Appendix 1 - Analytical Data for Selected Soils Profiles

Horizon	Depth of sample	Field texture	Gravel	Particle size distribution: Coarse sand	Fine sand	Silt	Clay	1:5 Soil water suspension: pH	$EC_{25°C}$	Cl^-	Org.C	Total N	1.3 C/N	Free Fe_2O_3	P (available)	K (available)	HCl extract: P	K	Exchangeable cations: Milliequivalents/100g: Ca	Mg	K	Na	CEC	% of CEC: Ca	Mg	K	Na	H
	cm		%	%	%	%	%		µS/cm	%	%	%		%	ppm	ppm	%	%						%	%	%	%	%
STONY RED DUPLEX SOIL, PROFILE 612																												
A	0-10	Loam	20	2	29	23	36	5.4	150	0.004	3.8	0.38	13	-	11	760	0.044	0.34	4.3	2.1	3.6	0.4	36.1	12	6	10	1	71
B1	10-20	Light clay	20	2	20	11	65	5.8	110	0.003	2.3	0.22	14	-	4	660	0.036	0.44	11.9	5.8	3.1	0.4	50.9	23	11	6	1	59
B1	20-30	Light clay	24	1	10	9	78	6.0	120	0.005	-	-	-	-	-	-	0.031	0.55	-	-	-	-	-	-	-	-	-	-
B2	40-50	Clay	57	1	9	10	75	6.7	220	0.013	-	-	-	-	-	-	-	-	26.4	16.8	2.3	1.2	56.4	47	30	4	2	17
RED CALCAREOUS SODIC DUPLEX SOIL, COARSE STRUCTURE, PROFILE 622																												
A1	0-10	Loam	6	18	40	14	23	5.7	74	0.002	1.7	0.18	12	-	11	360	0.073	0.30	3.1	2.7	1.7	0.3	20.8	15	13	8	2	62
A1	10-20	Loam	9	10	38	20	28	5.8	58	0.002	1.1	0.12	12	-	7	180	0.044	0.33	-	-	-	-	-	-	-	-	-	-
A2	20-30	Clay loam	14	6	33	18	41	6.1	68	0.003	-	-	-	-	-	-	0.039	0.42	2.4	2.9	1.2	1.4	24.5	10	12	5	6	67
B	50-60	Medium clay	10	1	6	1	89	6.9	150	0.009	-	-	-	-	-	-	-	-	4.6	8.7	2.9	5.8	41.7	11	21	7	14	47
B/C	80-90	Gravelly medium	38	5	17	10	62	8.8	660	0.019	-	-	-	-	-	-	-	-	7.6	16.0	3.4	9.4	42.0	18	38	8	22	14
MOTTLED YELLOW, GREY SODIC DUPLEX SOIL, COARSE STRUCTURE, PROFILE 635 MOUND OF GILGAI																												
A1	0-13	Clay	3	3	49	32	16	5.3	82	0.008	2.2	0.17	17	1.5	18	80	0.012	0.06	3.7	2.3	0.2	0.4	10.6	35	22	2	4	37
A2	13-20	Loam	10	5	52	23	17	5.5	66	0.005	1.2	0.08	19	-	11	30	0.007	0.06	2.2	2.8	0.1	0.7	9.3	24	29	1	8	38
A2	20-30	Clay loam	5	4	42	20	30	5.5	115	0.011	1.0	0.08	17	2.7	9	40	0.006	0.10	3.2	6.1	0.2	2.0	15.8	20	39	1	13	27
B1	50-60	Clay	2	2	31	18	47	6.2	340	0.042	-	-	-	2.6	8	50	0.005	0.15	4.3	13.1	0.2	5.2	23.8	18	55	1	22	4
B2	80-90	Heavy clay	1	1	29	20	47	7.0	410	0.068	-	-	-	2.1	3	50	0.005	0.14	4.4	13.2	0.2	6.9	27.0	16	49	1	26	8
