1000	5000	5000	5000	<1000	2000
Selenium (diss.filt)	**100**	1	1.16	6	10		0	<1	<1	<1	2	2	<1	<1	<1	<1	<1	<1	3	<1	<1
Sodium (diss.filt)	**100**	1000	34520	152000	#N/A	#N/A	0	34	33	14	54	55	72	72	34	33	39	40	6	31	26
Zinc (diss.filt)	**100**	2	7.86	29	12.3		**10**	11	7	3	**13**	7	7	8	2	2	3	3	7	4	5
Acenaphthene (aq)	**100**	0.01	0.0105	0.02	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	0.02	0.02
Fluoranthene (aq)	**100**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Fluorene (aq)	**100**	0.01	0.0104	0.02	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.02	0.01	0.01
Phenanthrene (aq)	**100**	0.01	0.0141	0.07	No GAC		0	0.02	0.02	<0.01	0.02	0.02	<0.01	0.01	<0.01	<0.01	0.05	0.02	<0.02	0.04	0.03
Pyrene (aq)	**100**	0.01	0.0105	0.04	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	**100**	0.01	0.017	0.11	No GAC		0	0.02	0.02	<0.01	0.02	0.02	<0.01	0.01	<0.01	<0.01	0.06	0.02	<0.02	0.07	0.06
Aliphatics >C8-C10	**100**	5	6	50	15000		0	<5	<5	<5	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	**100**	5	5.95	50	300		0	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	**100**	5	11.42	237	300		0	194	237	<5	<5	<5	6	9	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	**100**	5	8.46	81	No GAC		0	67	81	<5	7	5	<5	<5	<5	<5	5	7	<5	<5	<5
Aliphatics >C21-C35 (aq)	**100**	5	14.82	316	No GAC		0	110	101	<5	28	6	115	316	<5	<5	<5	40	<5	11	16
Total Aliphatics >C12-C35 (aq)	**100**	5	23.83	424	No GAC		0	371	424	<5	45	11	121	325	<5	<5	5	47	<5	11	16
Aromatics >EC12-EC16 (aq)	**100**	5	9.03	81	90		0	67	81	<5	6	<5	15	15	<5	<5	<5	6	<5	<5	<5
Aromatics >EC16-EC21 (aq)	**100**	5	9.02	80	90		0	69	80	<5	11	8	6	7	<5	<5	9	11	<5	<5	<5
Aromatics >EC21-EC35 (aq)	**100**	10	12.04	100	90		0	15	15	<10	12	<10	<10	12	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	**100**	10	18.39	176	No GAC		0	151	176	<10	29	<10	21	34	<10	<10	<10	17	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	**100**	10	37.07	600	No GAC		0	522	600	<10	74	19	142	359	<10	<10	14	64	<10	11	16
Total Suspended Solids (w)	**80**	10	14001.3	476972	#N/A	#N/A	0														
Nitrogen, Total (w)	**80**	0.2	13.46625	31.6	#N/A	#N/A	0														
Nitrogen (kjeldahl) (w)	**81**	< 0.1	< 0.1	< 0.1	#N/A	#N/A	0														
o-Xylene	**100**	< 1	< 1	< 1	500		0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH012	BH021 Deep	BH001	BH010	BH005 Deep	BH007	BH001	BH003	BH005 Deep	007	010	BH013 Deep	BH013 Shallow	BH014 Deep	BH014 Shallow	BH015 Deep	BH015 Shallow	BH016 Deep	BH016 Shallow	BH019 Deep	BH019 Shallow
pH	7.49	7.5	7.36	7.37	7.41	7.39	7.1	7.09	7.14	7.1	6.84	7.23	7.29	7.1	7.12	7.18	7.15	7.35	7.37	7.32	7.34
Conductivity @ 20 deg.C	487	1061	795	750	692	776	804	711	720	807	761	744	746	761	789	666	670	714	711	684	685
BOD (settled, 5 day)	5	4	<1	1	<1	4	<1	<1	<1	<1	<1	<1	<1	2	5	<1	1	<1	1	1	<1
Alkalinity by titration (total) (pH 4.5) (w)	240000	300000	270000	220000	190000	285000	290000	220000	210000	300000	240000	280000	320000	260000	290000	200000	230000	210000	190000	180000	210000
Alkalinity by titration (bicarbonate) (w)	240000	300000	270000	220000	190000	285000	290000	220000	210000	300000	240000	280000	320000	260000	290000	200000	230000	210000	190000	180000	210000
Hardness, Total as CaCO3	221000	323000	356000	375000	291000	396000	445000	398000	381000	455000	389000	370000	390000	420000	407000	321000	337000	343000	329000	381000	528000
Ammoniacal nitrogen as N (w)	210	**1320**	50	<20	<20	70	80	<20	120	60	50	250	250	160	170	40	50	60	80	30	30
Ammonium / Ammoniacal nitrogen as NH4 (w)	274	**1704**	67	<26	<26	93	100	<26	159	73	63	323	323	210	218	56	70	83	106	42	42
Chloride	11000	100000	36000	38000	43000	43000	37000	33000	46000	43000	40000	46000	47000	56000	56000	58000	60000	64000	63000	60000	60000
Bromine	<50	<50	<50	<50	<50	<50	<50	<50	100	100	100	50	<50	<50	100	100	100	50	100	50	50
Fluoride (w)	370	200	240	170	190	510	<100	<100	160	<100	210	<100	<100	370	120	130	430	280	160	<100	<100
Nitrite (w)	400	2500	<100	<100	<100	<100	<100	<100	<100	<100	<100	700	700	3500	800	400	200	<100	<100	<100	<100
Nitrate as N	200	20300	**64700**	**73100**	**77900**	**55200**	**73500**	**98300**	**79300**	**64600**	**78800**	32800	40200	**62300**	**92300**	42900	42600	<100	<100	**84200**	**90600**
Nitrogen, Total Oxidised TOxN (w)	200	5300	14600	16500	17600	12500	16600	22200	17900	14600	17800	7600	9300	15200	21100	9900	9700	<100	<100	19000	20500
Phosphate (orthophosphate) as PO4 (w)	<20	<20	<20	70	190	<20	<20	70	260	<20	80	<20	80	<20	<20	<20	<20	<20	<20	60	70
Phosphorus,Total (dissolved)	<20	35	963	65	195	77	<20	69	142	21	33	<20	27	<20	<20	36	37	<20	<20	90	195
Sulphate (w)	9000	86000	59000	68000	55000	64000	56000	33000	52000	63000	71000	85000	77000	66000	57000	69000	68000	111000	123000	57000	53000
DOC (w)	5000	2900	2900	7600	7300	3700	2700	2100	5900	2100	2800	7500	7700	1800	1700	4900	5200	1100	1700	1700	1600
Oil & Grease (total) (w)	<1000	1000	<1000	<1000	<10000	2086000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1000	2000	<1000	<1000	<1000	<1000	<1000
Arsenic (diss.filt)	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	<1	<1
Boron (diss.filt)	89	44	26	45	20	28	11	18	13	26	43	31	30	28	28	18	18	19	18	19	18
Cadmium (diss.filt)	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1
Calcium (diss.filt)	73000	119000	136000	139000	101000	147000	172000	151000	135000	170000	146000	137000	144000	158000	153000	118000	124000	121000	116000	143000	202000
Copper (diss.filt)	7	7	9	3	5	8	27	19	15	12	9	15	30	15	13	21	11	8	20	32	16
Chromium (diss.filt)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	2
Iron (diss.filt)	**776**	**756**	38	<10	39	25	16	12	13	11	17	62	82	189	193	**283**	35	94	105	**274**	**501**
Lead (diss.filt)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	1
Manganese (diss.filt)	**644**	**540**	40	**130**	21	**193**	2	2	2	**229**	4	**215**	**216**	**244**	**243**	**100**	**94**	**125**	**124**	43	**109**
Magnesium (diss.filt)	9000	6000	4000	7000	10000	7000	3000	5000	11000	8000	6000	7000	7000	6000	6000	6000	7000	10000	10000	6000	6000
Nickel (diss.filt)	13	9	2	1	<1	4	4	<1	<1	3	<1	11	11	7	7	5	4	2	2	1	3
Potassium (diss.filt)	5000	3000	2000	2000	3000	5000	1000	2000	2000	5000	3000	4000	5000	5000	4000	7000	7000	4000	5000	2000	2000
Selenium (diss.filt)	<1	6	<1	1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	1	1	<1	<1	<1	<1
Sodium (diss.filt)	30	152	36	28	27	25	29	16	26	26	24	51	54	28	27	29	30	46	43	37	31
Zinc (diss.filt)	3	**15**	7	5	**27**	**13**	**14**	3	6	**18**	12	5	8	12	11	11	6	5	4	10	10
Acenaphthene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	36	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	18	15	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	21	20	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	15	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	99	31	<5	<5	<5	<5	<5	15	<5	<5
Total Aliphatics >C12-C35 (aq)	15	36	<5	<5	5	<5	<5	<5	<5	<5	<5	106	31	39	35	<5	<5	<5	15	<5	<5
Aromatics >EC12-EC16 (aq)	13	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	7	14	16	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21 (aq)	21	17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	18	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	34	37	<10	<10	<10	<10	<10	<10	<10	<10	<10	11	<10	30	34	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	49	73	<10	<10	<10	<10	<10	<10	<10	<10	<10	117	38	69	69	<10	<10	<10	15	<10	<10
Total Suspended Solids (w)						26666	2503	4048	2615	5274	3125	7504	4221	5457	134	304	1554	9968	6229	6725	6331
Nitrogen, Total (w)						12.5	16.6	22.2	17.9	14.6	17.8	7.6	9.3	15.2	21.1	9.9	11.9	<0.2	<0.2	19	20.5
Nitrogen (kjeldahl) (w)						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH020 Deep	BH020 Shallow	BH021 Deep	WS103	BH005 Deep	BH007	BH010	BH012	BH013 Shallow	BH013 Deep	BH014 Shallow	BH014 Deep	BH015 Shallow	BH015 Deep	BH016 Deep	BH019 Shallow	BH019 Deep	BH020 Shallow	BH020 Deep	BH021 Deep	WS103
pH	7.31	7.27	7.09	6.91	7.29	7.3	7.45	7.59	7.43	7.44	7.4	7.4	7.02	7.03	7.24	7.11	7.15	7.18	7.19	7.24	6.83
Conductivity @ 20 deg.C	735	732	842	263	842	842	776	549	782	792	802	808	801	803	495	719	719	696	750	844	232
BOD (settled, 5 day)	1	1	2	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	210000	260000	270000	160000	255000	265000	250000	255000	240000	230000	220000	220000	220000	240000	155000	190000	170000	275000	190000	240000	65000
