

Table 14: Summary of predicted settlements for a range of structures

Structure	Footing size [m]	Reference borehole	Founding stratum	Bearing pressure [kPa]	Founding depth below (-) or above (+)		Predicted settlement [mm]		Acceptable (y/n)	Reference plot	Possible alternate founding solutions	
					NGL	terrace*					piling	deep foundations
					[m]	[m]	total	differential				
turbines	20 x 35 raft	bh 22	sr Dwyka tillite	600	-9.21	-1.00	12.6	<6	n	Figure 8.7a	-	X
			mhr Dwyka shale		-10.21	-2.00	6.2	<3	y	Figure 8.7a-2	-	-
		BH37	vsr Dwyka shale with ~2% residual material		-8.40	-1.00	15.9	<8	n	Figure 8.7b	-	X
			sr Dwyka shale		-10.90	-3.50	4.6	<2.5	y	Figure 8.7b-2	-	-
		BH38	sr Dwyka tillite with ~8% residual material		-6.88	-1.50	11.2	<6	n	Figure 8.7d	-	X
			mhr Dwyka tillite		-8.88	-3.50	1.8	<1	y	Figure 8.7d-2	-	-
		BH39	mh-hr Rayton shale		-2.46	-1.00	4.6	<2	y	Figure 8.7c	-	-
generator transformers	5 x 5	BH45	s/r Dwyka shale	600	-7.88	-1.00	12.4	<6	y	Figure 8.1a	-	-
		BH44	s-mhr Dwyka tillite		-8.51	-1.00	20.2	<10	y	Figure 8.1b	-	-
		BH49	4m thick rock mattress		3.69	-1.00	-	-	n'	-	X	-
turbine hall / auxiliary bay	3 x 3	bh 32	vsr Dwyka tillite	1,000	-6.57	-1.00	19.3	<10	y	Figure 8.3d	-	X
			sr Dwyka tillite		-8.07	-2.50	2.5	<1	y	Figure 8.3d-2	-	-
		BH37	vsr Dwyka shale		-8.40	-1.00	22.7	<11	y	Figure 8.3a	-	-
		BH39	mhr Rayton shale		-2.46	-1.00	3.3	<2	y	Figure 8.3b	-	-
		BH40	mh-hr Rayton shale		-0.50	-2.50	2.0	<1	y	Figure 8.3c	-	-

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					NGL	terrace*					piling	deep foundations
					[m]	[m]	total	differential				
boilers	20 x 20 raft	bh 48	1.6m thick rock mattress	300	0.62	-1.00	26.4	<13	n	Figure 8.4a	-	X
			sr Rayton shale		-0.40	-2.20	19.1	<10	y	Figure 8.4a-2	-	-
		BH30	vsr Dwyka shale with 1m of residuum		-10.25	-1.00	53.0	<26	n	Figure 8.4c	X	X
		BH32	vsr Rayton shale		-5.83	-1.00	3.2	<2	y	Figure 8.4f	-	-
	3 x 3 raft	bh 48	sr Rayton shale	800	-0.40	-2.20	18.3	<10	y	Figure 8.4b	-	-
			vsr Dwyka shale with 1m of residuum		-10.25	-1.00	66.7	<33	n	Figure 8.4d	X	X
		BH30	vsr Dwyka shale with 1m of residuum		-10.25	-1.00	66.7	<33	n	Figure 8.4d	X	X
		BH32	vsr Rayton shale		-5.83	-1.00	4.4	<2	y	Figure 8.4e	-	-
air-cooled condensers	7 x 7 raft	bh 45	mhr Dwyka tillite	600	-6.46	-1.50	2.4	<1	y	Figure 8.2a	-	-
		bh 46	sr Rayton shale		-6.10	-1.70	4.7	<2	y	Figure 8.2b	-	-
chimneys	28 x 28 raft	BH14	sr Rayton shale	1,000	-2.10	-7.50	16.1	<8	y	Figure 8.6a	X	X
		BH11	mhr Dwyka siltstone		-16.80	n/a	-	-	n"	-	X	-
		BH12	mhr Dwyka siltstone		-15.90	-7.39	-	-	n"	-	X	-
demineralized water tanks	35 diameter raft	BH50	2.5m thick rock mattress	300	-4.09	-1.00	94.8	<50	n	Figure 8.5a	X	-

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					NGL	terrace*	total	differential			piling	deep foundations
					[m]	[m]						
water treatment plant	10 x 10	bh 29	4m thick rock mattress / thick regolith	300	-4.54	-1.00	85.8	<40	n	Figure 8.11a	X	-
waste water treatment plant	20 x 20	BH64	thin terrace material / regolith	300	-0.30	-1.00	103.1	<50	n	Figure 8.8a	X	X
auxiliary cooling plants	16 x 16	BH42	4m thick rock mattress	300	8.29	-1.00	179.9	<80	n	Figure 8.10a	X	-
		BH43	4m thick rock mattress		-6.87	-1.00	20.5	<10	y	Figure 8.10d	-	-
	20 x 20	BH42	4m thick rock mattress	200	8.29	-1.00	142.4	<70	n	Figure 8.10b	X	-
		BH43	4m thick rock mattress		-6.87	-1.00	10.7	<5	y	Figure 8.10e	-	-
	22 x 22	BH42	4m thick rock mattress	160	8.29	-1.00	116.8	<60	n	Figure 8.10c	X	-
		BH43	4m thick rock mattress		-6.87	-1.00	6.7	<3	y	Figure 8.10f	-	-
fly ash conditioning plant	16 diameter raft	bh 28	4m thick rock mattress overlying thick terrace material	400	11.41	-1.00	605.9	<300	n	Figure 8.9a	X	-
	20 diameter raft	bh 28		260	11.41	-1.00	487.7	<250	n	Figure 8.9b	X	-

Notes: vsr - very soft rock; sr - soft rock; mhr - moderate hard rock s-mhr - soft to moderate hard rock; hr - hard rock; NGL - natural ground level; * - terrace level: 1502.8mamsl; ' - founding pressure exceeds allowable bearing capacity for rock mattress; " - open excavation would be excessively deep.