B2	110-120	Heavy clay	0	1	33	21	42	7.3	410	0.062	-	-	-	-	5	40	0.004	0.09	4.2	13.1	0.2	8.0	26.0	16	50	1	31	2
B2	140-150	Heavy clay	0	1	39	19	38	7.4	330	0.053	-	-	-	1.4	4	40	0.003	0.07	3.7	11.1	0.1	6.5	23.2	16	48	<1	28	8
C	170-180	Clay	0	1	43	18	37	7.5	400	0.052	-	-	-	1.2	4	50	0.003	0.07	3.8	11.3	0.1	6.6	21.8	17	52	1	30	0
MOTTLED YELLOW, GREY SODIC DUPLEX SOIL, COARSE STRUCTURE, PROFILE 636 DEPRESSION OF GILGAI																												
A	0-10	Loam	4	8	44	28	18	5.2	265	0.028	2.0	0.14	19	1.5	17	120	0.011	0.08	3.6	3.2	0.3	0.6	13.5	27	24	2	4	43
B1	10-20	Loam	2	5	38	25	33	5.2	320	0.034	1.2	0.08	19	2.2	8	90	0.007	0.11	4.0	6.3	0.2	1.7	17.1	23	37	1	10	29
B1	20-30	Clay	1	3	34	21	41	5.5	320	0.039	1.1	0.08	18	2.4	6	60	0.006	0.13	4.5	10.2	0.2	3.0	23.7	19	43	1	13	24
B2	50-60	Heavy clay	1	1	33	20	45	5.6	470	0.055	-	-	-	2.0	5	50	0.005	0.14	5.2	13.2	0.2	5.6	25.1	21	53	1	22	3
B2	80-90	Heavy clay	2	1	18	19	56	7.5	690	0.081	-	-	-	-	3	60	0.005	0.17	6.9	18.1	0.3	8.2	33.5	21	54	1	24	0
B2	110-120	Heavy clay	1	1	33	20	45	7.6	480	0.070	-	-	-	1.8	4	60	0.003	0.11	5.1	14.8	0.2	7.2	27.3	19	54	1	26	0
B2	130-140	Heavy clay	0	1	36	21	42	7.6	500	0.061	-	-	-	1.7	3	50	0.003	0.08	5.1	13.9	0.1	6.6	25.7	20	54	<1	26	0
MOTTLED YELLOW, BROWN SODIC DUPLEX SOIL, COARSE STRUCTURE, PROFILE 659																												
A1	0-10	Coarse sandy loam	8	46	30	11	10	4.9	120	0.003	1.9	0.05	16	-	10	60	0.010	0.10	1.7	1.2	0.3	0.2	11.4	15	11	3	2	69
A2	10-20	Coarse sandy loam	9	47	32	12	9	5.3	47	0.002	0.8	0.07	15	-	8	40	0.006	0.07	1.1	0.9	0.2	0.1	6.9	16	13	3	1	67
A2	20-30	Coarse sandy loam	10	50	32	12	6	5.6	31	0.001	-	-	-	-	-	-	0.005	0.06	-	-	-	-	-	-	-	-	-	-
B1	50-60	Sandy clay	13	24	22	7	47	6.5	140	0.005	-	-	-	-	-	-	-	-	2.9	8.5	0.9	3.3	24.3	12	35	4	14	35
B2	80-90	Sandy clay	22	31	21	9	36	7.3	170	0.006	-	-	-	-	-	-	-	-	2.5	8.6	0.8	3.6	20.6	12	42	4	17	25
B2	110-120	Sandy clay	20	30	19	7	42	7.6	210	0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RED DUPLEX SOIL, PROFILE 823																												
A	0-10	Clay loam	21	13	26	33	18	5.7	54	0.002	4.0	0.32	16	-	10	90	0.093	0.13	7.9	3.1	0.4	0.03	36.1	22	9	1	<1	68
B	10-20	Clay	22	15	24	33	22	5.9	41	0.002	1.9	0.18	14	-	8	40	0.10	0.13	7.5	2.5	0.3	0.05	32.1	23	8	1	<1	68