Alkalinity by titration (bicarbonate) (w)	210000	260000	270000	160000	255000	265000	250000	255000	240000	230000	220000	220000	220000	240000	155000	190000	170000	275000	190000	240000	65000
Hardness, Total as CaCO3	351000	361000	371000	375000	413000	421000	380000	219000	336000	328000	341000	351000	270000	279000	191000	291000	302000	329000	329000	333000	360000
Ammoniacal nitrogen as N (w)	40	40	290	20	<20	50	100	190	**400**	**390**	<20	<20	40	20	20	110	90	40	30	220	30
Ammonium / Ammoniacal nitrogen as NH4 (w)	57	52	373	31	<26	66	130	248	**511**	**506**	<26	<26	53	29	29	145	119	50	40	280	38
Chloride	52000	51000	78000	11000	44000	44000	42000	22000	47000	47000	55000	59000	92000	95000	48000	61000	59000	19000	51000	73000	9000
Bromine	100	<50	100	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Fluoride (w)	<100	<100	<100	<100	120	290	290	320	1130	220	1260	170	1800	2560	1200	410	250	360	190	200	970
Nitrite (w)	<100	<100	800	<100	<100	<100	<100	100	500	500	2500	1500	500	300	<100	<100	<100	<100	<100	1600	<100
Nitrate as N	**119000**	**106000**	**53500**	11700	**60600**	**58500**	**68000**	2600	40600	42100	**61500**	**84500**	14300	5300	200	**68600**	**68400**	**58200**	**83800**	37500	15000
Nitrogen, Total Oxidised TOxN (w)	26900	23900	12400	2700	13700	13200	15400	600	9300	9700	14600	19500	3400	1300	<100	15500	15400	13200	18900	9000	3400
Phosphate (orthophosphate) as PO4 (w)	30	<20	<20	60	<20	<20	150	<20	<20	<20	<20	<20	<20	30	<20	270	80	<20	<20	<20	70
Phosphorus,Total (dissolved)	<20	56	<20	30	<20	<20	51	<20	<20	<20	<20	<20	198	154	<20	89	85	<20	<20	<20	51
Sulphate (w)	58000	57000	58000	8000	66000	79000	64000	21000	69000	67000	58000	50000	45000	46000	24000	58000	50000	21000	54000	48000	5000
DOC (w)	900	1000	1900	9700	1300	1800	2000	4300	5900	5900	2100	2000	1400	1200	1200	800	800	600	800	1400	7700
Oil & Grease (total) (w)	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2000		2000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Arsenic (diss.filt)	<1	<1	<1	<1	<1	<1	<1	<1	3	3	1	1	<1	<1	2	<1	<1	<1	<1	<1	<1
Boron (diss.filt)	24	23	33	18	33	33	54	92	45	44	35	36	50	51	32	29	28	32	31	39	22
Cadmium (diss.filt)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	130000	134000	138000	143000	156000	159000	143000	74000	123000	120000	127000	131000	83000	86000	58000	108000	112000	122000	122000	123000	137000
Copper (diss.filt)	20	47	21	8	18	26	21	20	23	22	25	24	27	23	26	26	25	24	21	22	20
Chromium (diss.filt)	<1	<1	<1	<1	1	1	1	<1	<1	1	<1	1	<1	<1	<1	2	2	1	<1	1	1
Iron (diss.filt)	15	12	154	15	13	13	31	24	**1710**	**1500**	**3260**	**3430**	20	16	187	22	12	13	<10	55	12
Lead (diss.filt)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	**99**	**97**	**338**	2	19	20	15	**393**	**602**	**610**	**377**	**377**	**138**	**137**	**834**	7	7	**70**	**70**	**278**	3
Magnesium (diss.filt)	6000	6000	6000	5000	6000	6000	5000	8000	7000	7000	6000	6000	15000	15000	11000	5000	6000	6000	6000	6000	4000
Nickel (diss.filt)	5	5	5	<1	1	1	<1	11	12	12	10	10	3	3	2	1	1	5	5	5	<1
Potassium (diss.filt)	2000	3000	3000	2000	4000	5000	2000	4000	5000	4000	3000	4000	10000	9000	7000	<1000	3000	2000	1000	3000	2000
Selenium (diss.filt)	<1	<1	2	<1	<1	<1	1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1	<1	1	<1
Sodium (diss.filt)	35	31	74	15	23	23	23	38	55	55	25	26	51	52	30	30	32	29	29	56	18
Zinc (diss.filt)	6	4	12	3	9	10	6	3	9	11	10	10	9	9	5	5	4	5	4	10	3
Acenaphthene (aq)	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	0.01	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	0.01	0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	0.03	0.04	0.07	0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	0.05	0.06	0.11	0.08	0.05	<0.01	<0.01	<0.01	0.06	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	11	15	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	23	20	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5	7	<5	<5	<5	<5	<5	<5	9	34	35	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5	10	<5	<5	<5	<5	5	<5	<5	13	12	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21 (aq)	<5	<5	9	<5	<5	<5	<5	10	<5	<5	14	12	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10	19	<10	<10	<10	<10	15	<10	<10	27	24	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	<10	<10	26	<10	<10	<10	<10	15	<10	<10	61	59	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Suspended Solids (w)	1968	931	145	2426	21323	12823	3873	4414	2782	4407	4903	2667	787	13795	4240	1483	1201	1070	13309	66	1702
Nitrogen, Total (w)	26.9	23.9	12.4	5.6	13.7	13.2	15.4	0.6	9.3	9.7	14.6	19.5	3.4	1.3	<0.2	15.5	15.4	13.2	18.9	9	3.4
Nitrogen (kjeldahl) (w)	<0.2	<0.2	<0.2	2.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH016 Shallow	BH001	BH003 0.51	BH001	BH003	BH005 Deep	BH007	BH010	BH012	BH013 Deep	BH013 Shallow	BH014 Deep	BH014 Shallow	BH015 Shallow	BH015 Deep	BH016 Deep	BH016 Shallow	BH019 Deep	BH019 Shallow	BH020 Deep	BH020 Shallow
pH	7.33	7	7.13	7.02	7.17	7.21	7.11	7.25	7.55	7.39	7.4	7.29	7.22	7.45	7.44	7.66	7.67	7.51	7.52	7.4	7.46
Conductivity @ 20 deg.C	472	799	724	<10	784	<10	<10	<10	532	724	727	777	786	768	765	492	498	675	663	730	726
BOD (settled, 5 day)	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1
Alkalinity by titration (total) (pH 4.5) (w)	95000	225000	80000	270000	240000	260000	260000	250000	265000	210000	175000	205000	205000	190000	205000	165000	155000	175000	160000	180000	190000
Alkalinity by titration (bicarbonate) (w)	95000	225000	80000	270000	240000	260000	260000	250000	265000	210000	175000	205000	205000	190000	205000	165000	155000	175000	160000	180000	190000
Hardness, Total as CaCO3	188000	417000	360000	417000	373000	366000	405000	409000	237000	370000	368000	387000	390000	285000	293000	194000	193000	316000	302000	363000	342000
Ammoniacal nitrogen as N (w)	30	<20	130	40	140	150	<20	30	130	130	<20	160	170	60	80	80	70	160	60	40	40
Ammonium / Ammoniacal nitrogen as NH4 (w)	36	<26	173	55	184	194	<26	39	170	167	<26	211	216	74	97	107	88	204	81	58	48
Chloride	46000	37000	40000	36000	43000	43000	44000	42000	17000	48000	47000	55000	55000	91000	92000	46000	46000	59000	59000	50000	50000
Bromine	<50	<50	<50	50	<50	50	50	500	500	500	500	500	500	500	500	1000	500	<50	<50	500	500
Fluoride (w)	1010	<100	960	120	<100	<100	350	100	260	150	240	250	220	1740	1830	1170	1200	360	110	250	280
Nitrite (w)	<100	<100	<100	<100	<100	<100	<100	<100	<100	300	400	6000	2400	<100	<100	<100	<100	<100	<100	<100	<100
Nitrate as N	200	**63300**	**89000**	**61400**	**116000**	**65100**	**60300**	**67000**	3200	**62100**	**58000**	**52700**	**78500**	15000	14900	<100	<100	**63000**	**77000**	**80400**	**82600**
Nitrogen, Total Oxidised TOxN (w)	<100	14300	20100	13900	26200	14700	13600	15100	700	14100	13200	13700	18400	3400	3400	<100	<100	14200	17400	18200	18600
Phosphate (orthophosphate) as PO4 (w)	<20	<20	110	<20	130	290	40	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	140	40	50	<20
Phosphorus,Total (dissolved)	<20	<20	61	<20	1556	184	71	34	<20	<20	<20	<20	<20	<20	<20	32	<20	46	35	36	52
Sulphate (w)	30000	52000	29000	54000	45000	51000	62000	68000	9000	62000	63000	49000	54000	48000	47000	29000	36000	66000	56000	56000	57000
DOC (w)	1400	300	1500	2100	3800	1800	2600	1600	4900	2200	3000	2700	2300	1300	1200	1500	1700	<200	<200	<200	<200
Oil & Grease (total) (w)	2000	<1000	<1000	<1000	2000	4000	2000	2000	5000	4000	<1000	2000	<1000	2000	<1000	2000	7000	4000	1000	4000	<1000
Arsenic (diss.filt)	2	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1
Boron (diss.filt)	30	18	22	23	44	27	36	66	103	47	47	44	44	61	60	34	35	31	30	34	35
Cadmium (diss.filt)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	57000	162000	137000	162000	141000	129000	153000	155000	80000	140000	139000	146000	147000	88000	91000	60000	59000	116000	111000	135000	127000
Copper (diss.filt)	13	19	23	37	53	38	27	26	36	30	33	38	35	49	29	35	24	28	24	27	32
Chromium (diss.filt)	1	1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Iron (diss.filt)	188	15	13	85	**267**	30	30	22	24	29	35	**262**	**259**	44	42	28	26	37	43	26	54
Lead (diss.filt)	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	**821**	3	2	6	37	10	3	8	**267**	**192**	**192**	**126**	**126**	**239**	**238**	**590**	**583**	**90**	**89**	**94**	**96**
Magnesium (diss.filt)	11000	3000	4000	3000	5000	10000	5000	6000	9000	5000	5000	5000	5000	16000	16000	11000	11000	6000	6000	7000	6000
Nickel (diss.filt)	2	<1	<1	<1	2	2	<1	<1	11	7	7	5	5	3	3	5	4	3	3	4	4
