

ESSA

**ESSA Pty Ltd /EAL NATA (ASPAC certified)**

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References: I2733

Sheet 1 of 4

Date Received: 13/06/2019

Date Completed: 14/07/2019

**FINAL REPORT**

**Project:**

Project -Saraji East (18SRE) No 1

All results in this report relate only to the items tested. Results are expressed on an "as received basis".

Client Name: GT Environmental

Contact: Mr Reece Mc Cann

Sample Type: Soil

Number of samples: 145

Soil Analysis Report  
Batch Numbers: I2733Date Received: 13/06/2019  
Date Completed:14/07/2019

Client: GTE SARAJI- Results Page 1 of 2

ESSA Ref	field ref	Soil pH	Soil EC	Soil Cl	Exch.Ca	Exch. Mg	Exch.K	Exch. Na	CEC	ESP	Ca/Mg
	depth (m)		dS/m	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%Na/CEC	Ratio
i2733/1	6-SCL-0.0-0.1	7.88	0.191	22	24.22	10.38	1.85	0.21	36.65	0.6	2.3
i2733/2	6-SCL-0.2-0.3	8.43	0.264	117	19.94	11.38	1.30	1.47	34.09	4.3	1.8
i2733/3	6-SCL-0.5-0.6	8.61	0.694	626	15.46	14.40	0.75	4.09	34.70	11.8	1.1
i2733/4	6-SCL-0.8-0.9	8.55	1.005	1042	15.16	15.83	0.53	5.76	37.27	15.5	1.0
i2733/5	6-SCL-0.9-1.0	8.72	0.904	917	11.77	12.31	0.43	4.40	28.91	15.2	1.0
i2733/6	7-SCL-0.0-0.1	7.47	0.182	10	19.92	6.20	1.29	0.13	27.53	0.5	3.2
i2733/7	7-SCL-0.2-0.3	9.05	0.173	29	18.59	5.80	1.25	0.12	25.76	0.5	3.2
i2733/8	7-SCL-0.5-0.6	9.18	0.361	232	16.24	12.83	0.53	2.85	32.45	8.8	1.3
i2733/9	7-SCL-0.8-0.9	9.16	0.454	354	14.01	14.53	0.40	5.36	34.30	15.6	1.0
i2733/10	7-SCL-0.9-1.0	9.16	0.494	417	11.29	11.48	0.35	4.39	27.51	16.0	1.0
i2733/11	100-SCL-0.0-	7.92	0.088	8	19.29	9.13	0.55	0.22	29.18	0.8	2.1
i2733/12	100-SCL-0.2-	8.44	0.105	57	22.50	8.89	0.34	1.59	33.32	4.8	2.5
i2733/13	100-SCL-0.5-	8.60	0.258	244	21.83	12.10	0.28	3.81	38.02	10.0	1.8
i2733/14	100-SCL-0.8-	8.53	0.456	467	19.82	12.99	0.27	4.34	37.41	11.6	1.5
i2733/15	100-SCL-0.9-	8.63	0.467	449	19.89	12.62	0.25	3.86	36.61	10.5	1.6
i2733/16	102-SCL-D-0.0-0.1	7.56	0.050	24	..	..	..	..	..	..	..
i2733/17	102-SCL-D-0.2-0.3	8.19	0.086	32	..	..	..	..	..	..	..
i2733/18	102-SCL-D-0.5-0.6	8.80	0.212	95	..	..	..	..	..	..	..
i2733/19	102-SCL-D-0.8-0.9	8.74	0.309	230	..	..	..	..	..	..	..
i2733/20	102-SCL-D-0.9-1.0	8.54	0.447	426	..	..	..	..	..	..	..
i2733/21	102-SCL-M-0.0-0.1	7.33	0.042	10	..	..	..	..	..	..	..
i2733/22	102-SCL-M-0.2-0.3	8.23	0.058	16	..	..	..	..	..	..	..
i2733/23	102-SCL-M-0.5-0.6	8.81	0.149	23	..	..	..	..	..	..	..
i2733/24	102-SCL-M-0.83-0.9	8.98	0.215	74	..	..	..	..	..	..	..
i2733/25	102-SCL-M-0.9-1.0	8.92	0.266	151	..	..	..	..	..	..	..
i2733/26	103-SCL-D-0.0-0.1	7.11	0.074	11	..	..	..	..	..	..	..
i2733/27	103-SCL-D-0.2-0.3	7.90	0.086	53	..	..	..	..	..	..	..
i2733/28	103-SCL-D-0.5-0.6	7.80	0.359	463	..	..	..	..	..	..	..
i2733/29	103-SCL-D-0.8-0.9	6.99	0.634	818	..	..	..	..	..	..	..
i2733/30	103-SCL-D-0.9-1.0	6.28	0.621	821	..	..	..	..	..	..	..
i2733/31	103-SCL-M-0.0-0.1	8.65	0.107	11	..	..	..	..	..	..	..
i2733/32	103-SCL-M-0.2-0.3	8.36	0.131	78	..	..	..	..	..	..	..
i2733/33	103-SCL-M-0.5-0.6	9.20	0.296	174	..	..	..	..	..	..	..
i2733/34	103-SCL-M-0.8-0.9	9.15	0.540	485	..	..	..	..	..	..	..
i2733/35	103-SCL-M-0.9-1.0	9.09	0.656	665	..	..	..	..	..	..	..
i2733/36	5-SCL-M-0.0-0.1	8.19	0.117	15	..	..	..	..	..	..	..
i2733/37	5-SCL-M-0.2-0.3	8.38	0.120	17	..	..	..	..	..	..	..
i2733/38	5-SCL-M-0.5-0.6	8.40	0.124	16	..	..	..	..	..	..	..
i2733/39	5-SCL-M-0.8-0.9	8.53	0.146	19	..	..	..	..	..	..	..
i2733/40	5-SCL-M-0.9-1.0	8.55	0.165	39	..	..	..	..	..	..	..
i2733/41	5-SCL-D-0.0-0.1	7.33	0.077	11	..	..	..	..	..	..	..
i2733/42	5-SCL-D-0.2-0.3	7.58	0.058	15	..	..	..	..	..	..	..
i2733/43	5-SCL-D-0.5-0.6	7.89	0.061	45	..	..	..	..	..	..	..
i2733/44	5-SCL-D-0.8-0.9	8.20	0.183	143	..	..	..	..	..	..	..
i2733/45	5-SCL-D-0.9-1.0	8.30	0.244	215	..	..	..	..	..	..	..
i2733/46	N23-0.0-0.1	8.33	0.135	20	22.33	4.79	0.49	0.06	27.67	0.2	4.7
i2733/47	N23-0.2-0.3	8.71	0.111	27	17.17	7.49	0.21	0.16	25.03	0.7	2.3