B	20-30	Clay	30	14	27	31	25	5.8	41	0.002	-	-	-	-	-	-	0.096	0.14	-	-	-	-	-	-	-	-	-	-
B/C	50-60	Gravelly clay	57	13	20	24	41	5.9	46	0.002	-	-	-	-	-	-	-	-	4.0	1.5	0.2	0.09	19.4	21	8	1	<1	70
MOTTLED RED SODIC DUPLEX SOIL, FINE STRUCTURE, PROFILE 630																												
A1	0-10	Gravelly loam	35	10	44	19	18	4.5	140	0.004	9.3	0.60	20	-	22	140	0.031	0.07	2.1	1.7	0.6	0.2	46.1	5	4	1	1	90
A1	10-20	Gravelly loam	37	8	47	22	19	4.5	96	0.006	3.5	0.20	23	-	11	70	0.020	0.04	-	-	-	-	-	-	-	-	-	-
A2	20-30	Gravelly loam	56	9	47	23	19	4.9	62	0.003	-	-	-	-	-	-	0.022	0.06	0.3	0.7	0.3	0.3	19.4	1	4	1	2	92
A2	50-60	Gravelly clay loam	61	8	47	25	19	5.9	49	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	80-90	Medium clay	44	3	10	6	79	5.2	250	0.032	-	-	-	-	-	-	-	-	0.1	8.7	0.3	2.0	27.2	<1	32	1	7	60
B/C	110-120	Medium clay	50	8	16	11	62	4.6	360	0.048	-	-	-	-	-	-	-	-	0.2	5.5	0.2	2.1	24.0	1	23	1	9	66
BLACK CLAY SOIL, UNIFORM TEXTURE, COARSE STRUCTURE, PROFILE 825																												
A	0-10	Heavy clay	16	1	25	16	55	6.1	72	0.003	1.7	0.13	17	-	10	-	0.016	0.19	12.8	18.2	0.5	1.2	32.7	27	38	1	3	31
A	10-20	Heavy clay	-	1	25	16	55	6.2	91	0.003	1.7	0.13	17	-	10	-	0.016	0.20	-	-	-	-	-	-	-	-	-	-
A	20-30	Heavy clay	-	2	25	16	56	6.5	95	0.003	-	-	-	-	-	-	0.012	0.19	14.2	21.8	0.4	2.1	38.5	28	44	1	4	23
A	50-60	Heavy clay	-	1	24	16	58	6.9	150	0.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREY CALCAREOUS SODIC CLAY SOIL, UNIFORM TEXTURE, COARSE STRUCTURE, PROFILE 653																												
AO	1-0	Decomposed leaf litter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1	0-10	Medium clay	3	2	22	30	43	5.3	170	0.003	1.8	0.19	12	-	88	520	0.058	0.64	5.0	4.3	2.5	0.8	12.6	16	14	8	3	59
B1	10-20	Medium clay	3	1	16	12	68	6.4	120	0.002	0.69	0.10	9	-	12	580	0.027	0.89	-	-	-	-	-	-	-	-	-	-
B1	20-30	Medium clay	3	1	15	10	72	7.2	130	0.003	-	-	-	-	-	-	0.021	1.02	9.3	12.0	3.8	3.8	28.9	23	30	9	9	29
B1	50-60	Medium clay	3	<1	7	3	84	8.2	540	0.036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1	80-90	Medium clay	4	<1	5	2	89	8.0	1600	0.149	-	-	-	-	-	-	-	-	9.9	19.6	6.0	9.2	44.7	20	40	12	19	9
RED GRADATIONAL SOIL, WEAK STRUCTURE, PROFILE 624																												
A	0-10	Clay loam	14	3	31	47	15	5.5	60	0.002	3.0	0.25	16	-	62	140	0.11	0.14	4.6	1.7	0.7	0.2	38.0	12	4	2	1	81