Potassium (diss.filt)	5000	<1000	1000	3000	5000	4000	4000	3000	4000	3000	2000	3000	4000	11000	11000	7000	5000	3000	3000	2000	3000
Selenium (diss.filt)	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	1	2	2	<1	<1	<1	<1	1	1
Sodium (diss.filt)	29	23	15	21	27	25	24	23	42	24	24	24	24	52	53	27	26	35	34	31	30
Zinc (diss.filt)	3	7	3	8	8	**29**	8	8	6	**14**	6	**20**	**17**	7	8	5	4	8	9	8	9
Acenaphthene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	15	<10	<15	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13	<10	<10	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5	6	<5	<5	<5	<5	<5	<5	<15	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5	6	<5	<5	<5	<5	<5	<5	17	<5	28	22	29	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	12	9	<5	20	8	6	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	15	<5	<5	17	5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	27	<10	<10	38	14	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	<10	<10	<10	<10	<10	<10	<10	<10	27	26	<10	66	36	35	<10	<10	<10	<10	<10	<10	<10
Total Suspended Solids (w)	8633	5825	24348	1026	392	48190	142217	4362	2392	8981	11459	476972	634	2786	10622	20630	9653	3602	2732	3342	4141
Nitrogen, Total (w)	<0.2	14.3	20.1	13.9	31.6	16.8	13.6	15.1	0.7	14.1	13.2	13.7	18.4	3.4	3.4	2.1	<0.2	14.2	17.4	31.2	22.2
Nitrogen (kjeldahl) (w)	<0.2	<0.2	<0.2	<0.2	5.4	2.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2.1	<0.2	<0.2	<0.2	13	3.6
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH021 Deep	WS103	BH001	BH003	BH005 Deep	BH007	BH010	BH012	BH013 Deep	BH013 Shallow	BH014 Deep	BH014 Shallow	BH015 Deep	BH015 Shallow	BH016 Shallow	BH016 Deep	BH019 Shallow	BH019 Deep	BH020 Deep	BH020 Shallow	BH021 Deep
pH	7.69	7.02	7.08	7.18	7.31	7.18	7.29	7.42	7.5	7.49	7.43	7.38	7.55	7.47	7.53	7.68	7.35	7.34	7.32	7.39	7.33
Conductivity @ 20 deg.C	698	801	815	807	754	824	797	730	791	783	835	833	777	767	850	515	790	787	770	779	852
BOD (settled, 5 day)	<1	<1	<1	<1	<1	<1	<1	2	<1	1	2	2	<1	<1	<1	<1	<1	<1	1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	130000	245000	300000	165000	285000	240000	120000	200000	190000	160000	180000	170000	200000	200000	200000	150000	190000	225000	270000	225000	320000
Alkalinity by titration (bicarbonate) (w)	130000	245000	300000	165000	285000	240000	120000	200000	190000	160000	180000	170000	200000	200000	200000	150000	190000	225000	270000	225000	320000
Hardness, Total as CaCO3	361000	355000	494000	478000	403000	526000	436000	379000	<2000	721000	436000	409000	446000	410000	339000	358000	245000	228000	380000	366000	384000
Ammoniacal nitrogen as N (w)	190	130	50	40	80	50	50	90	140	240	80	110	60	60	30	40	30	<20	50	70	340
Ammonium / Ammoniacal nitrogen as NH4 (w)	246	172	60	50	105	64	60	117	182	306	108	145	82	80	32	58	45	<26	64	84	434
Chloride	49000	68000	38000	42000	45000	45000	44000	45000	51000	51000	57000	57000	85000	84000	82000	47000	70000	69000	52000	51000	73000
Bromine	500	500	500	500	<50	500	500	500	500	500	1000	500	1000	1000	500	1000	500	500	500	500	1000
Fluoride (w)	1210	180	110	190	<100	240	<100	170	200	210	280	<100	1610	1510	230	1350	<100	<100	200	120	160
Nitrite (w)	<100	1500	<100	<100	200	<100	<100	600	400	400	200	100	100	100	<100	<100	<100	<100	<100	<100	2800
Nitrate as N	43200	37800	**57700**	**100000**	**61000**	**54100**	**75900**	**59200**	**78600**	**80300**	**94900**	**98000**	22000	21500	<100	<100	**78000**	**81700**	**90900**	**89500**	31400
Nitrogen, Total Oxidised TOxN (w)	9800	9000	13000	22600	13900	12200	17100	13500	17900	18200	21500	22200	5000	4900	<100	<100	17600	18400	20500	20200	7900
Phosphate (orthophosphate) as PO4 (w)	4470	70	<20	80	240	20	60	90	<20	<20	<20	<20	<20	<20	<20	<20	110	110	>20	40	30
Phosphorus,Total (dissolved)	1549	22	<20	112	151	27	24	40	54	52	<20	36	<20	<20	<20	27	46	70	<20	50	59
Sulphate (w)	55000	50000	52000	41000	54000	63000	71000	52000	61000	58000	52000	50000	50000	52000	130000	29000	48000	48000	71000	58000	53000
DOC (w)	<200	<200	500	1600	1900	600	1300	5500	2000	2200	1300	1200	1400	1600	1400	1400	1500	1500	700	800	1300
Oil & Grease (total) (w)	<1000	2000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2000	<1000	2000	2000	<1000	2000	<1000	<1000	2000	<1000	1000
Arsenic (diss.filt)	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1	<1
Boron (diss.filt)	43	41	15	17	19	22	50	48	33	33	29	30	37	37	24	23	27	27	27	26	31
Cadmium (diss.filt)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	137000	132000	191000	182000	142000	200000	165000	140000	<1000	109000	166000	155000	169000	155000	110000	116000	77000	71000	142000	136000	143000
Copper (diss.filt)	48	42	1	2	2	<1	1	2	2	2	1	1	1	2	<1	<1	<1	2	1	<1	1
Chromium (diss.filt)	1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (diss.filt)	**326**	41	10	<10	<10	<10	<10	<10	<10	<10	169	164	<10	10	18	20	<10	<10	<10	<10	<10
Lead (diss.filt)	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	26	**250**	2	2	**64**	3	10	**172**	**144**	**142**	**69**	**69**	**126**	**126**	**432**	**435**	31	31	33	30	**295**
Magnesium (diss.filt)	5000	6000	4000	6000	12000	7000	6000	7000	<1000	109000	6000	5000	6000	5000	15000	17000	13000	12000	6000	6000	7000
Nickel (diss.filt)	2	5	<1	<1	<1	<1	<1	7	6	6	3	3	3	3	3	3	3	3	3	3	4
Potassium (diss.filt)	3000	3000	2000	2000	4000	5000	4000	5000	<1000	104000	3000	<1000	3000	3000	12000	10000	7000	7000	<1000	3000	2000
Selenium (diss.filt)	1	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1	<1	<1	<1
Sodium (diss.filt)	22	42	25	19	28	28	25	35	<1	109	28	26	27	25	53	54	32	30	31	29	31
Zinc (diss.filt)	6	11	5	4	4	9	11	6	6	5	9	9	5	4	3	2	9	9	9	8	9
Acenaphthene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<10	<5	<50	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<10	<5	<50	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	22	<5	<5	<50	<10	<5	<50	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	32	<5	<5	<50	<10	<5	<50	<5	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	12	21	<5	6	<5	<5	<50	<10	<5	<50	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	12	21	<5	60	<5	<5	<50	<10	<5	<50	<5	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5	<5	<5	<5	<5	<5	7	5	6	<5	43	<5	<5	<50	<10	<5	<50	<5	<5	11
Aromatics >EC16-EC21 (aq)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	48	<5	<5	<50	<10	<5	<50	<5	<5	9
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<20	<10	<100	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	91	<10	<10	<100	<20	<10	<100	<10	<10	20
Total Aliphatics & Aromatics >C5-35 (	<10	<10	<10	<10	<10	<10	<10	<10	17	27	<10	151	<10	<10	<100	<20	<10	<100	<10	<10	20
Total Suspended Solids (w)	531	24	29437	5813	6987	27683	1133	6222	11260	6098	420	760	2320	2291	2670	16568	5892	791	882	545	<10
Nitrogen, Total (w)	9.8	9	13.4	23.4	14.3	12.4	17.1	14.2	18.4	19	22	22.6	5.3	9.7	9.6	0.4	18.2	20.2	20.9	20.6	9.1
Nitrogen (kjeldahl) (w)	<0.2	<0.2	0.4	0.8	0.4	0.2	<0.1	0.7	0.5	0.8	0.5	0.4	0.3	4.8	9.6	0.4	0.6	1.8	0.4	0.4	1.2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	WS103	BH001
pH	7.28	7.15
Conductivity @ 20 deg.C	772	789
BOD (settled, 5 day)	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	205000	130000
Alkalinity by titration (bicarbonate) (w)	205000	130000
Hardness, Total as CaCO3	374000	446000
Ammoniacal nitrogen as N (w)	**710**	<20
Ammonium / Ammoniacal nitrogen as NH4 (w)	**915**	<26000
Chloride	40000	37000
Bromine	500	<50
Fluoride (w)	<100	110
Nitrite (w)	<100	<100
Nitrate as N	**114000**	**67100**
Nitrogen, Total Oxidised TOxN (w)	25700	15200
Phosphate (orthophosphate) as PO4 (w)	100	<20
Phosphorus,Total (dissolved)	46	29
Sulphate (w)	38000	52000
DOC (w)	2700	<200
Oil & Grease (total) (w)	<1000	3000
Arsenic (diss.filt)	<1	<1
Boron (diss.filt)	16	17
Cadmium (diss.filt)	<0.05	<0.05
Calcium (diss.filt)	139000	173000
Copper (diss.filt)	1	9
Chromium (diss.filt)	1	<1
Iron (diss.filt)	<10	20
Lead (diss.filt)	<1	<1
Manganese (diss.filt)	1	2
Magnesium (diss.filt)	6000	3000
Nickel (diss.filt)	<1	<1
Potassium (diss.filt)	2000	<1000
Selenium (diss.filt)	<1	<1
Sodium (diss.filt)	30	21
Zinc (diss.filt)	4	10
Acenaphthene (aq)	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01
Aliphatics >C8-C10	<5	<5
Aliphatics >C10-C12	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5
Aromatics >EC16-EC21 (aq)	<5	<5
Aromatics >EC21-EC35 (aq)	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10
Total Aliphatics & Aromatics >C5-35 (	<10	<10
Total Suspended Solids (w)	5855	
Nitrogen, Total (w)	26.3	
Nitrogen (kjeldahl) (w)	0.6	0.5
o-Xylene	<1	<1