i2733/48	N23-0.5-0.6	9.31	0.220	42	8.48	13.01	0.14	1.87	23.49	7.9	0.7
i2733/49	N23-0.8-0.9	9.46	0.415	225	6.60	15.76	0.17	4.31	26.84	16.0	0.4
i2733/50	N23-0.9-1.0	9.50	0.615	440	5.24	15.84	0.11	5.40	26.59	20.3	0.3
i2733/51	N24-0.0-0.1	8.59	0.099	18	21.39	5.64	0.32	0.12	27.47	0.4	3.8
i2733/52	N24-0.2-0.3	8.98	0.143	21	14.26	10.19	0.18	0.85	25.47	3.3	1.4
i2733/53	N24-0.5-0.6	9.45	0.280	122	7.95	13.82	0.15	3.18	25.09	12.7	0.6
i2733/54	N24-0.8-0.9	9.49	0.476	284	6.56	16.21	0.20	4.91	27.88	17.6	0.4
i2733/55	N24-0.9-1.0	9.48	0.594	445	6.24	16.83	0.13	5.59	28.79	19.4	0.4
i2733/56	N25-0.0-0.1	8.36	0.123	22	26.83	7.20	0.51	0.19	34.74	0.6	3.7
i2733/57	N25-0.22-0.3	9.11	0.240	108	19.44	19.10	0.17	3.36	42.08	8.0	1.0
i2733/58	N25-0.5-0.6	9.33	0.438	317	12.65	20.50	0.20	5.82	39.17	14.9	0.6
i2733/59	N25-0.8-0.9	9.30	0.614	563	8.57	16.90	0.17	5.41	31.05	17.4	0.5
i2733/60	N25-0.9-1.0	9.23	0.798	792	8.51	18.25	0.26	6.09	33.12	18.4	0.5
i2733/61	N27-0.0-0.1	8.27	0.106	15	17.10	3.65	0.47	0.06	21.28	0.3	4.7
i2733/62	N27-0.2-0.3	8.54	0.109	28	12.18	6.85	0.36	0.80	20.20	4.0	1.8
i2733/63	N27-0.5-0.6	9.10	0.324	230	13.68	13.63	0.23	4.34	31.88	13.6	1.0
i2733/64	N27-0.8-0.9	9.02	0.483	393	13.00	13.54	0.23	4.90	31.67	15.5	1.0
i2733/65	N27-0.9-1.0	8.85	0.440	447	12.43	10.32	0.32	3.26	26.34	12.4	1.2
i2733/66	32-SCL-0.0-0.1	7.73	0.108	14	10.27	3.39	0.50	0.14	14.30	1.0	3.0
i2733/67	32-SCL-0.2-0.3	8.69	0.128	15	12.56	7.60	0.26	0.62	21.03	2.9	1.7
i2733/68	32-SCL-0.5-0.6	9.25	0.205	64	6.72	7.47	0.20	1.26	15.64	8.0	0.9
i2733/69	32-SCL-0.8-0.9	9.31	0.332	225	5.78	8.44	0.18	2.09	16.48	12.7	0.7
i2733/70	32-SCL-0.9-1.0	9.27	0.470	321	5.86	9.28	0.17	2.67	17.98	14.9	0.6
i2733/71	80-SCL-0.0-0.1	7.09	0.059	17	9.33	3.81	0.34	0.08	13.57	0.6	2.4
i2733/72	80-SCL-0.22-0.3	7.82	0.040	16	9.65	4.44	0.05	0.43	14.57	2.9	2.2
i2733/73	80-SCL-0.5-0.6	9.24	0.203	62	8.05	9.79	0.02	1.97	19.82	10.0	0.8
i2733/74	80-SCL-0.8-0.9	9.40	0.395	257	6.07	10.90	0.01	4.31	21.29	20.2	0.6
i2733/75	80-SCL-0.9-1.0	9.29	0.530	358	5.74	11.02	0.02	4.37	21.16	20.7	0.5
i2733/76	N12-0.0-0.1	7.23	0.042	22	9.06	5.72	0.40	0.34	15.52	2.2	1.6
i2733/77	N12-0.2-0.3	7.93	0.015	155	12.07	9.08	0.35	1.59	23.08	6.9	1.3
i2733/78	N12-0.5-0.6	8.63	0.484	481	13.10	14.49	0.33	2.53	30.45	8.3	0.9
i2733/79	N12-0.8-0.9	8.59	0.671	793	12.32	15.25	0.38	2.85	30.79	9.2	0.8
i2733/80	N12-0.9-1.0	8.53	0.739	747	12.46	16.26	0.52	3.17	32.41	9.8	0.8
i2733/81	N13-0.0-0.1	7.01	0.045	9	9.06	5.19	0.41	0.27	14.92	1.8	1.7
i2733/82	N13-0.2-0.3	8.03	0.204	163	12.80	11.28	0.31	1.77	26.15	6.8	1.1
i2733/83	N13-0.5-0.6	8.48	0.351	355	12.02	12.55	0.25	1.95	26.77	7.3	1.0
i2733/84	N13-0.8-0.9	8.57	0.668	683	11.16	14.61	0.27	2.35	28.40	8.3	0.8
i2733/85	N13-0.9-1.0	8.50	0.787	826	11.66	16.02	0.33	2.65	30.66	8.6	0.7
i2733/86	N14-0.0-0.1	6.85	0.031	9	6.19	3.56	0.36	0.16	10.26	1.6	1.7
i2733/87	N14-0.2-0.3	8.29	0.097	86	12.11	9.83	0.36	1.68	23.98	7.0	1.2
i2733/88	N14-0.5-0.6	8.78	0.382	368	12.90	14.21	0.40	2.46	29.98	8.2	0.9
i2733/89	N14-0.8-0.9	8.62	0.656	671	11.10	13.95	0.38	2.52	27.95	9.0	0.8
i2733/90	N14-0.9-1.0	8.57	0.731	768	10.69	13.85	0.37	2.50	27.41	9.1	0.8
i2733/91	77-SCL-0.0-0.1	7.71	0.115	8	20.50	6.31	0.31	0.13	27.26	0.5	3.2
i2733/92	77-SCL-0.2-0.3	8.47	0.014	6	22.54	10.15	0.10	0.88	33.68	2.6	2.2
i2733/93	77-SCL-0.5-0.6	8.71	0.022	75	16.79	13.18	0.06	2.50	32.53	7.7	1.3
i2733/94	77-SCL-0.8-0.9	8.71	0.439	404	17.23	17.45	0.05	4.68	39.41	11.9	1.0
i2733/95	77-SCL-0.9-1.0	8.48	0.703	759	16.96	19.65	0.08	6.09	42.78	14.2	0.9
i2733/96	N26-0.0-0.1	8.47	0.119	5	21.58	4.64	0.30	0.21	26.74	0.8	4.6
i2733/97	N26-0.2-0.3	8.58	0.186	19	17.76	10.92	0.06	1.79	30.53	5.9	1.6
i2733/98	N26-0.5-0.6	8.93	0.331	125	13.97	17.50	0.01	5.86	37.34	15.7	0.8
i2733/99	N26-0.83-0.9	9.21	0.526	252	13.56	20.51	0.00	8.03	42.10	19.1	0.7
i2733/100	N26-0.9-1.0	8.98	0.592	307	11.36	16.97	0.01	6.39	34.73	18.4	0.7
i2733/101	N20-0.0-0.1	7.37	0.053	4	15.93	5.34	0.28	0.14	21.70	0.7	3.0
i2733/102	N20-0.2-0.3	8.13	0.054	4	13.69	6.95	0.01	0.36	21.01	1.7	2.0
i2733/103	N20-0.5-0.6	8.90	0.154	22	10.56	9.98	0.00	1.63	22.18	7.4	1.1
i2733/104	N20-0.75-0.85	9.24	0.316	148	11.33	16.25	0.02	4.21	31.82	13.2	0.7
i2733/105	N20-0.9-1.0	9.18	0.533	420	11.57	19.78	0.08	6.42	37.84	17.0	0.6
i2733/106	N21-0.0-0.1	7.19	0.053	3	16.29	7.27	0.49	0.15	24.20	0.6	2.2
i2733/107	N21-0.2-0.3	8.10	0.071	27	13.56	8.45	0.21	0.70	22.93	3.1	1.6
i2733/108	N21-0.5-0.58	9.08	0.221	87	11.77	13.64	0.03	2.98	28.42	10.5	0.9
i2733/109	N21-0.8-0.9	9.23	0.375	304	10.73	12.67	0.06	2.81	26.27	10.7	0.8
i2733/110	N21-0.9-1.0	9.04	0.628	591	13.42	22.55	0.16	6.78	42.90	15.8	0.6
i2733/111	N22-0.0-0.1	7.41	0.069	11	15.58	5.70	1.61	0.23	23.12	1.0	2.7
i2733/112	N22-0.2-0.3	8.35	0.078	22	17.20	9.61	0.13	1.22	28.16	4.3	1.8
i2733/113	N22-0.5-0.6	8.96	0.205	83	13.62	12.30	0.02	2.54	28.48	8.9	1.1
i2733/114	N22-0.8-0.9	9.04	0.329	182	10.88	12.92	0.04	3.38	27.22	12.4	0.8

i2733/115	N22-0.9-1.0	8.98	0.499	359	12.68	17.13	0.09	4.89	34.80	14.1	0.7
i2733/116	N15-0.0-0.1	8.13	0.141	24	..	..	..	..	..	..	..
i2733/117	N15-0.2-0.3	8.64	0.134	27	..	..	..	..	..	..	..
i2733/118	N15-0.55-0.6	8.97	0.307	196	..	..	..	..	..	..	..
i2733/119	N15-0.8-0.9	8.55	0.480	409	..	..	..	..	..	..	..
i2733/120	N15-0.9-1.0	8.76	0.577	634	..	..	..	..	..	..	..
i2733/121	N16-0.0-0.1	7.92	0.089	9	..	..	..	..	..	..	..
i2733/122	N16-0.2-0.3	8.67	0.150	38	..	..	..	..	..	..	..
i2733/123	N16-0.5-0.6	8.74	0.215	120	..	..	..	..	..	..	..
i2733/124	N16-0.8-0.9	8.72	0.325	255	..	..	..	..	..	..	..
i2733/125	N16-0.9-1.0	8.78	0.392	354	..	..	..	..	..	..	..
i2733/126	60-SCL-0.0-0.1	7.72	0.056	9	..	..	..	..	..	..	..
i2733/127	60-SCL-0.2-0.3	8.90	0.145	17	..	..	..	..	..	..	..
i2733/128	60-SCL-0.5-0.6	8.38	0.298	163	..	..	..	..	..	..	..
i2733/129	60-SCL-0.8-0.9	8.72	0.454	458	..	..	..	..	..	..	..
i2733/130	60-SCL-0.9-1.0	8.73	0.542	633	..	..	..	..	..	..	..
i2733/131	N17-0.0-0.1	6.75	0.062	9	11.47	4.26	0.15	0.40	16.28	2.5	2.7
i2733/132	N17-0.1-0.2	8.62	0.251	39	10.86	8.81	0.12	2.29	22.08	10.4	1.2
i2733/133	N17-0.2-0.3	9.25	0.340	186	9.14	10.62	0.09	3.29	23.15	14.2	0.9
i2733/134	N17-0.5-0.6	9.43	0.608	540	6.39	9.85	0.10	4.21	20.55	20.5	0.6
i2733/135	N17-0.8-0.88	9.31	0.815	800	5.77	9.47	0.09	4.64	19.97	23.2	0.6
i2733/136	N18-0.0-0.1	7.26	0.066	9	10.64	3.58	0.12	0.20	14.54	1.4	3.0
i2733/137	N18-0.2-0.3	8.94	0.281	112	8.51	8.98	0.07	2.71	20.26	13.4	0.9
i2733/138	N18-0.5-0.6	9.34	0.634	508	6.10	11.02	0.12	4.50	21.74	20.7	0.6
i2733/139	N18-0.8-0.9	9.51	0.500	916	6.19	12.75	0.17	5.87	24.98	23.5	0.5
i2733/140	N18-0.9-1.0	8.94	1.137	1194	6.82	15.18	0.19	7.26	29.45	24.7	0.4
i2733/141	N19-0.0-0.1	8.28	0.142	22	11.36	2.99	0.49	0.25	15.09	1.6	3.8
i2733/142	N19-0.2-0.3	8.78	0.167	20	10.80	6.88	0.25	1.06	18.99	5.6	1.6
i2733/143	N19-0.5-0.6	9.25	0.291	147	6.98	8.26	0.07	2.21	17.52	12.6	0.8
i2733/144	N19-0.8-0.9	9.39	0.427	258	5.53	8.20	0.08	2.75	16.55	16.6	0.7
i2733/145	N19-0.9-0.95	9.42	0.611	461	5.13	8.99	0.15	3.43	17.69	19.4	0.6

