Norwich Western Link

Environmental Statement

Chapter 13: Geology and Soils

Appendix 7: Foxburrow Stream Preliminary Contamination Assessment

Sub Appendix D: Screening Tables

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Contents

1 Introduction

1.1.1 WSP UK Ltd was commissioned by NCC to complete a interpretative assessment of soil and water samples following hand pitting along the banks of Foxburrow Stream for a proposed Water Framework Directive compensation area. 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: NWL Foxburrow Stream
Job Number: 70095892
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	SW1	SW2	SW3
pH	**3**	7.3	7.73	8	6.5<pH<9		0	7.3	8	7.9
Sulphate	**3**	34.1	44.93	54.7	400000		0	34.1	46	54.7
Boron	**3**	22	34.67	54	No GAC		0	54	22	28
Arsenic	**3**	0.54	0.59	0.67	No GAC		0	0.67	0.56	0.54
Cadmium	**3**	0.03	0.04	0.04	0.08		0	0.04	0.03	0.04
Chromium	**3**	0.4	0.40	0.4	3.4	Assumes Cr6	0	0.4	0.4	0.4
Copper	**3**	2.4	2.87	3.6	No GAC	worst-case bioavailabilty assumed	0	2.6	3.6	2.4
Nickel	**3**	0.5	1.67	3.6	4	worst-case bioavailabilty assumed	0	0.5	0.9	3.6
Zinc	**3**	4.6	5.40	6.9	11.9	worst-case bioavailabilty assumed	0	4.7	6.9	4.6
Ammonical Nitrogen as NH4	**3**	16	54.67	130	No GAC	#N/A	0	130	18	16

Leachate Analytical Results Screening Sheet

Site Name: NWL Foxburrow Stream
Job Number: 70095892
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	HD1 0.40	HD2 0.20	HD3 0.20	HD4 0.20	HD5 0.20	HD6 0.20	HD9 0.30	HD11 0.20
pH	**8**	5.9	6.35	6.5	6.5<pH<10		0	6.4	6.3	6.4	5.9	6.5	6.4	6.5	6.4
Sulphate	**8**	< 0	2050	3500	250000		0	2700	2000	1300	3500	1800	1500	2200	1400
Naphthalene	**8**	< 0.01	2.28125	9.9	No GAC		0	<0.01	<0.01	9.9	<0.01	1.7	6.6	<0.01	<0.01
Acenaphthylene	**8**	< 0.01	0.1725	0.99	No GAC		0	<0.01	<0.01	0.99	<0.01	<0.01	0.33	<0.01	<0.01
Fluorene	**8**	< 0.01	0.11375	0.48	No GAC		0	<0.01	<0.01	0.48	<0.01	<0.01	0.37	<0.01	<0.01
Phenanthrene	**8**	< 0.01	0.32625	1.3	No GAC		0	<0.01	<0.01	1	<0.01	0.26	1.3	<0.01	<0.01
Anthracene	**8**	< 0.01	0.05625	2	No GAC		0	<0.01	<0.01	0.18	<0.01	<0.01	0.21	<0.01	<0.01
Fluoranthene	**8**	< 0.01	0.12875	2	No GAC		0	<0.01	<0.01	0.27	<0.01	<0.01	0.7	<0.01	<0.01
Pyrene	**8**	< 0.01	0.09125	0.5	No GAC		0	<0.01	<0.01	0.17	<0.01	<0.01	0.5	<0.01	<0.01
Arsenic	**8**	< 1	1.4125	2.7	10		0	1.2	1.7	<1.0	1.7	<1.0	<1.0	2.7	<1.0
Barium	**8**	< 0	6.875	12	1300		0	8.7	9.4	12	6.7	2.6	3.6	6.2	5.8
Boron	**8**	< 10	12.25	16	2400		0	16	<10	11	14	13	<10	14	<10
Cadmium	**8**	< 0.08	0.09375	1	3		0	<0.08	<0.08	<0.08	0.19	<0.08	<0.08	<0.08	<0.08
Chromium	**8**	< 0	2.675	5.1	50	Assumes Cr6	0	2.9	3.1	5.1	3.3	0.7	1.6	2.6	2.1
Copper	**8**	< 0	71	100	2000		0	100	94	83	97	13	56	73	52
Lead	**8**	< 0	7.6375	14	10		**1**	6	**10**	5	4	6.5	7.9	7.7	**14**
Nickel	**8**	< 0	4.3875	7.9	20		0	5.2	5	7.9	6.5	3.1	0.8	3.8	2.8
Vanadium	**8**	< 0	9.4	17	100		0	15	9.3	7	17	6	7.4	5.6	7.9
Zinc	**8**	< 0	19.5875	31	No GAC		0	22	31	20	26	14	11	23	9.7
Naphthalene	**8**	< 0.01	2.28125	9.9	No GAC		0	<0.01	<0.01	9.9	<0.01	1.7	6.6	<0.01	<0.01
Acenaphthylene	**8**	< 0.01	0.1725	0.99	No GAC		0	<0.01	<0.01	0.99	<0.01	<0.01	0.33	<0.01	<0.01
Fluorene	**8**	< 0.01	0.11375	0.48	No GAC		0	<0.01	<0.01	0.48	<0.01	<0.01	0.37	<0.01	<0.01
Phenanthrene	**8**	< 0.01	0.32625	1.3	No GAC		0	<0.01	<0.01	1	<0.01	0.26	1.3	<0.01	<0.01
Anthracene	**8**	< 0.01	0.05625	2	No GAC		0	<0.01	<0.01	0.18	<0.01	<0.01	0.21	<0.01	<0.01
Fluoranthene	**8**	< 0.01	0.12875	2	No GAC		0	<0.01	<0.01	0.27	<0.01	<0.01	0.7	<0.01	<0.01
Pyrene	**8**	< 0.01	0.09125	0.5	No GAC		0	<0.01	<0.01	0.17	<0.01	<0.01	0.5	<0.01	<0.01
Ammoniacal Nitrogen as NH4	**8**	< 15	191.25	720	500		**1**	410	< 15	< 15	< 15	**720**	170	< 15	170