Groundwater Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Groundwater/Aquifer (DWS or equivalent)

Determinant	No. Samples	Min µg/L	Mean µg/L	Max µg/L	DWS µg/L	Source/ Notes	# DWS Exceeds	BH003	BH007	BH010	012	BH013 Deep	BH013 Shallow	BH014 Deep	BH014 Shallow	BH015 Shallow	BH015 Deep	BH016 Shallow	BH016 Deep	BH019 Shallow	BH019 Deep
pH (w)	**18**	7.14	7.3777778	7.7	#N/A	#N/A	0	7.23	7.14	7.28	7.7	7.35	7.33	7.31	7.36	7.43	7.51	7.56	7.61	7.34	7.49
Conductivity @ 20 deg.C	**18**	80	669	799	2500		0	741	799	746	619	769	777	770	772	657	745	483	482	746	678
BOD (settled, 5 day)	**18**	< 1	< 1	< 1	#N/A	#N/A	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	**18**	25000	158055.56	215000	#N/A	#N/A	0	60000	185000	215000	215000	200000	195000	160000	185000	125000	25000	150000	125000	125000	155000
Alkalinity by titration (bicarbonate) (w)	**18**	25000	158055.56	215000	#N/A	#N/A	0	60000	185000	215000	215000	200000	195000	160000	185000	125000	25000	150000	125000	125000	155000
Hardness, Total as CaCO3	**18**	203000	353666.67	448000	No GAC		0	394000	448000	400000	305000	394000	390000	387000	390000	294000	352000	206000	203000	356000	349000
Ammoniacal nitrogen as N (w)	**18**	20	53.333333	370	#N/A	#N/A	0	<20	<20	<20	100	50	<20	<20	<20	30	70	30	50	30	30
Ammonium / Ammoniacal nitrogen as NH4 (w)	**18**	26	63.5	478	#N/A	#N/A	0	<26	26	<26	35	60	<26	<26	<26	42	87	44	65	35	34
Chloride	**18**	39000	53277.778	91000	No GAC		0	39000	43000	42000	39000	53000	53000	53000	53000	63000	91000	45000	45000	68000	58000
Bromine	**18**	< 50	< 50	< 50	#N/A	#N/A	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Fluoride (w)	**18**	100	410.55556	1910	#N/A	#N/A	0	<100	220	320	250	110	200	130	<100	610	1910	1210	1110	<100	310
Nitrite (w)	**18**	100	277.77778	2800	#N/A	#N/A	0	<100	<100	<100	<100	<100	200	200	200	300	<100	<100	<100	<100	<100
Nitrate as N	**18**	300	64877.778	111000	50000		**12**	**111000**	**61000**	**70000**	16900	**99700**	**97900**	**95000**	**96200**	41500	16000	1200	300	**82800**	**69200**
Nitrogen, Total Oxidised TOxN (w)	**18**	100	14716.667	25100	#N/A	#N/A	0	25100	13800	15800	3800	22500	22200	21500	21800	9500	3600	300	<100	18700	15600
Phosphate (orthophosphate) as PO4 (w)	**18**	20	101.66667	1300	#N/A	#N/A	0	130	<20	<20	1300	<20	<20	<20	<20	<20	<20	<20	<20	80	30
Phosphorus,Total (dissolved)	**18**	20	71.333333	867	#N/A	#N/A	0	85	<20	<20	867	<20	<20	<20	<20	<20	<20	<20	<20	27	25
Sulphate (w)	**18**	22000	47388.889	67000	#N/A	#N/A	0	38000	67000	65000	35000	62000	55000	52000	56000	57000	42000	26000	22000	43000	49000
DOC (w)	**18**	20	1367.7778	3900	#N/A	#N/A	0	1300	<20	1200	2400	400	1800	1500	2200	3900	3900	<200	<200	700	800
Oil & Grease (total) (w)	**18**	1000	1555.5556	4000	#N/A	#N/A	0	3000	<1000	3000	2000	4000	<1000	<1000	1000	1000	1000	3000	<1000	<1000	<1000
Arsenic (diss.filt)	**18**	1	1.1111111	2	10		0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1
Boron (diss.filt)	**18**	20	36.222222	63	1000		0	21	24	59	63	41	41	41	42	37	37	28	27	37	37
Cadmium (diss.filt)	**18**	0.05	0.05	0.05	5		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	**18**	63000	130444.44	170000	#N/A	#N/A	0	150000	170000	151000	111000	149000	148000	147000	148000	102000	124000	64000	63000	132000	130000
Copper (diss.filt)	**18**	11	14.055556	18	2000		0	16	12	13	18	12	16	13	11	14	15	16	12	15	15
Chromium (diss.filt)	**18**	1	1	1	50	Assumes Cr6	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Iron (diss.filt)	**18**	15	74.111111	322	200		**1**	28	15	19	17	118	143	116	126	78	**322**	114	115	20	17
Lead (diss.filt)	**18**	< 1	< 1	< 1	10		0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	**18**	1	133.44444	431	50		**10**	2	3	4	**97**	**176**	**176**	**180**	**182**	**133**	**161**	**431**	**416**	2	3
Magnesium (diss.filt)	**18**	5000	6722.2222	11000	#N/A	#N/A	0	5000	6000	5000	7000	5000	5000	5000	5000	10000	10000	11000	11000	6000	6000
Nickel (diss.filt)	**18**	1	3.8888889	8	20		0	1	<1	<1	7	6	8	6	6	5	6	4	4	1	2
Potassium (diss.filt)	**18**	1000	3944.4444	9000	#N/A	#N/A	0	1000	4000	2000	4000	3000	3000	3000	3000	8000	9000	6000	6000	6000	5000
Selenium (diss.filt)	**18**	1	1.1111111	2	10		0	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1
Sodium (diss.filt)	**18**	3000	27722.222	51000	#N/A	#N/A	0	16000	24000	23000	35000	25000	25000	24000	24000	38000	40000	28000	28000	35000	35000
Zinc (diss.filt)	**18**	4	8.4444444	12	No GAC		0	10	9	6	7	11	12	11	9	7	10	4	4	6	11
Acenaphthene (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	**18**	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	**18**	< 5	< 5	< 5	300		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	**18**	< 5	< 5	< 5	300		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	**18**	< 5	< 5	< 5	300		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	**18**	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	**18**	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	**18**	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	**18**	5	5.2222222	8	90		0	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21 (aq)	**18**	5	5.3333333	11	90		0	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35 (aq)	**18**	< 10	< 10	< 10	90		0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	**18**	10	10.555556	19	No GAC		0	<10	<10	<10	19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	**18**	10	10.555556	19	No GAC		0	<10	<10	<10	19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Suspended Solids (w)	0	< 0	< 0	< 0	#N/A	#N/A	0														
Nitrogen, Total (w)	0	< 0	< 0	< 0	#N/A	#N/A	0														
Nitrogen (kjeldahl) (w)	**18**	0.2	0.3777778	0.7	#N/A	#N/A	0	0.4	0.4	0.3	0.5	0.7	0.5	0.2	0.3	0.5	0.6	0.4	0.2	0.3	0.4
o-Xylene	**18**	1	1.2222222	5	500		0	<1	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH020 Shallow	BH020 Deep	BH021 Deep	WS103
pH (w)	7.37	7.4	7.17	7.22
Conductivity @ 20 deg.C	719	719	80	740
BOD (settled, 5 day)	<1	<1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	155000	180000	210000	180000
Alkalinity by titration (bicarbonate) (w)	155000	180000	210000	180000
Hardness, Total as CaCO3	353000	359000	394000	392000
Ammoniacal nitrogen as N (w)	30	30	370	<20
Ammonium / Ammoniacal nitrogen as NH4 (w)	38	43	478	<26
Chloride	50000	51000	74000	39000
Bromine	<50	<50	<50	<50
Fluoride (w)	220	230	<100	160
Nitrite (w)	<100	<100	2800	<100
Nitrate as N	**84100**	**88700**	32300	**104000**
Nitrogen, Total Oxidised TOxN (w)	19000	20000	8200	23400
Phosphate (orthophosphate) as PO4 (w)	<20	<20	<20	30
Phosphorus,Total (dissolved)	<20	<20	<20	<20
Sulphate (w)	53000	52000	45000	34000
DOC (w)	400	800	1400	1500
Oil & Grease (total) (w)	<1000	<1000	<1000	<1000
Arsenic (diss.filt)	<1	<1	<1	<1
Boron (diss.filt)	30	30	37	20
Cadmium (diss.filt)	<0.05	<0.05	<0.05	0.05
Calcium (diss.filt)	131000	133000	146000	149000
Copper (diss.filt)	12	17	15	11
Chromium (diss.filt)	<1	<1	<1	<1
Iron (diss.filt)	16	16	38	16
Lead (diss.filt)	<1	<1	<1	<1
Manganese (diss.filt)	45	46	**344**	1
Magnesium (diss.filt)	6000	6000	7000	5000
Nickel (diss.filt)	3	3	5	<1
Potassium (diss.filt)	2000	2000	2000	2000
Selenium (diss.filt)	<1	<1	<1	<1
Sodium (diss.filt)	29000	3000	51000	16000
Zinc (diss.filt)	9	10	11	5
Acenaphthene (aq)	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5	6	<5
Aromatics >EC16-EC21 (aq)	<5	<5	5	<5
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10	11	<10
Total Aliphatics & Aromatics >C5-35 (	<10	<10	11	<10
Total Suspended Solids (w)				
Nitrogen, Total (w)				
Nitrogen (kjeldahl) (w)	0.2	0.3	0.3	0.3
o-Xylene	<1	<1	<1	<1