Soil Analysis Report  
Batch Numbers: I2733

Date Received: 13/06/2019  
Date Completed: 14/07/2019

Client: GTE Saraji Results Page 2 of 2

Lab No	Sample No	ADMC	Gravel	CS>50µm	CS>20µm	2-50µm-Silt	2-20µm-Silt	Clay <2µm	15 Bar
	Depth (m)	%	%	%	%	%	%	%	%
i2733/1	6-SCL-0.0-0.1	23.1%	1.7%	38.5%	38.2%	13.4%	13.6%	48.2%	
i2733/2	6-SCL-0.2-0.3	16.8%	2.2%	47.5%	52.4%	10.9%	5.9%	41.6%	
i2733/3	6-SCL-0.5-0.6	14.6%	2.1%	39.6%	43.2%	11.0%	7.3%	49.5%	
i2733/4	6-SCL-0.8-0.9	15.6%	2.0%	39.5%	41.5%	11.0%	9.0%	49.5%	
i2733/5	6-SCL-0.9-1.0	14.3%	1.2%	52.4%	54.3%	10.8%	8.9%	36.8%	
i2733/6	7-SCL-0.0-0.1	19.9%	0.6%	49.3%	54.8%	15.3%	9.8%	35.5%	19
i2733/7	7-SCL-0.2-0.3	14.6%	0.5%	47.7%	51.9%	12.6%	8.4%	39.6%	24
i2733/8	7-SCL-0.5-0.6	15.0%	2.8%	32.6%	40.2%	21.4%	13.8%	46.0%	26
i2733/9	7-SCL-0.8-0.9	12.8%	8.5%	53.2%	59.9%	13.3%	6.6%	33.5%	20
i2733/10	7-SCL-0.9-1.0	13.8%	2.0%	40.8%	46.8%	18.1%	12.0%	41.1%	21
i2733/11	100-SCL-0.0-0.1	18.9%	0.1%	40.1%	48.3%	17.4%	9.2%	42.5%	
i2733/12	100-SCL-0.2-0.3	14.4%	0.6%	38.0%	45.9%	20.6%	12.7%	41.4%	
i2733/13	100-SCL-0.5-0.6	16.0%	0.2%	37.5%	42.6%	16.8%	11.6%	45.8%	
i2733/14	100-SCL-0.8-0.9	17.8%	0.1%	31.1%	34.9%	13.5%	9.8%	55.3%	
i2733/15	100-SCL-0.9-1.0	16.8%	0.5%	32.7%	34.9%	16.3%	14.2%	50.9%	
i2733/16	102-SCL-D-0.0-0.1	18.1%	0.4%	39.3%	43.2%	15.1%	11.2%	45.6%	
i2733/17	102-SCL-D-0.2-0.3	17.0%	0.7%	27.7%	31.5%	15.0%	11.2%	57.3%	
i2733/18	102-SCL-D-0.5-0.6	15.3%	1.0%	28.7%	32.5%	11.8%	8.0%	59.4%	
i2733/19	102-SCL-D-0.8-0.9	16.6%	2.8%	28.6%	30.5%	12.2%	10.2%	59.2%	
i2733/20	102-SCL-D-0.9-1.0	18.3%	2.9%	28.1%	32.4%	12.7%	8.5%	59.1%	
i2733/21	102-SCL-M-0.0-0.1	15.1%	4.8%	61.6%	64.6%	9.5%	6.4%	29.0%	
i2733/22	102-SCL-M-0.2-0.3	11.8%	0.3%	51.1%	54.3%	10.8%	7.6%	38.1%	
i2733/23	102-SCL-M-0.5-0.6	11.8%	0.9%	47.4%	50.4%	11.2%	8.3%	41.4%	

i2733/24	102-SCL-M-0.83-0.9	11.6%	8.8%	46.0%	47.7%	8.9%	7.2%	45.1%	
i2733/25	102-SCL-M-0.9-1.0	12.7%	5.3%	32.7%	36.6%	19.6%	15.7%	47.7%	
i2733/26	103-SCL-D-0.0-0.1	19.2%	0.2%	30.1%	33.7%	20.0%	16.4%	49.8%	
i2733/27	103-SCL-D-0.2-0.3	15.0%	0.2%	16.8%	29.8%	26.1%	13.1%	57.1%	
i2733/28	103-SCL-D-0.5-0.6	13.4%	0.0%	24.9%	28.4%	16.4%	13.0%	58.6%	
i2733/29	103-SCL-D-0.8-0.9	14.6%	0.1%	28.6%	32.2%	16.0%	12.3%	55.5%	
i2733/30	103-SCL-D-0.9-1.0	14.7%	0.3%	33.3%	36.9%	15.6%	12.0%	51.1%	
i2733/31	103-SCL-M-0.0-0.1	15.0%	2.0%	52.0%	57.3%	12.6%	7.3%	35.4%	
i2733/32	103-SCL-M-0.2-0.3	11.0%	0.3%	52.6%	55.7%	8.7%	5.6%	38.8%	
i2733/33	103-SCL-M-0.5-0.6	10.8%	3.1%	49.0%	57.7%	12.8%	4.1%	38.2%	
i2733/34	103-SCL-M-0.8-0.9	10.6%	5.7%	55.7%	59.2%	10.9%	7.4%	33.4%	
i2733/35	103-SCL-M-0.9-1.0	11.7%	3.1%	52.3%	55.6%	9.6%	6.2%	38.2%	
i2733/36	5-SCL-M-0.0-0.1	24.6%	4.7%	30.5%	37.0%	16.9%	10.4%	52.6%	
i2733/37	5-SCL-M-0.2-0.3	18.5%	2.4%	30.4%	35.7%	14.5%	9.2%	55.1%	
i2733/38	5-SCL-M-0.5-0.6	18.8%	3.9%	32.6%	36.9%	13.6%	9.3%	53.8%	
i2733/39	5-SCL-M-0.8-0.9	18.2%	5.9%	27.3%	32.7%	13.4%	8.0%	59.2%	
i2733/40	5-SCL-M-0.9-1.0	17.3%	13.2%	30.9%	35.6%	12.3%	7.5%	56.9%	
i2733/41	5-SCL-D-0.0-0.1	24.6%	0.4%	31.5%	35.4%	13.8%	9.9%	54.7%	
i2733/42	5-SCL-D-0.2-0.3	19.8%	0.3%	24.9%	29.0%	14.8%	10.7%	60.4%	
i2733/43	5-SCL-D-0.5-0.6	19.5%	0.3%	22.6%	26.2%	13.2%	9.5%	64.3%	
i2733/44	5-SCL-D-0.8-0.9	19.7%	0.2%	17.6%	21.7%	11.3%	7.2%	71.1%	
i2733/45	5-SCL-D-0.9-1.0	21.3%	3.9%	16.8%	21.1%	11.7%	7.4%	71.5%	
i2733/46	N23-0.0-0.1	11.2%	0.6%	57.1%	56.7%	11.5%	11.9%	31.4%	
i2733/47	N23-0.2-0.3	11.4%	2.9%	46.6%	50.4%	13.3%	9.5%	40.1%	
i2733/48	N23-0.5-0.6	11.0%	3.9%	38.5%	44.5%	21.1%	15.1%	40.4%	
i2733/49	N23-0.8-0.9	11.6%	1.8%	33.1%	34.8%	18.0%	16.3%	48.9%	
i2733/50	N23-0.9-1.0	12.6%	1.8%	35.1%	39.9%	13.8%	8.9%	51.1%	
i2733/51	N24-0.0-0.1	12.7%	2.5%	60.1%	59.9%	5.5%	5.7%	34.4%	
i2733/52	N24-0.2-0.3	12.0%	2.1%	51.9%	54.8%	11.0%	8.0%	37.1%	
i2733/53	N24-0.5-0.6	11.4%	2.4%	43.5%	47.0%	17.1%	13.6%	39.4%	
i2733/54	N24-0.8-0.9	11.8%	1.2%	33.2%	37.7%	20.0%	15.4%	46.8%	
i2733/55	N24-0.9-1.0	12.6%	0.7%	39.3%	43.9%	15.5%	10.8%	45.2%	
i2733/56	N25-0.0-0.1	15.3%	1.2%	59.0%	60.6%	9.6%	8.0%	31.4%	
i2733/57	N25-0.22-0.3	18.0%	0.4%	41.0%	46.3%	9.7%	4.3%	49.3%	
i2733/58	N25-0.5-0.6	17.4%	2.0%	48.5%	53.0%	9.2%	4.6%	42.4%	
i2733/59	N25-0.8-0.9	15.8%	0.7%	42.3%	42.1%	8.6%	8.7%	49.2%	
i2733/60	N25-0.9-1.0	15.8%	1.7%	34.5%	36.6%	10.9%	8.8%	54.6%	
i2733/61	N27-0.0-0.1	9.6%	1.0%	72.0%	71.2%	1.4%	2.2%	26.6%	
i2733/62	N27-0.2-0.3	8.9%	0.4%	67.6%	71.0%	6.1%	2.7%	26.3%	
i2733/63	N27-0.5-0.6	11.0%	1.2%	52.1%	54.0%	6.8%	5.0%	41.0%	
i2733/64	N27-0.8-0.9	12.7%	3.9%	48.3%	50.0%	11.4%	9.6%	40.4%	
i2733/65	N27-0.9-1.0	11.9%	3.4%	38.6%	44.4%	17.2%	11.3%	44.3%	
i2733/66	32-SCL-0.0-0.1	9.9%	1.3%	64.4%	68.0%	11.9%	8.4%	23.7%	
i2733/67	32-SCL-0.2-0.3	9.6%	0.7%	53.2%	55.9%	8.6%	5.9%	38.2%	
i2733/68	32-SCL-0.5-0.6	7.9%	2.4%	57.6%	60.6%	11.1%	8.2%	31.3%	
i2733/69	32-SCL-0.8-0.9	7.5%	4.2%	61.7%	57.5%	9.4%	13.6%	29.0%	
i2733/70	32-SCL-0.9-1.0	8.7%	1.0%	55.7%	60.2%	11.7%	7.2%	32.6%	
i2733/71	80-SCL-0.0-0.1	9.6%	0.2%	77.8%	79.7%	3.9%	1.9%	18.4%	
i2733/72	80-SCL-0.22-0.3	7.1%	0.9%	65.2%	68.1%	12.1%	9.2%	22.7%	
i2733/73	80-SCL-0.5-0.6	8.5%	0.5%	59.4%	63.3%	9.7%	5.8%	30.9%	
i2733/74	80-SCL-0.8-0.9	8.1%	1.1%	55.1%	60.8%	11.4%	5.7%	33.5%	
i2733/75	80-SCL-0.9-1.0	9.3%	1.3%	58.2%	63.3%	11.2%	6.2%	30.5%	