A	10-20	Clay loam	10	3	30	47	17	5.4	34	0.001	1.5	0.14	14	-	44	80	0.10	0.14	-	-	-	-	-	-	-	-	-	-
A	20-30	Clay loam	5	3	33	50	14	5.5	30	0.001	-	-	-	-	-	-	0.10	0.15	-	-	-	-	-	-	-	-	-	-
B	50-60	Light clay	12	3	29	38	30	6.0	35	0.001	-	-	-	-	-	-	-	-	4.5	2.9	1.0	0.2	18.6	24	16	5	1	54
B/C	80-90	Gravelly clay	55	6	30	39	23	6.2	41	0.003	-	-	-	-	-	-	-	-	5.9	5.9	2.4	0.3	25.1	24	24	10	1	41
B/C	110-120	Gravelly clay	40	5	30	43	20	6.2	42	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHALLOW STONY RED GRADATIONAL SOIL, PROFILE 632																												
A1	0-10	Gravelly loam	69	17	28	29	11	5.7	170	0.026	14	0.72	25	5.4	23	220	0.056	0.13	9.9	3.6	0.6	0.4	28.4	35	13	2	1	49
A2	10-20	Gravelly loam	53	16	30	32	14	5.9	115	0.019	8.4	0.46	24	6.4	15	240	0.046	0.13	8.8	4.0	0.7	0.7	26.3	33	15	3	3	46
A2	20-30	Gravelly loam	50	13	30	31	19	6.0	93	0.014	4.6	0.27	22	7.0	12	220	0.040	0.13	8.2	4.7	0.6	1.0	22.7	36	21	3	4	36
B	50-60	Gravelly clay	65	-	-	-	-	6.0	130	0.013	-	-	-	-	-	-	-	-	5.9	7.9	0.3	1.5	22.6	26	35	1	7	31
RED GRADATIONAL SOIL, FINE STRUCTURE, PROFILE 840																												
A	0-10	Loam	25	<0.1	28	29	31	4.7	73	0.003	5.3	0.25	28	-	7	320	0.015	0.16	0.3	0.6	1.5	0.1	46.6	1	1	3	<1	95
B1	10-20	Loam	29	<0.1	28	24	43	5.0	50	0.003	2.2	0.11	26	-	3	240	0.012	0.17	-	-	-	-	-	-	-	-	-	-
B1	20-30	Clay loam	23	<0.1	27	23	45	4.8	59	0.004	-	-	-	-	-	-	0.011	0.15	0.4	0.6	1.0	0.2	30.9	1	2	3	<1	94
B2	50-60	Clay loam	25	<0.1	23	19	55	5.3	32	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2	80-90	Clay	34	<0.1	17	12	67	5.3	27	0.002	-	-	-	-	-	-	-	-	0.08	1.7	0.4	0.3	26.0	<1	7	2	1	90
B2	110-120	Clay	32	<0.1	18	15	64	5.1	33	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SHALLOW STONY GRADATIONAL SOIL, PROFILE 814																												
A	0–10	Loam	41	7	35	30	22	4.6	37	0.002	2.5	0.009	33	–	7	160	0.009	0.17	0.1	0.3	0.6	0.2	25.0	<1	1	2	1	96
B1	10–20	Medium clay	39	5	30	28	36	4.8	36	0.002	1.0	0.065	20	–	4	140	0.009	0.10	0.1	0.3	0.6	0.2	13.2	1	2	4	1	92
B1	20–30	Medium clay	39	3	22	30	41	4.9	35	0.002	–	–	–	–	–	–	0.009	0.30	–	–	–	–	–	–	–	–	–	–
B/C	50–60	Clay	29	3	27	26	44	5.3	22	0.002	–	–	–	–	–	–	–	–	0.05	0.8	0.5	0.2	10.1	<1	8	4	1	87