Groundwater Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Surface Waters (EQS or equivalent) - Freshwater

Determinant	No. Samples	Min µg/L	Mean µg/L	Max µg/L	EQS µg/L	Source/ Notes	# EQS Exceeds	BH003	BH007	BH010	012	BH013 Deep	BH013 Shallow	BH014 Deep	BH014 Shallow	BH015 Shallow	BH015 Deep	BH016 Shallow	BH016 Deep	BH019 Shallow	BH019 Deep
pH (w)	18	7.14	7.38	7.7	#N/A	#N/A	0	7.23	7.14	7.28	7.7	7.35	7.33	7.31	7.36	7.43	7.51	7.56	7.61	7.34	7.49
Conductivity @ 20 deg.C	18	80	669.00	799	No GAC		0	741	799	746	619	769	777	770	772	657	745	483	482	746	678
BOD (settled, 5 day)	18	< 1	< 1	< 1	#N/A	#N/A	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	18	25000	158055.56	215000	#N/A	#N/A	0	60000	185000	215000	215000	200000	195000	160000	185000	125000	25000	150000	125000	125000	155000
Alkalinity by titration (bicarbonate) (w)	18	25000	158055.56	215000	#N/A	#N/A	0	60000	185000	215000	215000	200000	195000	160000	185000	125000	25000	150000	125000	125000	155000
Hardness, Total as CaCO3	18	203000	353666.67	448000	No GAC		0	394000	448000	400000	305000	394000	390000	387000	390000	294000	352000	206000	203000	356000	349000
Ammoniacal nitrogen as N (w)	18	20	53.33	370	300	#N/A	1	<20	<20	<20	100	50	<20	<20	<20	30	70	30	50	30	30
Ammonium / Ammoniacal nitrogen as NH4 (w)	18	26	63.50	478	385	#N/A	1	<26	26	<26	35	60	<26	<26	<26	42	87	44	65	35	34
Chloride	18	39000	53277.78	91000	250000		0	39000	43000	42000	39000	53000	53000	53000	53000	63000	91000	45000	45000	68000	58000
Bromine	18	< 50	< 50	< 50	#N/A	#N/A	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Fluoride (w)	18	100	410.56	1910	#N/A	#N/A	0	<100	220	320	250	110	200	130	<100	610	1910	1210	1110	<100	310
Nitrite (w)	18	100	277.78	2800	#N/A	#N/A	0	<100	<100	<100	<100	<100	200	200	200	300	<100	<100	<100	<100	<100
Nitrate as N	18	300	64877.78	111000	No GAC	0	0	111000	61000	70000	16900	99700	97900	95000	96200	41500	16000	1200	300	82800	69200
Nitrogen, Total Oxidised TOxN (w)	18	100	14716.67	25100	#N/A	#N/A	0	25100	13800	15800	3800	22500	22200	21500	21800	9500	3600	300	<100	18700	15600
Phosphate (orthophosphate) as PO4 (w)	18	20	101.67	1300	#N/A	#N/A	0	130	<20	<20	1300	<20	<20	<20	<20	<20	<20	<20	<20	80	30
Phosphorus,Total (dissolved)	18	20	71.33	867	#N/A	#N/A	0	85	<20	<20	867	<20	<20	<20	<20	<20	<20	<20	<20	27	25
Sulphate (w)	18	22000	47388.89	67000	#N/A	#N/A	0	38000	67000	65000	35000	62000	55000	52000	56000	57000	42000	26000	22000	43000	49000
DOC (w)	18	20	1367.78	3900	#N/A	#N/A	0	1300	<20	1200	2400	400	1800	1500	2200	3900	3900	<200	<200	700	800
Oil & Grease (total) (w)	18	1000	1555.56	4000	#N/A	#N/A	0	3000	<1000	3000	2000	4000	<1000	<1000	1000	1000	1000	3000	<1000	<1000	<1000
Arsenic (diss.filt)	18	1	1.11	2	50		0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1
Boron (diss.filt)	18	20	36.22	63	2000		0	21	24	59	63	41	41	41	42	37	37	28	27	37	37
Cadmium (diss.filt)	18	0.05	0.05	0.05	0.08		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	18	63000	130444.44	170000	#N/A	#N/A	0	150000	170000	151000	111000	149000	148000	147000	148000	102000	124000	64000	63000	132000	130000
Copper (diss.filt)	18	11	14.06	18	1	worst-case bioavailabilty assumed	18	16	12	13	18	12	16	13	11	14	15	16	12	15	15
Chromium (diss.filt)	18	1	1.00	1	3.4	Assumes Cr6	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Iron (diss.filt)	18	15	74.11	322	1000		0	28	15	19	17	118	143	116	126	78	322	114	115	20	17
Lead (diss.filt)	18	< 1	< 1	< 1	1.2	worst-case bioavailabilty assumed	0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (diss.filt)	18	1	133.44	431	123	worst-case bioavailabilty assumed	9	2	3	4	97	176	176	180	182	133	161	431	416	2	3
Magnesium (diss.filt)	18	5000	6722.22	11000	#N/A	#N/A	0	5000	6000	5000	7000	5000	5000	5000	5000	10000	10000	11000	11000	6000	6000
Nickel (diss.filt)	18	1	3.89	8	4	worst-case bioavailabilty assumed	10	1	<1	<1	7	6	8	6	6	5	6	4	4	1	2
Potassium (diss.filt)	18	1000	3944.44	9000	#N/A	#N/A	0	1000	4000	2000	4000	3000	3000	3000	3000	8000	9000	6000	6000	6000	5000
Selenium (diss.filt)	18	1	1.11	2	No GAC		0	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1
Sodium (diss.filt)	18	3000	27722.22	51000	#N/A	#N/A	0	16000	24000	23000	35000	25000	25000	24000	24000	38000	40000	28000	28000	35000	35000
Zinc (diss.filt)	18	4	8.44	12	12.9	worst-case bioavailabilty assumed	0	10	9	6	7	11	12	11	9	7	10	4	4	6	11
Acenaphthene (aq)	18	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	18	< 0.01	< 0.01	< 0.01	0.0063		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	18	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	18	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	18	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	18	< 0.01	< 0.01	< 0.01	No GAC		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C10-C12	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	18	< 5	< 5	< 5	No GAC		0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	18	5	5.22	8	2	CL:AIRE 2017	2	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21 (aq)	18	5	5.33	11	0.1	CL:AIRE 2017	2	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35 (aq)	18	< 10	< 10	< 10	0.00017	CL:AIRE 2017	0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	18	10	10.56	19	No GAC		0	<10	<10	<10	19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (	18	10	10.56	19	No GAC		0	<10	<10	<10	19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Suspended Solids (w)	0	< 0	< 0	< 0	#N/A	#N/A	0														
Nitrogen, Total (w)	0	< 0	< 0	< 0	#N/A	#N/A	0														
Nitrogen (kjeldahl) (w)	18	0.2	0.38	0.7	#N/A	#N/A	0	0.4	0.4	0.3	0.5	0.7	0.5	0.2	0.3	0.5	0.6	0.4	0.2	0.3	0.4
o-Xylene	18	1	1.22	5	30		0	<1	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Determinant	BH020 Shallow	BH020 Deep	BH021 Deep	WS103
pH (w)	7.37	7.4	7.17	7.22
Conductivity @ 20 deg.C	719	719	80	740
BOD (settled, 5 day)	<1	<1	<1	<1
Alkalinity by titration (total) (pH 4.5) (w)	155000	180000	210000	180000
Alkalinity by titration (bicarbonate) (w)	155000	180000	210000	180000
Hardness, Total as CaCO3	353000	359000	394000	392000
Ammoniacal nitrogen as N (w)	30	30	**370**	<20
Ammonium / Ammoniacal nitrogen as NH4 (w)	38	43	**478**	<26
Chloride	50000	51000	74000	39000
Bromine	<50	<50	<50	<50
Fluoride (w)	220	230	<100	160
Nitrite (w)	<100	<100	2800	<100
Nitrate as N	84100	88700	32300	104000
Nitrogen, Total Oxidised TOxN (w)	19000	20000	8200	23400
Phosphate (orthophosphate) as PO4 (w)	<20	<20	<20	30
Phosphorus,Total (dissolved)	<20	<20	<20	<20
Sulphate (w)	53000	52000	45000	34000
DOC (w)	400	800	1400	1500
Oil & Grease (total) (w)	<1000	<1000	<1000	<1000
Arsenic (diss.filt)	<1	<1	<1	<1
Boron (diss.filt)	30	30	37	20
Cadmium (diss.filt)	<0.05	<0.05	<0.05	0.05
Calcium (diss.filt)	131000	133000	146000	149000
Copper (diss.filt)	**12**	**17**	**15**	**11**
Chromium (diss.filt)	<1	<1	<1	<1
Iron (diss.filt)	16	16	38	16
Lead (diss.filt)	<1	<1	<1	<1
Manganese (diss.filt)	45	46	**344**	1
Magnesium (diss.filt)	6000	6000	7000	5000
Nickel (diss.filt)	3	3	**5**	<1
Potassium (diss.filt)	2000	2000	2000	2000
Selenium (diss.filt)	<1	<1	<1	<1
Sodium (diss.filt)	29000	3000	51000	16000
Zinc (diss.filt)	9	10	11	5
Acenaphthene (aq)	<0.01	<0.01	<0.01	<0.01
Fluoranthene (aq)	<0.01	<0.01	<0.01	<0.01
Fluorene (aq)	<0.01	<0.01	<0.01	<0.01
Phenanthrene (aq)	<0.01	<0.01	<0.01	<0.01
Pyrene (aq)	<0.01	<0.01	<0.01	<0.01
PAH, Total Detected USEPA 16 (aq)	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<5	<5	<5	<5
Aliphatics >C10-C12	<5	<5	<5	<5
Aliphatics >C12-C16 (aq)	<5	<5	<5	<5
Aliphatics >C16-C21 (aq)	<5	<5	<5	<5
Aliphatics >C21-C35 (aq)	<5	<5	<5	<5
Total Aliphatics >C12-C35 (aq)	<5	<5	<5	<5
Aromatics >EC12-EC16 (aq)	<5	<5	**6**	<5
Aromatics >EC16-EC21 (aq)	<5	<5	**5**	<5
Aromatics >EC21-EC35 (aq)	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10	<10	11	<10
Total Aliphatics & Aromatics >C5-35 (	<10	<10	11	<10
Total Suspended Solids (w)				
Nitrogen, Total (w)				
Nitrogen (kjeldahl) (w)	0.2	0.3	0.3	0.3
o-Xylene	<1	<1	<1	<1