i2733/76	N12-0.0-0.1	12.1%	0.2%	54.2%	66.3%	22.8%	10.6%	23.1%	
i2733/77	N12-0.2-0.3	12.6%	0.2%	48.1%	57.5%	15.4%	6.0%	36.5%	
i2733/78	N12-0.5-0.6	12.5%	1.3%	30.6%	44.2%	23.1%	9.4%	46.3%	
i2733/79	N12-0.8-0.9	12.2%	0.8%	38.6%	45.2%	16.6%	10.0%	44.8%	
i2733/80	N12-0.9-1.0	11.7%	1.8%	39.6%	50.6%	20.3%	9.3%	40.0%	
i2733/81	N13-0.0-0.1	11.3%	0.2%	55.8%	70.7%	17.7%	2.8%	26.5%	
i2733/82	N13-0.2-0.3	11.8%	0.0%	38.0%	49.2%	17.0%	5.8%	44.9%	
i2733/83	N13-0.5-0.6	11.1%	0.5%	37.4%	48.1%	16.3%	5.6%	46.3%	
i2733/84	N13-0.8-0.9	11.5%	0.8%	35.8%	47.0%	19.4%	8.2%	44.7%	
i2733/85	N13-0.9-1.0	11.6%	0.4%	40.8%	47.9%	12.1%	5.1%	47.1%	
i2733/86	N14-0.0-0.1	9.6%	0.2%	60.3%	72.3%	22.6%	10.6%	17.1%	
i2733/87	N14-0.2-0.3	12.7%	0.0%	36.4%	47.1%	16.8%	6.1%	46.8%	
i2733/88	N14-0.5-0.6	12.4%	0.7%	30.8%	47.4%	25.2%	8.6%	44.0%	
i2733/89	N14-0.8-0.9	11.7%	0.8%	40.6%	49.1%	16.7%	8.1%	42.7%	
i2733/90	N14-0.9-1.0	11.9%	1.0%	38.2%	44.7%	15.7%	9.2%	46.1%	
i2733/91	77-SCL-0.0-0.1	15.2%	0.8%	58.6%	61.8%	10.8%	7.6%	30.6%	
i2733/92	77-SCL-0.2-0.3	12.6%	1.1%	45.7%	52.3%	13.9%	7.3%	40.4%	
i2733/93	77-SCL-0.5-0.6	12.9%	0.6%	51.3%	58.2%	11.1%	4.3%	37.6%	
i2733/94	77-SCL-0.8-0.9	15.9%	0.3%	43.1%	46.7%	12.5%	8.8%	44.5%	
i2733/95	77-SCL-0.9-1.0	16.4%	0.0%	35.5%	44.2%	16.8%	8.0%	47.7%	
i2733/96	N26-0.0-0.1	13.6%	5.0%	59.7%	67.4%	10.7%	3.0%	29.6%	
i2733/97	N26-0.2-0.3	13.9%	5.1%	56.1%	59.8%	9.0%	5.2%	35.0%	
i2733/98	N26-0.5-0.6	17.0%	4.1%	45.3%	50.3%	10.4%	5.4%	44.3%	
i2733/99	N26-0.83-0.9	17.5%	7.0%	42.0%	46.3%	14.2%	10.0%	43.8%	
i2733/100	N26-0.9-1.0	13.9%	10.0%	50.0%	54.1%	10.9%	6.7%	39.1%	
i2733/101	N20-0.0-0.1	9.4%	2.4%	60.2%	60.6%	12.6%	12.2%	27.2%	
i2733/102	N20-0.2-0.3	8.9%	2.2%	65.0%	68.0%	9.1%	6.0%	25.9%	
i2733/103	N20-0.5-0.6	9.0%	4.5%	63.5%	67.3%	8.1%	4.3%	28.4%	
i2733/104	N20-0.75-0.85	11.0%	6.4%	57.2%	55.9%	6.9%	8.2%	35.8%	
i2733/105	N20-0.9-1.0	13.5%	3.1%	44.8%	48.7%	9.1%	5.2%	46.1%	
i2733/106	N21-0.0-0.1	10.7%	3.2%	66.0%	66.6%	4.5%	4.0%	29.4%	
i2733/107	N21-0.2-0.3	10.6%	2.9%	60.3%	61.9%	8.3%	6.7%	31.4%	
i2733/108	N21-0.5-0.58	11.4%	4.8%	56.4%	58.1%	6.8%	5.1%	36.8%	
i2733/109	N21-0.8-0.9	12.6%	4.5%	46.0%	51.8%	11.7%	5.9%	42.3%	
i2733/110	N21-0.9-1.0	14.8%	2.9%	37.3%	41.2%	11.1%	7.2%	51.6%	
i2733/111	N22-0.0-0.1	11.5%	0.7%	62.9%	64.9%	10.3%	8.3%	26.8%	
i2733/112	N22-0.2-0.3	11.5%	2.2%	60.5%	62.1%	9.1%	7.4%	30.4%	
i2733/113	N22-0.5-0.6	11.4%	2.8%	61.9%	61.9%	8.7%	8.7%	29.4%	
i2733/114	N22-0.8-0.9	12.4%	4.2%	56.8%	60.7%	6.0%	2.1%	37.3%	
i2733/115	N22-0.9-1.0	13.9%	7.3%	51.5%	55.5%	7.7%	3.7%	40.8%	
i2733/116	N15-0.0-0.1	17.6%	1.5%	51.4%	59.9%	11.3%	2.8%	37.2%	
i2733/117	N15-0.2-0.3	15.7%	2.2%	41.4%	47.5%	12.6%	6.4%	46.0%	
i2733/118	N15-0.55-0.6	15.9%	4.8%	41.9%	46.2%	11.8%	7.5%	46.3%	
i2733/119	N15-0.8-0.9	16.2%	6.8%	41.5%	48.1%	15.1%	8.5%	43.4%	
i2733/120	N15-0.9-1.0	16.7%	7.9%	35.6%	39.9%	12.3%	8.0%	52.1%	
i2733/121	N16-0.0-0.1	16.1%	0.4%	53.7%	59.5%	13.7%	7.9%	32.6%	
i2733/122	N16-0.2-0.3	14.8%	0.2%	52.0%	58.1%	10.9%	4.8%	37.1%	
i2733/123	N16-0.5-0.6	16.1%	0.2%	40.3%	53.3%	20.5%	7.5%	39.2%	
i2733/124	N16-0.8-0.9	18.8%	0.2%	40.1%	44.6%	16.7%	12.2%	43.2%	
i2733/125	N16-0.9-1.0	18.9%	2.0%	39.8%	46.7%	12.1%	5.2%	48.1%	
i2733/126	60-SCL-0.0-0.1	17.6%	0.2%	53.1%	56.8%	10.3%	6.6%	36.6%	
i2733/127	60-SCL-0.2-0.3	15.9%	1.0%	44.3%	48.3%	14.3%	10.4%	41.4%	
i2733/128	60-SCL-0.5-0.6	17.0%	0.4%	38.9%	42.8%	14.1%	10.2%	47.0%	
i2733/129	60-SCL-0.8-0.9	18.1%	0.9%	36.3%	40.9%	13.5%	9.0%	50.2%	
i2733/130	60-SCL-0.9-1.0	17.5%	4.1%	36.0%	40.4%	10.3%	5.9%	53.7%	
i2733/131	N17-0.0-0.1	7.8%	2.2%	76.9%	76.4%	5.5%	6.0%	17.6%	
i2733/132	N17-0.1-0.2	10.3%	1.0%	63.6%	67.4%	7.1%	3.3%	29.3%	
i2733/133	N17-0.2-0.3	9.9%	5.1%	66.1%	69.6%	5.0%	1.5%	28.9%	
i2733/134	N12-0.5-0.6	9.4%	5.9%	60.3%	65.7%	11.3%	5.9%	28.4%	
i2733/135	N12-0.8-0.88	9.1%	23.7%	52.9%	57.3%	13.7%	9.4%	33.4%	
i2733/136	N18-0.0-0.1	7.7%	4.3%	74.2%	73.6%	4.2%	4.9%	21.5%	
i2733/137	N18-0.2-0.3	10.5%	2.6%	60.7%	62.3%	4.8%	3.2%	34.6%	
i2733/138	N18-0.5-0.6	10.7%	2.4%	51.5%	55.0%	8.0%	4.5%	40.6%	
i2733/139	N18-0.8-0.9	11.7%	15.2%	43.0%	49.8%	19.6%	12.9%	37.4%	
i2733/140	N18-0.9-1.0	12.5%	17.8%	41.6%	51.4%	20.9%	11.2%	37.5%	
i2733/141	N19-0.0-0.1	7.6%	3.6%	82.4%	87.8%	11.3%	5.9%	6.3%	
i2733/142	N19-0.2-0.3	10.8%	4.6%	56.8%	65.5%	12.4%	3.7%	30.8%	
i2733/143	N19-0.5-0.6	9.8%	2.5%	58.6%	73.2%	13.2%	-1.5%	28.2%	
i2733/144	N19-0.8-0.9	8.3%	3.1%	67.1%	70.7%	9.4%	5.8%	23.5%	
i2733/145	N19-0.9-0.95	9.5%	6.5%	60.2%	65.6%	12.4%	7.0%	27.4%	