B/C	80–90	Clay	33	2	34	28	36	5.5	20	0.003	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MOTTLED YELLOW, BROWN GRADATIONAL SOIL, FINE STRUCTURE, PROFILE 815																												
A1	0–10	Light clay	28	2	24	34	33	5.3	77	0.004	8.0	0.45	23	–	13	320	0.027	0.36	0.7	1.4	1.5	0.4	61.4	1	2	2	1	94
A1	10–20	Light clay	34	2	17	29	47	5.2	38	0.002	3.3	0.20	21	–	12	220	0.015	0.30	–	–	–	–	–	–	–	–	–	–
A2	20–30	Clay	35	3	22	35	39	5.2	33	0.002	–	–	–	–	–	–	0.012	0.32	0.01	0.5	1.1	0.2	32.5	<1	2	3	1	94
B1	50–60	Clay	35	3	28	29	39	5.3	26	0.002	–	–	–	–	–	–	–	–	0.02	1.0	0.6	0.2	15.1	<1	6	4	2	88
B2	80–90	Medium clay	35	2	28	22	46	5.3	32	0.002	–	–	–	–	–	–	–	–	0.01	2.3	0.8	0.4	16.7	<1	14	5	2	79
B2	110–120	Medium clay	44	4	31	21	44	5.3	30	0.002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MOTTLED YELLOW, BROWN GRADATIONAL SOIL, FINE STRUCTURE, PROFILE 613																												
A1	0–10	Loam	9	4	45	22	22	5.2	87	0.004	2.7	0.22	16	–	17	120	0.021	0.22	2.0	3.5	0.5	0.3	16.5	12	21	3	2	62
A1	10–20	Loam	4	<1	35	35	26	4.9	120	0.009	1.6	0.12	17	–	5	40	0.011	0.22	–	–	–	–	–	–	–	–	–	–
A2	20–30	Clay laom	7	<1	32	41	25	5.1	110	0.009	–	–	–	–	–	–	0.009	0.25	0.7	2.6	0.2	0.6	14.4	5	18	1	4	72
B	50–60	Light clay	10	<1	34	35	29	5.2	91	0.008	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B	80–90	Light clay	16	1	33	31	33	5.0	100	0.008	–	–	–	–	–	–	–	–	0.5	3.6	0.2	0.7	13.7	4	26	1	5	64
B	110–120	Light clay	6	<1	29	26	38	4.8	230	0.024	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MOTTLED BROWN CALCAREOUS SODIC GRADATIONAL SOIL, COARSE STRUCTURE, PROFILE 645																												
A	0–10	Light clay	7	15	44	12	23	6.3	98	0.003	2.1	0.17	16	–	11	120	0.015	0.10	9.4	10.5	0.5	0.4	26.9	35	39	2	1	23
A	10–20	Light clay	3	11	49	13	25	7.1	87	0.001	1.2	0.11	14	–	5	100	0.009	0.10	–	–	–	–	–	–	–	–	–	–
A	20–30	Light clay	3	6	50	18	26	7.3	96	0.002	–	–	–	–	–	–	0.010	0.10	–	–	–	–	–	–	–	–	–	–
B1	50–60	Clay	4	5	42	12	37	8.2	37	0.036	–	–	–	–	–	–	–	–	7.2	21.1	0.5	3.7	34.5	21	61	1	11	6
B2	80–90	Medium clay	5	4	43	13	37	9.0	51	0.038	–	–	–	–	–	–	–	–	4.6	21.8	0.4	4.8	32.7	14	67	1	15	3
B/C	110–120	Heavy clay	11	<1	8	2	83	8.4	2100	0.0222	–	–	–	–	–	–	–	–	10.4	21.4	6.0	9.5	48.9	21	44	12	19	4