Leachate Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Groundwater/Aquifer (DWS or equivalent)

Determinant	No. Samples	Min µg/L	Mean µg/L	Max µg/L	DWS µg/L	Source/ Notes	# DWS Exceeds	BH002 0.50	BH003 0.20	WS103 0.20	WS107 0.50	WS109 0.20	BH006 0.20	WS110 0.3
Acenaphthene	7	< 0.02	0.24	0.55	No GAC		0	0.55	0.06	0.5	0.1	0.3	0.15	<0.02
Acenaphthylene	7	< 0.02	0.0871429	0.48	No GAC		0	0.03	<0.02	<0.02	<0.02	0.48	<0.02	<0.02
Anthracene (aq)	7	< 0.02	0.0614286	1	No GAC		0	0.12	0.02	0.1	0.04	0.1	0.03	<0.02
Benzo(a)anthracene (aq)	7	< 0.02	0.0214286	0.03	No GAC		0	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene (aq)	7	< 0.02	0.0228571	0.04	No GAC		0	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene (aq)	7	< 0.02	0.1228571	6	No GAC		0	0.27	0.07	0.19	0.09	0.15	0.07	<0.02
Fluorene (aq)	7	< 0.02	0.21	0.42	No GAC		0	0.42	0.06	0.39	0.12	0.34	0.12	<0.02
Naphthalene (aq)	7	< 0	0.3585714	0.76	No GAC		0	0.76	0.12	0.31	0.05	0.43	0.17	0.67
Phenanthrene (aq)	7	< 0.02	0.3385714	0.71	No GAC		0	0.71	0.17	0.66	0.2	0.45	0.16	<0.02
Pyrene (aq)	7	< 0.02	0.09	0.23	No GAC		0	0.23	0.05	0.12	0.06	0.1	0.05	<0.02
PAH, Total Detected USEPA 16 (aq)	7	< 0	1.4871429	3.16	No GAC		0	3.16	0.55	2.27	0.66	2.35	0.75	0.67
Ammonical Nitrogen4	7	< 26	159.71429	508	500		1	**508**	156	240	135	<26	<26	27
Arsenic (diss.filt)	7	< 1	2	4	10		0	<1	<1	1	3	2	2	4
Boron (diss.filt)	7	< 10	41.428571	96	1000		0	51	96	62	20	19	<10	32
Copper (diss.filt)	7	< 0	5.2857143	9	2000		0	6	3	3	9	6	6	4
Chromium (diss.filt)	7	< 1	1.1428571	2	50	Assumes Cr6	0	<1	<1	<1	<1	<1	<1	2
Lead (diss.filt)	7	< 0	8.2857143	12	10		1	4	**12**	9	8	7	**10**	8
Nickel (diss.filt)	7	< 1	1.7142857	4	20		0	1	4	2	2	1	<1	1
Zinc (diss.filt)	7	< 0	34.142857	89	No GAC		0	9	65	21	26	12	89	17
Aromatics >EC21-EC35 (aq)	7	< 20	20.142857	21	90		0	<20	<20	<20	<20	<20	21	<20
Total Aliphatics >C12-C35 (aq)	7	< 10	11.571429	21	No GAC		0	<10	<10	<10	<10	<10	21	<10
Aromatics >EC8-EC10	7	< 10	25.571429	63	300		0	<10	<10	<10	63	58	18	<10
Aromatics >EC10-EC12	7	< 10	13.428571	34	90		0	<10	<10	<10	<10	<10	34	<10
Aromatics >EC12-EC16 (aq)	7	< 10	15.428571	36	90		0	<10	<10	<10	<10	22	36	<10
Aromatics >EC16-EC21 (aq)	7	< 10	10.285714	12	90		0	<10	<10	<10	<10	12	<10	<10
Total Aromatics >EC12-EC35 (aq)	7	< 20	47.428571	97	No GAC		0	<20	<20	<20	63	92	97	<20
Total Aliphatics & Aromatics >C5-35 (	7	< 20	50.428571	118	No GAC		0	<20	<20	<20	63	92	118	<20

Leachate Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Surface Waters (EQS or equivalent) - Freshwater

Determinant	No. Samples	Min µg/L	Mean µg/L	Max µg/L	EQS µg/L	Source/ Notes	# EQS Exceeds	BH002	BH003	WS103	WS107	WS109	BH006	WS110
								0.50	0.20	0.20	0.50	0.20	0.20	0.3
Acenaphthene	7	< 0.02	0.24	0.55	No GAC		0	0.55	0.06	0.5	0.1	0.3	0.15	<0.02
Acenaphthylene	7	< 0.02	0.09	0.48	No GAC		0	0.03	<0.02	<0.02	<0.02	0.48	<0.02	<0.02
Anthracene (aq)	7	< 0.02	0.06	1	0.1		1	0.12	0.02	0.1	0.04	0.1	0.03	<0.02
Benzo(a)anthracene (aq)	7	< 0.02	0.02	0.03	No GAC		0	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene (aq)	7	< 0.02	0.02	0.04	No GAC		0	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene (aq)	7	< 0.02	0.12	6	0.0063		6	0.27	0.07	0.19	0.09	0.15	0.07	<0.02
Fluorene (aq)	7	< 0.02	0.21	0.42	No GAC		0	0.42	0.06	0.39	0.12	0.34	0.12	<0.02
Naphthalene (aq)	7	< 0	0.36	0.76	2		0	0.76	0.12	0.31	0.05	0.43	0.17	0.67
Phenanthrene (aq)	7	< 0.02	0.34	0.71	No GAC		0	0.71	0.17	0.66	0.2	0.45	0.16	<0.02
Pyrene (aq)	7	< 0.02	0.09	0.23	No GAC		0	0.23	0.05	0.12	0.06	0.1	0.05	<0.02
PAH, Total Detected USEPA 16 (aq)	7	< 0	1.49	3.16	No GAC		0	3.16	0.55	2.27	0.66	2.35	0.75	0.67
Ammonical Nitrogen4	7	< 26	159.71	508	300		1	508	156	240	135	<26	<26	27
Arsenic (diss.filt)	7	< 1	2.00	4	50		0	<1	<1	1	3	2	2	4
Boron (diss.filt)	7	< 10	41.43	96	2000		0	51	96	62	20	19	<10	32
Copper (diss.filt)	7	< 0	5.29	9	1	worst-case bioavailabilty assumed	7	6	3	3	9	6	6	4
Chromium (diss.filt)	7	< 1	1.14	2	3.4	Assumes Cr6	0	<1	<1	<1	<1	<1	<1	2
Lead (diss.filt)	7	< 0	8.29	12	1.2	worst-case bioavailabilty assumed	7	4	12	9	8	7	10	8
Nickel (diss.filt)	7	< 1	1.71	4	4	worst-case bioavailabilty assumed	0	1	4	2	2	1	<1	1
Zinc (diss.filt)	7	< 0	34.14	89	11.9	worst-case bioavailabilty assumed	6	9	65	21	26	12	89	17
Aromatics >EC21-EC35 (aq)	7	< 20	20.14	21	0.00017	CL:AIRE 2017	1	<20	<20	<20	<20	<20	21	<20
Total Aliphatics >C12-C35 (aq)	7	< 10	11.57	21	No GAC		0	<10	<10	<10	<10	<10	21	<10
Aromatics >EC8-EC10	7	< 10	25.57	63	20	CL:AIRE 2017	2	<10	<10	<10	63	58	18	<10
Aromatics >EC10-EC12	7	< 10	13.43	34	2	CL:AIRE 2017	1	<10	<10	<10	<10	<10	34	<10
Aromatics >EC12-EC16 (aq)	7	< 10	15.43	36	2	CL:AIRE 2017	2	<10	<10	<10	<10	22	36	<10
Aromatics >EC16-EC21 (aq)	7	< 10	10.29	12	0.1	CL:AIRE 2017	1	<10	<10	<10	<10	12	<10	<10
Total Aromatics >EC12-EC35 (aq)	7	< 20	47.43	97	No GAC		0	<20	<20	<20	63	92	97	<20
Total Aliphatics & Aromatics >C5-35 (	7	< 20	50.43	118	No GAC		0	<20	<20	<20	63	92	118	<20

Soil Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Highways Subsurface Soils 1% SOM