## METHOD DESCRIPTIONS

## Soil

Reference: I2733

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## Methods used to Analyse Samples

Analyte	ALHS*	Uncertainty %	LOQ	Unit	Name	Method Description
pH	4A1	1.1	0.1	pH	pH	1:5 water extr, pH meter
EC	3A1	5.4	0.01	dS/m	Electrical conductivity	1:5 water extr, EC meter
Cl	5A2	10.0	10.0	mg/kg	Chloride	1:5 water extr, (AA) colorimetric
NO3-N	7C2	6.7	1.0	mg/kg	Nitrate-nitrogen	1:5 water extr, (AA) colorimetric
NH4-N	7C2	7.8	0.6	mg/kg	Ammonium-nitrogen	1M KCl extr, (AA) colorimetric
Bicarb.P	9B2	16.8	1.0	mg/kg	Bicarb.ext.phosphorus	0.5M NaHCO3 @ pH 8.5, (AA) colorimetric
Exch.Ca	15B/C1	7.2	0.18	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Mg	15B/C1	4.7	0.31	meq/100g	Exchangeable magnesium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Na	15B/C1	9.6	0.09	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.K	15B/C1	4.8	0.02	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
CEC	15I3	5.7	1.0	meq/100g	Cation Exchange Capacity	KNO3 + Ca(NO3)2 extr, (AA) colorimetric
ADMC	2A1	11.9	0.4	%	Air Dried Moisture Content	Gravimetric oven dry @ 105C
R1	NA	20.2	NA		Dispersion Ratio	Ratio [Aqueous dispersible (Silt + Clay):Total (Silt + Clay)]
SO4-S	10B3	11.5	0.6	mg/kg	Sulfate sulfur	Ca(H2PO4)2 @ pH 4.0 extractable sulfate-sulfur, ICPOES
Sand	no ref	22.1	1.0	%	Particle size, sand	Hydrometer, gravimetric & Sieve
Silt	no ref	16.6	1.0	%	Particle size, silt	Hydrometer, gravimetric
Clay	no ref	12.7	1.0	%	Particle size, clay	Hydrometer, gravimetric

\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

For Manager  
Analytical Services:**D E Baker BSc MASSSI**Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia*. CSIRO Publishing: Collingwood.

Soluble Salts included in Exchangeable Cations - Except PRE-WASHED (if EC&gt;0.3dS/m).

QUALITY CONTROL DATA

Soil

Reference: I2733

Page: 4 of 4

\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

Test Method	Units		Actual Value	Acceptance Criteria [Range]
pH	pH	B		5.0 - 5.3
EC	dS/m	B		0.27 - 0.32
Cl	mg/kg	B		10 - 35
NO3-N	mg/kg	B		10 - 16
NH4-N	mg/kg	NA		NA
Bicarb.P	mg/kg	B		51 -75
Total Kjeldahl N	%	ASPAC 34	0.110	.100 - .120
Total P	%	ASPAC 34	0.02	.019 - .021
Organic Carbon	%	B		1.82 - 2.3
Ca (Exch. cations)pH7	meq/100g	B		6.96 - 8.04
Mg (Exch. cations)pH7	meq/100g	B		1.88 - 2.22
Na (Exch. cations)pH7	meq/100g	B		.057 - .182
K (Exch. cations)pH7	meq/100g	B		1.209 - 1.411
Exch. Acidity	meq/100g			NA
ECEC	meq/100g	A		NA
CEC	meq/100g	S12		58 - 73
ESP	%	A		NA
Coarse sand	%	B	17.0	17.3 - 22.4
Fine Sand	%	B	22.0	20.0 - 25.7
Silt	%	B	16.0	10.5 - 19.8
Clay	%	B	44.0	37.9 - 48.9
R1		B		0.23 - 0.38

Test Method	Units	Test Soil	Actual Value	Acceptance Criteria [Range]
DTPA-Cu	mg/kg	SB		2.37 - 3.25
DTPA-Zn	mg/kg	SB		3.15 - 3.81
DTPA-Mn	mg/kg	SB		97.7 - 149.0
DTPA-Fe	mg/kg	SB		24.3 - 32.6
0.33 Bar	%	G		32 - 51
15 Bar	%	G		23 - 30
Ca (Exch. cations)pH8.5	meq/100g	S12		27.7 - 35.4
Mg (Exch. cations)pH8.5	meq/100g	S12		22.88 - 24.5
Na (Exch. cations)pH8.5	meq/100g	S12		2.0 - 2.28
K (Exch. cations)pH8.5	meq/100g	S12		1.64 - 2.09



ESSA

**ESSA Pty Ltd /EAL NATA (ASPAC certified)**

**For Info Refer ESSA Pty Ltd  
PO Box 442 Sunnybank Q 4109**

**Phone: 0403245560**

**email: [e.s.s.a@bigpond.net.au](mailto:e.s.s.a@bigpond.net.au)**

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References: I3569

Sheet 1 of 4

Date Received: 09/07/2019

Date Completed: 31/07/2019

**FINAL REPORT**

**Project:**

Project -Saraji East (18SRE) No 2

All results in this report relate only to the items tested. Results are expressed on an "as received basis".