Leachate Analytical Results Screening Sheet

Site Name: NWL Foxburrow Stream
Job Number: 70095892
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	HD1 0.40	HD2 0.20	HD3 0.20	HD4 0.20	HD5 0.20	HD6 0.20	HD9 0.30	HD11 0.20
pH	8	5.9	6.35	6.5	6.5<pH<9		0	6.4	6.3	6.4	5.9	6.5	6.4	6.5	6.4
Sulphate	8	< 0	2050.00	3500	400000		0	2700	2000	1300	3500	1800	1500	2200	1400
Naphthalene	8	< 0.01	2.28	9.9	2		2	<0.01	<0.01	**9.9**	<0.01	1.7	**6.6**	<0.01	<0.01
Acenaphthylene	8	< 0.01	0.17	0.99	No GAC		0	<0.01	<0.01	0.99	<0.01	<0.01	0.33	<0.01	<0.01
Fluorene	8	< 0.01	0.11	0.48	No GAC		0	<0.01	<0.01	0.48	<0.01	<0.01	0.37	<0.01	<0.01
Phenanthrene	8	< 0.01	0.33	1.3	No GAC		0	<0.01	<0.01	1	<0.01	0.26	1.3	<0.01	<0.01
Anthracene	8	< 0.01	0.06	2	0.1		2	<0.01	<0.01	**0.18**	<0.01	<0.01	**0.21**	<0.01	<0.01
Fluoranthene	8	< 0.01	0.13	2	0.0063		2	<0.01	<0.01	**0.27**	<0.01	<0.01	**0.7**	<0.01	<0.01
Pyrene	8	< 0.01	0.09	0.5	No GAC		0	<0.01	<0.01	0.17	<0.01	<0.01	0.5	<0.01	<0.01
Arsenic	8	< 1	1.41	2.7	50		0	1.2	1.7	<1.0	1.7	<1.0	<1.0	2.7	<1.0
Barium	8	< 0	6.88	12	No GAC		0	8.7	9.4	12	6.7	2.6	3.6	6.2	5.8
Boron	8	< 10	12.25	16	2000		0	16	<10	11	14	13	<10	14	<10
Cadmium	8	< 0.08	0.09	1	0.08		1	<0.08	<0.08	<0.08	**0.19**	<0.08	<0.08	<0.08	<0.08
Chromium	8	< 0	2.68	5.1	3.4	Assumes Cr6	1	2.9	3.1	**5.1**	3.3	0.7	1.6	2.6	2.1
Copper	8	< 0	71.00	100	1	worst-case bioavailabilty assumed	8	**100**	**94**	**83**	**97**	**13**	**56**	**73**	**52**
Lead	8	< 0	7.64	14	1.2	worst-case bioavailabilty assumed	8	**6**	**10**	**5**	**4**	**6.5**	**7.9**	**7.7**	**14**
Nickel	8	< 0	4.39	7.9	4	worst-case bioavailabilty assumed	4	**5.2**	**5**	**7.9**	**6.5**	3.1	0.8	3.8	2.8
Vanadium	8	< 0	9.40	17	20		0	15	9.3	7	17	6	7.4	5.6	7.9
Zinc	8	< 0	19.59	31	11.9	worst-case bioavailabilty assumed	6	**22**	**31**	**20**	**26**	**14**	11	**23**	9.7
Naphthalene	8	< 0.01	2.28	9.9	2		2	<0.01	<0.01	**9.9**	<0.01	1.7	**6.6**	<0.01	<0.01
Acenaphthylene	8	< 0.01	0.17	0.99	No GAC		0	<0.01	<0.01	0.99	<0.01	<0.01	0.33	<0.01	<0.01
Fluorene	8	< 0.01	0.11	0.48	No GAC		0	<0.01	<0.01	0.48	<0.01	<0.01	0.37	<0.01	<0.01
Phenanthrene	8	< 0.01	0.33	1.3	No GAC		0	<0.01	<0.01	1	<0.01	0.26	1.3	<0.01	<0.01
Anthracene	8	< 0.01	0.06	2	0.1		2	<0.01	<0.01	**0.18**	<0.01	<0.01	**0.21**	<0.01	<0.01
Fluoranthene	8	< 0.01	0.13	2	0.0063		2	<0.01	<0.01	**0.27**	<0.01	<0.01	**0.7**	<0.01	<0.01
Pyrene	8	< 0.01	0.09	0.5	No GAC		0	<0.01	<0.01	0.17	<0.01	<0.01	0.5	<0.01	<0.01
Ammoniacal Nitrogen as NH4	8	< 15	191.25	720	No GAC		0	410	< 15	< 15	< 15	720	170	< 15	170