Determinant	No. Samples	Min mg/kg	Mean mg/kg	Max mg/kg	GAC mg/kg	# GAC Exceeds	BH002 0.50	BH002 1.00	BH001 0.50	BH001 2.00	BH001 1.00	WS101 0.50	WS102 1.00	WS104 0.50	WS114 0.50	BH003 0.20	BH003 0.90	BH003 1.20	BH004 0.50	BH004 2.00	WS103 0.20
pH	**42**	4.95	7.65	9.65	No GAC	0	7.51	7.49	8.33	8.45	8.44	7.76	6.01	7.44	8.06	7.82	7.43	7.45	7.64	7.62	7.93
Sulphate (water sol 2:1)	**35**	< 0.01	0.01	0.07	#N/A	0	<0.01	<0.01	<0.01	<0.01		<0.01	0.07	0.02	<0.01	<0.01		<0.01	<0.01		<0.01
Organic matter	**42**	< 0.1	0.55	2.4	#N/A	0	0.4	0.5	0.6	0.3	0.3	1	0.3	0.4	0.9	1.3	2.4	0.9	0.6	<0.1	1.3
Arsenic	**35**	< 0	6.54	14	no GAC	0	4	2	5	3		4	11	6	6	3		1	6		5
Cadmium	**35**	< 0.5	0.52	0.9	no GAC	0	<0.5	<0.5	<0.5	<0.5		0.5	0.6	<0.5	<0.5	<0.5		<0.5	<0.5		<0.5
Copper	**35**	< 1	4.31	16	no GAC	0	3	<1	9	12		8	16	5	6	<1		2	2		3
Chromium	**35**	< 0	20.00	151	No GAC	0	10	5	25	23		13	41	10	12	9		11	11		12
Lead	**35**	< 1	23.80	565	no GAC	0	7	3	8	7		13	12	6	11	8		3	9		13
Mercury	**35**	< 0.17	0.21	0.89	no GAC	0	<0.17	<0.17	0.28	0.66		<0.17	<0.17	<0.17	<0.17	<0.17		<0.17	<0.17		<0.17
Nickel	**35**	< 0	16.09	110	no GAC	0	8	7	24	23		13	36	8	11	7		7	8		6
Selenium	**35**	< 1	1.00	1	no GAC	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Zinc	**35**	< 0	28.86	91	no GAC	0	24	19	41	40		36	51	23	32	17		9	20		17
Asbestos in soil	0	#VALUE!	#VALUE!	#VALUE!	#N/A	0	NAD		NAD			NAD	NAD	NAD	NAD	NAD		NAD	NAD		NAD
Indeno(123-cd)pyrene	**30**	< 0.03	0.03	0.04	B(a)P-S.A.	0	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03		<0.03
Acenaphthene (leachable)	**6**	< 0	0.28	0.55	#N/A	0	0.55									0.06					0.5
Acenaphthylene (leachable)	**6**	< 0.02	0.10	0.48	#N/A	0	0.03									<0.02					<0.02
Anthracene (leachable)	**6**	< 0	0.07	0.12	#N/A	0	0.12									0.02					0.1
Benzo(a)anthracene (leachable)	**6**	< 0.02	0.02	0.03	#N/A	0	0.03									<0.02					<0.02
Chrysene (leachable)	**6**	< 0.02	0.02	0.04	#N/A	0	0.04									<0.02					<0.02
Fluoranthene (leachable)	**6**	< 0	0.14	0.27	#N/A	0	0.27									0.07					0.19
Fluorene (leachable)	**6**	< 0	0.24	0.42	#N/A	0	0.42									0.06					0.39
Naphthalene (leachable)	**6**	< 0	0.31	0.76	14900	0	0.76									0.12					0.31
Phenanthrene (leachable)	**6**	< 0	0.39	0.71	#N/A	0	0.71									0.17					0.66
Pyrene (leachable)	**6**	< 0	0.10	0.23	#N/A	0	0.23									0.05					0.12
Total PAH 16MS (leachable)	**6**	< 0	1.62	3.16	#N/A	0	3.16									0.55					2.27
Ali >C21-C35	**30**	< 1	2.10	10	#N/A	0	<1	<1	2	1		<1	<1	1	7	4		1	2		10
Total Aliphatics	**30**	< 1	2.10	10	#N/A	0	<1	<1	2	1		<1	<1	1	7	4		1	2		10
Aro >C8-C10	**30**	< 1	1.07	2	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		2
Aro >C12-C16	**30**	< 1	1.00	1	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Aro >C16-C21	**30**	< 1	1.03	2	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Aro >C21-C35	**30**	< 1	2.70	19	#N/A	0	<1	<1	3	2		<1	<1	2	4	5		2	2		9
Total Aromatics	**30**	< 1	3.03	23	#N/A	0	<1	<1	3	2		<1	<1	2	4	5		2	3		11
TPH (Ali & Aro >C5-C35)	**30**	< 1	4.73	29	#N/A	0	<1	<1	5	5		<1	<1	3	11	9		3	5		22

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks

	WS103	WS103	TP401A	TP401A	TP402A	TP402A	TP402A	TP401A	BH009	BH009	BH009	BH010	BH010	WS107	WS107	WS108	WS108	WS109	WS109	BH005	BH006
Determinant	**1.00**	**3.00**	**0.50**	**1.00**	**0.50**	**1.00**	**2.00**	**2.00**	**0.50**	**1.00**	**2.00**	**0.50**	**0.90**	**0.50**	**0.80**	**0.20**	**1.20**	**0.20**	**0.80**	**0.50**	**0.20**
pH	8.01	8.46	7.63	9.65	6.89	8.21	8.32	7.6	7.51	7.91	8.86	7.62	7.96	6.8	6.88	6.8	6.96	6.15	6.63	7.64	6.24
Sulphate (water sol 2:1)	<0.01		<0.01		<0.01	<0.01		<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	<0.01	0.02	<0.01	<0.01
Organic matter	0.5	<0.1	0.3	0.2	0.3	0.3	<0.1	<0.1	0.6	0.2	<0.1	0.9	0.3	1.3	0.2	0.6	0.2	1.1	0.2	0.2	1.2
Arsenic	4		9		6	5		4	9		5	6	5	7	7	8	13	7	14	14	10
Cadmium	<0.5		<0.5		<0.5	<0.5		<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	0.7	<0.5	<0.5
Copper	<1		2		6	<1		3	5		2	3	2	8	3	4	8	3	4	4	4
Chromium	8		13		16	8		11	10		6	7	10	12	11	11	16	10	17	16	8
Lead	5		5		9	4		5	11		3	12	5	19	6	10	8	12	6	6	17
Mercury	<0.17		<0.17		<0.17	<0.17		<0.17	<0.17		<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	4		10		14	7		10	10		8	5	8	9	10	11	29	7	16	13	5
Selenium	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Zinc	8		24		30	16		21	31		15	20	16	49	36	35	65	36	53	38	91
Asbestos in soil	NAD		NAD		NAD	NAD		NAD	NAD		NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Indeno(123-cd)pyrene	<0.03		<0.03		<0.03	<0.03		<0.03	<0.03		<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Acenaphthene (leachable)														0.1				0.3			0.15
Acenaphthylene (leachable)														<0.02				0.48			<0.02
Anthracene (leachable)														0.04				0.1			0.03
Benzo(a)anthracene (leachable)														<0.02				<0.02			<0.02
Chrysene (leachable)														<0.02				<0.02			<0.02
Fluoranthene (leachable)														0.09				0.15			0.07
Fluorene (leachable)														0.12				0.34			0.12
Naphthalene (leachable)														0.05				0.43			0.17
Phenanthrene (leachable)														0.2				0.45			0.16
Pyrene (leachable)														0.06				0.1			0.05
Total PAH 16MS (leachable)														0.66				2.35			0.75
Ali >C21-C35	2		<1		3	<1		<1	<1		<1	3	<1	4	<1	1	<1	<1	<1	<1	6
Total Aliphatics	2		<1		3	<1		<1	<1		<1	3	<1	4	<1	1	<1	<1	<1	<1	6
Aro >C8-C10	<1		<1		<1	<1		<1	<1		<1	2	<1	<1	<1	<1	<1	<1	<1	<1	1
Aro >C12-C16	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Aro >C16-C21	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2
Aro >C21-C35	2		<1		2	<1		<1	1		<1	4	<1	5	<1	2	<1	3	<1	<1	19
Total Aromatics	2		<1		3	<1		<1	1		<1	6	<1	5	<1	2	<1	3	<1	<1	23
TPH (Ali & Aro >C5-C35)	4		<1		6	<1		<1	1		<1	9	<1	9	<1	3	<1	4	<1	<1	29

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks

	BH006	BH013	BH019	BH110	BH110	BH110
Determinant	**0.50**	**1**	**2**	**0.30**	**0.60**	**1.10**
pH	4.95	7.95	8.2	8.47	8.84	8.97
Sulphate (water sol 2:1)	<0.01	0.02	0.02	<0.01	<0.01	<0.01
Organic matter	0.2	0.5	0.1	0.5	1.5	<0.1
Arsenic	7	5	3	4	13	8
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	<1	5	6	4	<1	3
Chromium	7	151	141	11	3	15
Lead	565	6	3	11	<1	4
Mercury	<0.17	<0.17	<0.17	<0.17	0.89	<0.17
Nickel	5	98	110	5	3	8
Selenium	<1	<1	<1	<1	<1	<1
Zinc	21	10	13	22	16	15
Asbestos in soil	NAD	NAD	NAD	NAD	NAD	NAD
Indeno(123-cd)pyrene	<0.03					
Acenaphthene (leachable)						
Acenaphthylene (leachable)						
Anthracene (leachable)						
Benzo(a)anthracene (leachable)						
Chrysene (leachable)						
Fluoranthene (leachable)						
Fluorene (leachable)						
Naphthalene (leachable)						
Phenanthrene (leachable)						
Pyrene (leachable)						
Total PAH 16MS (leachable)						
Ali >C21-C35	<1					
Total Aliphatics	<1					
Aro >C8-C10	<1					
Aro >C12-C16	<1					
Aro >C16-C21	<1					
Aro >C21-C35	<1					
Total Aromatics	<1					
TPH (Ali & Aro >C5-C35)	<1					

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks

Soil Analytical Results Screening Sheet

Site Name: Norwich Western Link
Job Number: 70041922
Screening Criteria: Highways Surface Soils 1% SOM