Client Name: GT Environmental

Contact: Mr Reece Mc Cann

Sample Type: Soil

Number of samples: 85

Soil Analysis Report  
Batch Number: I3569

Date Received: 09/07/2019  
Date Completed:31/07/2019

Client: GTE SARAJI Part 2- Results Page 1 of 2

ESSA Ref	field ref	Soil pH	Soil EC	Soil Cl	Exch.Ca	Exch. Mg	Exch.K	Exch. Na	CEC	ESP	Ca/Mg
	depth (m)		dS/m	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%Na/CEC	Ratio
I3569/1	N45-0.0-0.05	8.36	0.115	14	22.54	3.74	0.27	0.08	26.63	0.3	6.0
I3569/2	N45-0.25-0.3	8.80	0.164	40	15.73	10.28	0.13	1.41	27.55	5.1	1.5
I3569/3	N45-0.5-0.6	8.92	0.445	333	12.80	15.36	0.24	3.47	31.88	10.9	0.8
I3569/4	N45-0.8-0.9	8.93	0.824	803	10.26	14.78	0.27	3.83	29.14	13.1	0.7
I3569/5	N45-0.9-1.0	8.94	0.827	840	10.67	15.68	0.28	3.96	30.59	12.9	0.7
I3569/6	N28-0.0-0.05	8.10	0.107	13	18.46	2.54	0.41	0.06	21.46	0.3	7.3
I3569/7	N28-0.2-0.3	8.46	0.089	23	15.14	5.85	0.23	0.42	21.65	2.0	2.6
I3569/8	N28-0.5-0.6	8.99	0.346	227	12.50	15.12	0.33	2.88	30.84	9.4	0.8
I3569/9	N28-0.8-0.9	9.09	0.588	522	8.67	13.10	0.28	2.79	24.84	11.2	0.7
I3569/10	N28-0.9-1.0	9.04	0.701	686	9.03	14.19	0.32	3.24	26.78	12.1	0.6
I3569/11	N43-0.0-0.1	8.26	0.122	16	17.36	3.28	0.49	0.06	21.19	0.3	5.3
I3569/12	N43-0.2-0.3	8.27	0.090	17	15.98	5.30	0.37	0.19	21.84	0.9	3.0
I3569/13	N43-0.5-0.6	8.79	0.258	157	13.55	11.83	0.24	1.48	27.10	5.5	1.1
I3569/14	N43-0.8-0.9	9.04	0.376	270	10.08	12.97	0.39	2.12	25.56	8.3	0.8
I3569/15	N43-0.9-1.0	8.93	0.827	910	9.14	15.09	0.49	3.59	28.30	12.7	0.6
I3569/16	N29-0.0-0.10	8.69	0.097	8	..	..	..	..	..	..	..
I3569/17	N29-0.2-0.3	8.87	0.123	13	..	..	..	..	..	..	..
I3569/18	N29-0.5-0.6	9.18	0.178	30	..	..	..	..	..	..	..
I3569/19	N29-0.8-0.9	9.39	0.256	18	..	..	..	..	..	..	..
I3569/20	N29-0.9-1.0	9.42	0.344	14	..	..	..	..	..	..	..
I3569/21	N30-0.0-0.1	8.35	0.113	24	..	..	..	..	..	..	..
I3569/22	N30-0.2-0.3	8.80	0.117	11	..	..	..	..	..	..	..
I3569/23	N30-0.5-0.6	9.21	0.183	14	..	..	..	..	..	..	..
I3569/24	N30-0.8-0.9	9.41	0.223	17	..	..	..	..	..	..	..
I3569/25	N30-0.9-1.0	9.07	0.172	11	..	..	..	..	..	..	..
I3569/26	N34-0.0-0.1	9.06	0.170	24	..	..	..	..	..	..	..
I3569/27	N34-0.2-0.3	8.88	0.099	14	..	..	..	..	..	..	..
I3569/28	N34-0.5-0.6	9.19	0.182	11	..	..	..	..	..	..	..
I3569/29	N34-0.8-0.9	9.41	0.233	22	..	..	..	..	..	..	..
I3569/30	N34-0.9-1.0	9.48	0.285	25	..	..	..	..	..	..	..
I3569/31	N31-0.0-0.1	8.54	0.084	12	..	..	..	..	..	..	..
I3569/32	N31-0.2-0.3	8.34	0.082	21	..	..	..	..	..	..	..
I3569/33	N31-0.5-0.6	8.44	0.167	18	..	..	..	..	..	..	..
I3569/34	N31-0.8-0.9	8.88	0.112	21	..	..	..	..	..	..	..
I3569/35	N31-0.9-1.0	9.02	0.178	12	..	..	..	..	..	..	..
I3569/36	N32-0.0-0.1	8.32	0.138	16	..	..	..	..	..	..	..
I3569/37	N32-0.2-0.3	8.51	0.146	15	..	..	..	..	..	..	..
I3569/38	N32-0.5-0.6	8.90	0.190	16	..	..	..	..	..	..	..
I3569/39	N32-0.8-0.9	9.12	0.226	14	..	..	..	..	..	..	..
I3569/40	N32-0.9-1.0	9.11	0.246	14	..	..	..	..	..	..	..
I3569/41	N33-0.0-0.1	8.22	0.079	24	..	..	..	..	..	..	..
I3569/42	N33-0.2-0.3	8.92	0.196	15	..	..	..	..	..	..	..
I3569/43	N33-0.5-0.6	9.23	0.248	11	..	..	..	..	..	..	..
I3569/44	N33-0.8-0.9	8.71	0.091	14	..	..	..	..	..	..	..
I3569/45	N33-0.9-1.0	9.27	0.300	12	..	..	..	..	..	..	..
I3569/46	N35-0.0-0.04	8.70	0.091	7	..	..	..	..	..	..	..
I3569/47	N35-0.2-0.3	8.68	0.140	24	..	..	..	..	..	..	..
I3569/48	N35-0.5-0.6	8.99	0.214	33	..	..	..	..	..	..	..
I3569/49	N35-0.8-0.9	9.10	0.261	75	..	..	..	..	..	..	..
I3569/50	N35-0.9-1.0	9.12	0.353	149	..	..	..	..	..	..	..
I3569/51	N36-0.0-0.05	8.69	0.090	11	..	..	..	..	..	..	..
I3569/52	N36-0.2-0.3	8.46	0.133	32	..	..	..	..	..	..	..
I3569/53	N36-0.5-0.6	8.50	0.117	25	..	..	..	..	..	..	..
I3569/54	N36-0.8-0.9	8.80	0.190	39	..	..	..	..	..	..	..
I3569/55	N36-0.9-1.0	8.90	0.248	66	..	..	..	..	..	..	..
I3569/56	N37-0.0-0.05	8.70	0.089	8	..	..	..	..	..	..	..
I3569/57	N37-0.2-0.3	8.67	0.120	17	..	..	..	..	..	..	..
I3569/58	N37-0.5-0.6	8.86	0.118	24	..	..	..	..	..	..	..
I3569/59	N37-0.8-0.9	8.99	0.233	49	..	..	..	..	..	..	..
I3569/60	N37-0.9-1.0	9.04	0.288	99	..	..	..	..	..	..	..
I3569/61	N38-0.0-0.1	8.03	0.091	37	..	..	..	..	..	..	..
I3569/62	N38-0.2-0.3	7.72	0.068	68	..	..	..	..	..	..	..
I3569/63	N38-0.5-0.6	8.04	0.168	221	..	..	..	..	..	..	..
I3569/64	N38-0.8-0.9	8.59	0.543	640	..	..	..	..	..	..	..
I3569/65	N38-0.9-1.0	8.59	0.615	802	..	..	..	..	..	..	..
I3569/66	N39-0.0-0.1	7.69	0.058	18	..	..	..	..	..	..	..
I3569/67	N39-0.2-0.3	7.90	0.051	33	..	..	..	..	..	..	..
I3569/68	N39-0.5-0.6	8.49	0.173	220	..	..	..	..	..	..	..
I3569/69	N39-0.8-0.9	8.75	0.443	534	..	..	..	..	..	..	..
I3569/70	N39-0.9-1.0	8.74	0.561	562	..	..	..	..	..	..	..
I3569/71	N40-0.0-0.1	7.92	0.056	8	..	..	..	..	..	..	..
I3569/72	N40-0.2-0.3	8.76	0.133	11	..	..	..	..	..	..	..
I3569/73	N40-0.5-0.6	9.04	0.235	107	..	..	..	..	..	..	..
I3569/74	N40-0.8-0.9	8.98	0.426	384	..	..	..	..	..	..	..
I3569/75	N40-0.9-1.0	8.80	0.628	669	..	..	..	..	..	..	..
I3569/76	N41-0.0-0.1	7.27	0.036	9	9.77	4.81	0.16	0.16	14.90	1.1	2.0
I3569/77	N41-0.2-0.3	7.70	0.049	9	6.73	4.20	0.41	0.09	11.44	0.8	1.6
I3569/78	N41-0.5-0.6	7.95	0.036	9	5.86	5.00	0.55	0.22	11.63	1.9	1.2
I3569/79	N41-0.8-0.9	8.28	0.060	12	6.10	6.29	0.50	0.41	13.31	3.1	1.0
I3569/80	N41-0.9-1.0	8.51	0.170	17	8.21	7.32	0.45	0.37	16.35	2.3	1.1
I3569/81	N42-0.0-0.1	7.02	0.035	8	9.03	3.99	0.16	<0.065	13.23	0.4	2.3
I3569/82	N42-0.2-0.3	7.79	0.025	9	8.00	4.51	0.37	0.05	12.92	0.4	1.8
I3569/83	N42-0.5-0.6	7.97	0.027	7	5.84	4.45	0.37	0.15	10.81	1.4	1.3
I3569/84	N42-0.8-0.9	8.32	0.066	12	6.26	5.93	0.40	0.36	12.95	2.7	1.1
I3569/85	N42-0.9-1.0	8.80	0.162	21	8.55	8.99	0.37	0.55	18.45	3.0	1.0

Lab No	Sample No	ADMC	Gravel	CS<50µm	CS>20µm	2-50µm-Silt	2-20µm-Silt	Clay <2µm	15 Bar
	Depth (m)	%	%	%	%	%	%	%	%
I3569/1	N45-0.0-0.05	10	0	56	61	19	13	25	
I3569/2	N45-0.25-0.3	14	0	51	57	12	6	37	
I3569/3	N45-0.5-0.6	17	1	42	44	7	5	51	
I3569/4	N45-0.8-0.9	16	3	48	52	9	5	42	
I3569/5	N45-0.9-1.0	17	1	40	44	8	5	51	
I3569/6	N28-0.0-0.05	9	0	67	72	14	9	20	17
I3569/7	N28-0.2-0.3	11	1	60	66	11	6	29	17
I3569/8	N28-0.5-0.6	16	2	38	48	16	6	46	25
I3569/9	N28-0.8-0.9	14	3	51	55	11	7	38	22
I3569/10	N28-0.9-1.0	14	4	42	49	14	7	44	22
I3569/11	N43-0.0-0.1	8	0	62	67	11	6	27	15
I3569/12	N43-0.2-0.3	10	1	61	64	9	6	30	15
I3569/13	N43-0.5-0.6	14	1	48	52	10	6	42	23
I3569/14	N43-0.8-0.9	13	3	49	51	9	7	42	21
I3569/15	N43-0.9-1.0	13	2	47	51	10	6	43	21
I3569/16	N29-0.0-0.10	15	1	45	50	14	8	41	
I3569/17	N29-0.2-0.3	16	2	51	57	12	6	37	
I3569/18	N29-0.5-0.6	15	5	50	53	11	7	40	
I3569/19	N29-0.8-0.9	18	2	40	44	14	10	46	
I3569/20	N29-0.9-1.0	19	2	41	45	15	11	44	
I3569/21	N30-0.0-0.1	19	1	42	47	12	6	46	
I3569/22	N30-0.2-0.3	17	1	50	61	18	7	32	
I3569/23	N30-0.5-0.6	16	6	48	57	13	4	40	
I3569/24	N30-0.8-0.9	16	6	41	54	18	5	41	
I3569/25	N30-0.9-1.0	18	4	47	58	13	3	39	
I3569/26	N34-0.0-0.1	11	1	51	55	11	7	38	
I3569/27	N34-0.2-0.3	14	1	48	59	16	5	36	
I3569/28	N34-0.5-0.6	15	2	52	64	14	1	35	
I3569/29	N34-0.8-0.9	17	4	39	52	19	6	42	
I3569/30	N34-0.9-1.0	17	3	41	49	19	10	41	
I3569/31	N31-0.0-0.1	15	0	38	57	20	0	43	
I3569/32	N31-0.2-0.3	22	0	35	49	22	8	43	
I3569/33	N31-0.5-0.6	21	0	29	39	21	11	50	
I3569/34	N31-0.8-0.9	21	0	34	40	12	6	53	
I3569/35	N31-0.9-1.0	21	0	35	41	12	6	53	
I3569/36	N32-0.0-0.1	19	0	51	54	11	8	38	
I3569/37	N32-0.2-0.3	21	1	35	50	21	6	44	
I3569/38	N32-0.5-0.6	21	1	44	51	13	7	42	
I3569/39	N32-0.8-0.9	21	2	33	41	18	10	49	
I3569/40	N32-0.9-1.0	22	2	33	40	16	10	51	
I3569/41	N33-0.0-0.1	17	0	47	51	11	8	42	
I3569/42	N33-0.2-0.3	21	1	46	52	14	8	40	
I3569/43	N33-0.5-0.6	20	4	29	45	16	0	55	
I3569/44	N33-0.8-0.9	18	5	29	39	20	11	51	
I3569/45	N33-0.9-1.0	19	3	27	38	19	8	54	
I3569/46	N35-0.0-0.04	17	1	40	47	13	5	47	
I3569/47	N35-0.2-0.3	20	0	42	45	11	7	47	
I3569/48	N35-0.5-0.6	24	0	39	39	6	5	55	
I3569/49	N35-0.8-0.9	25	6	37	41	11	7	52	
I3569/50	N35-0.9-1.0	24	9	33	36	14	11	53	
I3569/51	N36-0.0-0.05	17	1	44	49	12	8	44	
I3569/52	N36-0.2-0.3	20	0	42	41	12	12	47	
I3569/53	N36-0.5-0.6	26	0	40	42	11	9	49	
I3569/54	N36-0.8-0.9	26	0	25	24	14	15	61	
I3569/55	N36-0.9-1.0	25	1	31	35	16	12	54	
I3569/56	N37-0.0-0.05	13	1	50	49	5	6	45	23
I3569/57	N37-0.2-0.3	20	0	46	50	11	7	44	28
I3569/58	N37-0.5-0.6	23	0	40	53	16	2	44	31
I3569/59	N37-0.8-0.9	24	0	51	56	7	2	42	35
I3569/60	N37-0.9-1.0	26	4	31	36	6	1	63	35
I3569/61	N38-0.0-0.1	16	2	59	60	4	4	36	
I3569/62	N38-0.2-0.3	15	1	55	57	4	2	41	
I3569/63	N38-0.5-0.6	14	2	58	58	5	5	37	
I3569/64	N38-0.8-0.9	14	2	49	53	11	8	40	
I3569/65	N38-0.9-1.0	14	1	50	54	8	4	43	
I3569/66	N39-0.0-0.1	15	1	47	52	12	7	41	
I3569/67	N39-0.2-0.3	15	1	43	45	11	9	46	
I3569/68	N39-0.5-0.6	12	5	55	60	12	8	32	
I3569/69	N39-0.8-0.9	13	2	49	51	5	3	46	
I3569/70	N39-0.9-1.0	13	1	56	57	7	6	37	
I3569/71	N40-0.0-0.1	15	2	46	49	12	8	43	
I3569/72	N40-0.2-0.3	15	2	45	50	15	9	40	
I3569/73	N40-0.5-0.6	15	3	38	46	17	9	45	
I3569/74	N40-0.8-0.9	15	3	42	46	11	7	47	
I3569/75	N40-0.9-1.0	15	3	33	41	19	11	48	
I3569/76	N41-0.0-0.1	9	1	71	71	7	6	23	
I3569/77	N41-0.2-0.3	11	3	57	63	10	4	33	
I3569/78	N41-0.5-0.6	10	5	53	53	12	13	34	
I3569/79	N41-0.8-0.9	12	1	76	81	8	3	15	
I3569/80	N41-0.9-1.0	10	2	51	55	14	10	35	
I3569/81	N42-0.0-0.1	9	1	73	77	8	5	19	12
I3569/82	N42-0.2-0.3	11	3	55	59	9	6	35	15
I3569/83	N42-0.5-0.6	11	4	55	61	8	2	37	16
I3569/84	N42-0.8-0.9	11	2	52	57	11	6	37	18
I3569/85	N42-0.9-1.0	12	2	53	56	10	6	38	18

## METHOD DESCRIPTIONS

## Soil

Reference: I3569

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## Methods used to Analyse Samples

Analyte	ALHS*	Uncertainty %	LOQ	Unit	Name	Method Description
pH	4A1	1.1	0.1	pH	pH	1:5 water extr, pH meter
EC	3A1	5.4	0.01	dS/m	Electrical conductivity	1:5 water extr, EC meter
Cl	5A2	10.0	10.0	mg/kg	Chloride	1:5 water extr, (AA) colorimetric
NO3-N	7C2	6.7	1.0	mg/kg	Nitrate-nitrogen	1:5 water extr, (AA) colorimetric
NH4-N	7C2	7.8	0.6	mg/kg	Ammonium-nitrogen	1M KCl extr, (AA) colorimetric
Bicarb.P	9B2	16.8	1.0	mg/kg	Bicarb.ext.phosphorus	0.5M NaHCO3 @ pH 8.5, (AA) colorimetric
Exch.Ca	15B/C1	7.2	0.18	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Mg	15B/C1	4.7	0.31	meq/100g	Exchangeable magnesium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Na	15B/C1	9.6	0.09	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.K	15B/C1	4.8	0.02	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
CEC	15I3	5.7	1.0	meq/100g	Cation Exchange Capacity	KNO3 + Ca(NO3)2 extr, (AA) colorimetric
ADMC	2A1	11.9	0.4	%	Air Dried Moisture Content	Gravimetric oven dry @ 105C
R1	NA	20.2	NA		Dispersion Ratio	Ratio [Aqueous dispersible (Silt + Clay):Total (Silt + Clay)]
SO4-S	10B3	11.5	0.6	mg/kg	Sulfate sulfur	Ca(H2PO4)2 @ pH 4.0 extractable sulfate-sulfur, ICPOES
Sand	no ref	22.1	1.0	%	Particle size, sand	Hydrometer, gravimetric & Sieve
Silt	no ref	16.6	1.0	%	Particle size, silt	Hydrometer, gravimetric
Clay	no ref	12.7	1.0	%	Particle size, clay	Hydrometer, gravimetric

\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

For Manager  
Analytical Services:**D E Baker BSc MASSSI**Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia*. CSIRO Publishing: Collingwood.

Soluble Salts included in Exchangeable Cations - Except PRE-WASHED (if EC&gt;0.3dS/m).

QUALITY CONTROL DATA

Soil

Reference: I3569

Page: 4 of 4

\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

Test Method	Units		Actual Value	Acceptance Criteria [Range]
pH	pH	B		5.0 - 5.3
EC	dS/m	B		0.27 - 0.32
Cl	mg/kg	B		10 - 35
NO3-N	mg/kg	B		10 - 16
NH4-N	mg/kg	NA		NA
Bicarb.P	mg/kg	B		51 -75
Total Kjeldahl N	%	ASPAC 34	0.110	.100 - .120
Total P	%	ASPAC 34	0.02	.019 - .021
Organic Carbon	%	B		1.82 - 2.3
Ca (Exch. cations)pH7	meq/100g	B		6.96 - 8.04
Mg (Exch. cations)pH7	meq/100g	B		1.88 - 2.22
Na (Exch. cations)pH7	meq/100g	B		.057 - .182
K (Exch. cations)pH7	meq/100g	B		1.209 - 1.411
Exch. Acidity	meq/100g			NA
ECEC	meq/100g	A		NA
CEC	meq/100g	S12		58 - 73
ESP	%	A		NA
Coarse sand	%	B	17.0	17.3 - 22.4
Fine Sand	%	B	22.0	20.0 - 25.7
Silt	%	B	16.0	10.5 - 19.8
Clay	%	B	44.0	37.9 - 48.9
R1		B		0.23 - 0.38

Test Method	Units	Test Soil	Actual Value	Acceptance Criteria [Range]
DTPA-Cu	mg/kg	SB		2.37 - 3.25
DTPA-Zn	mg/kg	SB		3.15 - 3.81
DTPA-Mn	mg/kg	SB		97.7 - 149.0
DTPA-Fe	mg/kg	SB		24.3 - 32.6
0.33 Bar	%	G		32 - 51
15 Bar	%	G		23 - 30
Ca (Exch. cations)pH8.5	meq/100g	S12		27.7 - 35.4
Mg (Exch. cations)pH8.5	meq/100g	S12		22.88 - 24.5
Na (Exch. cations)pH8.5	meq/100g	S12		2.0 - 2.28
K (Exch. cations)pH8.5	meq/100g	S12		1.64 - 2.09

**ESSA Pty Ltd /EAL NATA (ASPAC certified)**

**For Info Refer ESSA Pty Ltd  
PO Box 442 Sunnybank Q 4109**

**Phone: 0403245560**

**email: [e.s.s.a@bigpond.net.au](mailto:e.s.s.a@bigpond.net.au)**

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References: H2096

Sheet 1 of 4

Date Received: 06/07/2018

Date Completed: 25/07/2018

**FINAL REPORT**

**Project:**

Project -Saraji East (18SRE)

All results in this report relate only to the items tested. Results are expressed on an "as received basis".