Determinant	No. Samples	Min mg/kg	Mean mg/kg	Max mg/kg	GAC mg/kg	# GAC Exceeds	BH002 0.50	BH002 1.00	BH001 0.50	BH001 2.00	BH001 1.00	WS101 0.50	WS102 1.00	WS104 0.50	WS114 0.50	BH003 0.20	BH003 0.90	BH003 1.20	BH004 0.50	BH004 2.00	WS103 0.20
pH	**42**	4.95	7.65	9.65	No GAC	0	7.51	7.49	8.33	8.45	8.44	7.76	6.01	7.44	8.06	7.82	7.43	7.45	7.64	7.62	7.93
Sulphate (water sol 2:1)	**35**	< 0.01	0.01	0.07	#N/A	0	<0.01	<0.01	<0.01	<0.01		<0.01	0.07	0.02	<0.01	<0.01		<0.01	<0.01		<0.01
Organic matter	**42**	< 0.1	0.55	2.4	#N/A	0	0.4	0.5	0.6	0.3	0.3	1	0.3	0.4	0.9	1.3	2.4	0.9	0.6	<0.1	1.3
Arsenic	**35**	< 0	6.54	14	251	0	4	2	5	3		4	11	6	6	3		1	6		5
Cadmium	**35**	< 0.5	0.52	0.9	155	0	<0.5	<0.5	<0.5	<0.5		0.5	0.6	<0.5	<0.5	<0.5		<0.5	<0.5		<0.5
Copper	**35**	< 1	4.31	16	69000	0	3	<1	9	12		8	16	5	6	<1		2	2		3
Chromium	**35**	< 0	20.00	151	No GAC	0	10	5	25	23		13	41	10	12	9		11	11		12
Lead	**35**	< 1	23.80	565	1210	0	7	3	8	7		13	12	6	11	8		3	9		13
Mercury	**35**	< 0.17	0.21	0.89	409	0	<0.17	<0.17	0.28	0.66		<0.17	<0.17	<0.17	<0.17	<0.17		<0.17	<0.17		<0.17
Nickel	**35**	< 0	16.09	110	1200	0	8	7	24	23		13	36	8	11	7		7	8		6
Selenium	**35**	< 1	1.00	1	3680	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Zinc	**35**	< 0	28.86	91	260000	0	24	19	41	40		36	51	23	32	17		9	20		17
Asbestos in soil	0	#VALUE!	#VALUE!	#VALUE!	#N/A	0	NAD		NAD			NAD	NAD	NAD	NAD	NAD		NAD	NAD		NAD
Indeno(123-cd)pyrene	**30**	< 0.03	0.03	0.04	B(a)P-S.A.	0	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03		<0.03
Acenaphthene (leachable)	**6**	< 0	0.28	0.55	#N/A	0	0.55									0.06					0.5
Acenaphthylene (leachable)	**6**	< 0.02	0.10	0.48	#N/A	0	0.03									<0.02					<0.02
Anthracene (leachable)	**6**	< 0	0.07	0.12	#N/A	0	0.12									0.02					0.1
Benzo(a)anthracene (leachable)	**6**	< 0.02	0.02	0.03	#N/A	0	0.03									<0.02					<0.02
Chrysene (leachable)	**6**	< 0.02	0.02	0.04	#N/A	0	0.04									<0.02					<0.02
Fluoranthene (leachable)	**6**	< 0	0.14	0.27	#N/A	0	0.27									0.07					0.19
Fluorene (leachable)	**6**	< 0	0.24	0.42	#N/A	0	0.42									0.06					0.39
Naphthalene (leachable)	**6**	< 0	0.31	0.76	14900	0	0.76									0.12					0.31
Phenanthrene (leachable)	**6**	< 0	0.39	0.71	#N/A	0	0.71									0.17					0.66
Pyrene (leachable)	**6**	< 0	0.10	0.23	#N/A	0	0.23									0.05					0.12
Total PAH 16MS (leachable)	**6**	< 0	1.62	3.16	#N/A	0	3.16									0.55					2.27
Ali >C21-C35	**30**	< 1	2.10	10	#N/A	0	<1	<1	2	1		<1	<1	1	7	4		1	2		10
Total Aliphatics	**30**	< 1	2.10	10	#N/A	0	<1	<1	2	1		<1	<1	1	7	4		1	2		10
Aro >C8-C10	**30**	< 1	1.07	2	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		2
Aro >C12-C16	**30**	< 1	1.00	1	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Aro >C16-C21	**30**	< 1	1.03	2	#N/A	0	<1	<1	<1	<1		<1	<1	<1	<1	<1		<1	<1		<1
Aro >C21-C35	**30**	< 1	2.70	19	#N/A	0	<1	<1	3	2		<1	<1	2	4	5		2	2		9
Total Aromatics	**30**	< 1	3.03	23	#N/A	0	<1	<1	3	2		<1	<1	2	4	5		2	3		11
TPH (Ali & Aro >C5-C35)	**30**	< 1	4.73	29	#N/A	0	<1	<1	5	5		<1	<1	3	11	9		3	5		22

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks

	WS103	WS103	TP401A	TP401A	TP402A	TP402A	TP402A	TP401A	BH009	BH009	BH009	BH010	BH010	WS107	WS107	WS108	WS108	WS109	WS109	BH005	BH006
Determinant	**1.00**	**3.00**	**0.50**	**1.00**	**0.50**	**1.00**	**2.00**	**2.00**	**0.50**	**1.00**	**2.00**	**0.50**	**0.90**	**0.50**	**0.80**	**0.20**	**1.20**	**0.20**	**0.80**	**0.50**	**0.20**
pH	8.01	8.46	7.63	9.65	6.89	8.21	8.32	7.6	7.51	7.91	8.86	7.62	7.96	6.8	6.88	6.8	6.96	6.15	6.63	7.64	6.24
Sulphate (water sol 2:1)	<0.01		<0.01		<0.01	<0.01		<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	<0.01	0.02	<0.01	<0.01
Organic matter	0.5	<0.1	0.3	0.2	0.3	0.3	<0.1	<0.1	0.6	0.2	<0.1	0.9	0.3	1.3	0.2	0.6	0.2	1.1	0.2	0.2	1.2
Arsenic	4		9		6	5		4	9		5	6	5	7	7	8	13	7	14	14	10
Cadmium	<0.5		<0.5		<0.5	<0.5		<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	0.7	<0.5	<0.5
Copper	<1		2		6	<1		3	5		2	3	2	8	3	4	8	3	4	4	4
Chromium	8		13		16	8		11	10		6	7	10	12	11	11	16	10	17	16	8
Lead	5		5		9	4		5	11		3	12	5	19	6	10	8	12	6	6	17
Mercury	<0.17		<0.17		<0.17	<0.17		<0.17	<0.17		<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	4		10		14	7		10	10		8	5	8	9	10	11	29	7	16	13	5
Selenium	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Zinc	8		24		30	16		21	31		15	20	16	49	36	35	65	36	53	38	91
Asbestos in soil	NAD		NAD		NAD	NAD		NAD	NAD		NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Indeno(123-cd)pyrene	<0.03		<0.03		<0.03	<0.03		<0.03	<0.03		<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Acenaphthene (leachable)														0.1				0.3			0.15
Acenaphthylene (leachable)														<0.02				0.48			<0.02
Anthracene (leachable)														0.04				0.1			0.03
Benzo(a)anthracene (leachable)														<0.02				<0.02			<0.02
Chrysene (leachable)														<0.02				<0.02			<0.02
Fluoranthene (leachable)														0.09				0.15			0.07
Fluorene (leachable)														0.12				0.34			0.12
Naphthalene (leachable)														0.05				0.43			0.17
Phenanthrene (leachable)														0.2				0.45			0.16
Pyrene (leachable)														0.06				0.1			0.05
Total PAH 16MS (leachable)														0.66				2.35			0.75
Ali >C21-C35	2		<1		3	<1		<1	<1		<1	3	<1	4	<1	1	<1	<1	<1	<1	6
Total Aliphatics	2		<1		3	<1		<1	<1		<1	3	<1	4	<1	1	<1	<1	<1	<1	6
Aro >C8-C10	<1		<1		<1	<1		<1	<1		<1	2	<1	<1	<1	<1	<1	<1	<1	<1	1
Aro >C12-C16	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Aro >C16-C21	<1		<1		<1	<1		<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2
Aro >C21-C35	2		<1		2	<1		<1	1		<1	4	<1	5	<1	2	<1	3	<1	<1	19
Total Aromatics	2		<1		3	<1		<1	1		<1	6	<1	5	<1	2	<1	3	<1	<1	23
TPH (Ali & Aro >C5-C35)	4		<1		6	<1		<1	1		<1	9	<1	9	<1	3	<1	4	<1	<1	29

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks

Determinant	BH006	BH013	BH019	BH110	BH110	BH110
	0.50	1	2	0.30	0.60	1.10
pH	4.95	7.95	8.2	8.47	8.84	8.97
Sulphate (water sol 2:1)	<0.01	0.02	0.02	<0.01	<0.01	<0.01
Organic matter	0.2	0.5	0.1	0.5	1.5	<0.1
Arsenic	7	5	3	4	13	8
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	<1	5	6	4	<1	3
Chromium	7	151	141	11	3	15
Lead	565	6	3	11	<1	4
Mercury	<0.17	<0.17	<0.17	<0.17	0.89	<0.17
Nickel	5	98	110	5	3	8
Selenium	<1	<1	<1	<1	<1	<1
Zinc	21	10	13	22	16	15
Asbestos in soil	NAD	NAD	NAD	NAD	NAD	NAD
Indeno(123-cd)pyrene	<0.03					
Acenaphthene (leachable)						
Acenaphthylene (leachable)						
Anthracene (leachable)						
Benzo(a)anthracene (leachable)						
Chrysene (leachable)						
Fluoranthene (leachable)						
Fluorene (leachable)						
Naphthalene (leachable)						
Phenanthrene (leachable)						
Pyrene (leachable)						
Total PAH 16MS (leachable)						
Ali >C21-C35	<1					
Total Aliphatics	<1					
Aro >C8-C10	<1					
Aro >C12-C16	<1					
Aro >C16-C21	<1					
Aro >C21-C35	<1					
Total Aromatics	<1					
TPH (Ali & Aro >C5-C35)	<1					

B(a)P-S.A. - Benzo(a)pyrene used as surrogate for nonvolatile PAH risks