Client Name: GT Environmental

Contact: Mr Reece Mc Cann

Sample Type: Soil

Number of samples: 75

Soil Analysis Report  
Batch Numbers: H2096

Date Received: 06/07/2018  
Date Completed:25/07/2018

Client: GTE sARAJI- Results Page 1 of 2

ESSA Ref	field ref	Soil pH	Soil EC	Soil Cl	Exch.Ca	Exch. Mg	Exch.K	Exch. Na	CEC	Ca/Mg	ESP
	depth (m)		dS/m	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	Ratio	%Na/CEC
H2096/1	4-SCL-0.0-0.1	7.74	0.08	7							
H2096/2	4-SCL-0.2-0.3	8.82	0.19	13							
H2096/3	4-SCL-0.5-0.6	8.82	0.26	124							
H2096/4	4-SCL-0.7-0.8	8.60	0.44	419							
H2096/5	4-SCL-0.9-1.0	8.65	0.63	799							
H2096/6	10-SCL-0.0-0.1	7.22	0.08	13							
H2096/7	10-SCL-0.2-0.3	7.28	0.03	11							
H2096/8	10-SCL-0.5-0.6	8.21	0.04	14							
H2096/9	10-SCL-0.7-0.8	8.40	0.04	25							
H2096/10	10-SCL-0.9-1.0	8.56	0.06	73							
H2096/11	65-SCL-0.0-0.1	7.83	0.08	12							
H2096/12	65-SCL-0.2-0.3	8.47	0.13	10							
H2096/13	65-SCL-0.5-0.6	8.90	0.18	18							
H2096/14	65-SCL-0.8-0.9	8.93	0.32	101							
H2096/15	65-SCL-0.9-1.0	8.96	0.37	159							
H2096/16	91-SCL-0.0-0.1	6.99	0.08	12							
H2096/17	91-SCL-0.2-0.3	8.02	0.07	12							
H2096/18	91-SCL-0.5-0.6	9.13	0.33	211							
H2096/19	91-SCL-0.8-0.9	9.07	0.76	701							
H2096/20	91-SCL-0.9-1.0	8.95	0.94	1026							
H2096/21	110-SCL-0.0-0.1	7.30	0.10	27							
H2096/22	110-SCL-0.2-0.3	7.93	0.09	12							
H2096/23	110-SCL-0.5-0.6	8.83	0.26	39							
H2096/24	110-SCL-0.7-0.8	8.91	0.31	72							
H2096/25	110-SCL-0.9-1.0	9.04	0.29	47							
H2096/26	115-SCL-0.0-0.1	7.85	0.14	34							
H2096/27	150-SCL-0.2-0.3	8.19	0.16	14							
H2096/28	115-SCL-0.5-0.6	8.57	0.19	68							
H2096/29	115-SCL-0.8-0.9	8.69	0.22	16							
H2096/30	115-SCL-0.9-1.0	8.78	0.26	40							
H2096/31	N1-0.0-0.1	7.96	0.16	23							
H2096/32	N1-0.2-0.3	8.23	0.14	82							
H2096/33	N1-0.5-0.6	8.29	0.47	384							
H2096/34	N1-0.8-0.9	8.25	0.52	582							
H2096/35	N1-0.9-1.0	8.22	0.58	669							
H2096/36	N2-0.0-0.1	7.67	0.13	39							
H2096/37	N2-0.2-0.3	8.23	0.12	59							
H2096/38	N2-0.5-0.6	8.52	0.10	50							
H2096/39	N2-0.8-0.9	8.47	0.15	73							
H2096/40	N2-0.9-1.0	8.48	0.18	114							
H2096/41	N3-0.0-0.1	7.78	0.12	35							
H2096/42	N3-0.2-0.3	8.34	0.08	15							
H2096/43	N3-0.5-0.6	8.52	0.10	14							
H2096/44	N3-0.8-0.9	8.61	0.15	14							
H2096/45	N3-0.9-1.0	8.66	0.17	21	11.09	7.08	0.22	0.86	19.2	1.6	4
H2096/46	N4-0.0-0.1	7.57	0.25	28	9.04	4.50	0.91	0.18	14.6	2.0	1
H2096/47	N4-0.2-0.3	8.06	0.11	30	13.00	8.04	0.19	0.65	21.9	1.6	3
H2096/48	N4-0.5-0.6	9.23	0.27	140	9.34	10.33	0.06	1.14	20.9	0.9	5
H2096/49	N4-0.8-0.9	9.24	0.43	280	7.70	11.55	0.08	1.63	21.0	0.7	8
H2096/50	N4-0.9-1.0	9.18	0.54	514	7.79	12.78	0.07	1.92	22.6	0.6	9
H2096/51	N5-0.0-0.1	6.82	0.09	63	11.53	5.73	1.23	0.10	18.6	2.0	1
H2096/52	N5-0.2-0.3	8.05	0.09	15	16.60	10.13	0.24	0.87	27.8	1.6	3
H2096/53	N5-0.5-0.6	9.03	0.34	201	15.55	17.77	0.09	3.19	36.6	0.9	9
H2096/54	N5-0.8-0.9	9.04	0.71	649	12.21	17.99	0.03	3.56	33.8	0.7	11
H2096/55	N5-0.9-1.0	9.03	0.78	918	11.19	17.41	0.04	3.34	32.0	0.6	10
H2096/56	N6-0.0-0.1	7.15	0.11	9	24.76	12.10	0.74	0.37	38.0	2.0	1
H2096/57	N6-0.2-0.3	8.27	0.22	7	22.26	12.16	0.11	1.66	36.2	1.8	5
H2096/58	N6-0.5-0.6	8.94	0.46	320	20.31	16.39	0.02	5.19	41.9	1.2	12
H2096/59	N6-0.77-0.87	8.66	1.06	1429	18.88	18.62	0.09	6.13	43.7	1.0	14
H2096/60	N6-0.9-1.0	8.68	1.08	1213	17.42	17.46	0.05	5.09	40.0	1.0	13
H2096/61	N7-0.0-0.1	7.61	0.11	21	17.28	6.41	0.17	0.28	24.1	2.7	1
H2096/62	N7-0.2-0.3	8.52	0.10	50	17.58	8.15	0.08	0.57	26.4	2.2	2
H2096/63	N7-0.5-0.6	9.15	0.43	306	12.73	15.60	0.03	2.70	31.1	0.8	9
H2096/64	N7-0.8-0.9	8.90	1.02	980	12.12	19.17	0.02	4.63	35.9	0.6	13
H2096/65	N7-0.9-1.0	8.80	1.16	1014	13.39	21.72	0.05	5.38	40.5	0.6	13
H2096/66	N8-0.0-0.1	7.29	0.06	15	15.30	9.66	0.41	0.12	25.5	1.6	0
H2096/67	N8-0.2-0.3	8.87	0.16	82	15.69	14.97	0.07	1.33	32.1	1.0	4
H2096/68	N8-0.5-0.6	9.37	0.35	166	13.74	22.47	0.09	4.52	40.8	0.6	11
H2096/69	N8-0.8-0.9	9.16	0.81	643	11.56	23.51	0.09	5.45	40.6	0.5	13
H2096/70	N8-0.9-1.0	8.98	1.02	949	13.44	28.20	0.10	6.36	48.1	0.5	13
H2096/71	N9-0.0-0.1	7.77	0.23	12	10.73	5.32	0.66	0.26	17.0	2.0	2
H2096/72	N9-0.2-0.3	7.90	0.09	6	10.99	6.93	0.08	0.84	18.8	1.6	4
H2096/73	N9-0.55-0.65	9.20	0.40	235	12.80	16.78	0.03	3.26	32.9	0.8	10
H2096/74	N9-0.75-0.85	9.14	0.62	543	8.86	13.84	0.04	2.68	25.4	0.6	11
H2096/75	N9-0.9-1.0	9.01	0.90	929	9.62	16.95	0.02	3.25	29.8	0.6	11

Soil Analysis Report  
Batch Numbers: H2096

Date Received: 06/07/2018  
Date Completed: 25/07/2018

Client: GTE Saraji Results Page 2 of 2

Lab No	Sample No	ADMC	Gravel	CS>50µm	CS>20µm	2-50µm-Silt	2-20µm-Silt	Clay <2µm	15 Bar
	Depth (m)	%	%	%	%	%	%	%	%
H2096/1	4-SCL-0.0-0.1	11.2	0.3	36.5	36.5	16.6	16.6	46.8	28
H2096/2	4-SCL-0.2-0.3	14.9	0.3	28.6	28.6	23.4	23.4	48.0	32
H2096/3	4-SCL-0.5-0.6	15.8	0.0	27.4	30.3	23.6	20.7	49.0	32
H2096/4	4-SCL-0.7-0.8	17.5	1.6	29.3	32.9	23.9	20.3	46.8	33
H2096/5	4-SCL-0.9-1.0	16.5	1.0	24.0	36.7	37.9	25.2	38.1	30
H2096/6	10-SCL-0.0-0.1	13.4	0.6	68.2	75.1	15.0	8.1	16.8	16
H2096/7	10-SCL-0.2-0.3	6.0	0.4	70.0	67.5	9.5	11.9	20.5	13
H2096/8	10-SCL-0.5-0.6	7.2	3.8	65.9	67.3	11.2	9.8	22.9	14
H2096/9	10-SCL-0.7-0.8	8.1	6.4	52.9	59.0	22.7	16.6	24.4	15
H2096/10	10-SCL-0.9-1.0	9.2	3.5	45.7	49.3	24.8	21.1	29.5	17
H2096/11	65-SCL-0.0-0.1	22.5	0.5	22.4	28.9	34.6	28.0	43.1	27
H2096/12	65-SCL-0.2-0.3	13.9	0.3	30.1	41.6	25.7	14.1	44.3	28
H2096/13	65-SCL-0.5-0.6	15.0	0.1	16.7	26.8	35.7	25.6	47.6	30
H2096/14	65-SCL-0.8-0.9	16.3	3.1	22.9	25.8	26.3	23.4	50.8	31
H2096/15	65-SCL-0.9-1.0	16.9	6.1	24.7	28.0	23.7	20.5	51.6	31
H2096/16	91-SCL-0.0-0.1	11.0	1.5	70.4	82.0	15.7	4.0	13.9	12
H2096/17	91-SCL-0.2-0.3	9.0	1.0	67.6	74.5	15.0	8.1	17.4	14
H2096/18	91-SCL-0.5-0.6	8.9	1.5	54.5	59.6	11.5	6.4	34.0	19
H2096/19	91-SCL-0.8-0.9	11.6	2.6	53.1	58.7	10.0	4.4	36.9	21
H2096/20	91-SCL-0.9-1.0	12.1	1.7	45.0	47.3	17.5	15.2	37.5	22
H2096/21	110-SCL-0.0-0.1	9.3	0.5	44.3	56.3	18.5	6.5	37.2	22
H2096/22	110-SCL-0.2-0.3	15.9	0.5	31.3	43.4	21.3	9.3	47.3	28
H2096/23	110-SCL-0.5-0.6	17.3	7.2	20.4	36.6	21.6	5.4	58.0	30
H2096/24	110-SCL-0.7-0.8	19.4	24.8	20.9	28.8	33.3	25.4	45.8	33
H2096/25	110-SCL-0.9-1.0	17.9	22.3	41.3	55.5	37.1	23.0	21.5	33
H2096/26	115-SCL-0.0-0.1	18.0	0.8	40.4	46.1	22.8	17.1	36.8	24
H2096/27	150-SCL-0.2-0.3	17.0	0.2	36.2	38.7	22.0	19.5	41.8	29
H2096/28	115-SCL-0.5-0.6	22.1	0.6	32.2	44.1	18.2	6.4	49.6	31
H2096/29	115-SCL-0.8-0.9	22.7	5.1	27.3	36.2	28.0	19.0	44.7	32
H2096/30	115-SCL-0.9-1.0	22.3	1.2	35.7	38.9	10.6	7.5	53.7	32
H2096/31	N1-0.0-0.1	23.4	0.0	20.7	23.4	20.8	18.1	58.5	31
H2096/32	N1-0.2-0.3	16.1	0.0	16.5	24.0	19.3	11.8	64.2	33
H2096/33	N1-0.5-0.6	17.6	0.0	9.5	12.5	27.4	24.3	63.1	34
H2096/34	N1-0.8-0.9	17.8	0.4	14.2	13.6	18.6	19.2	67.2	34
H2096/35	N1-0.9-1.0	17.7	0.4	6.1	13.1	31.2	24.2	62.7	34
H2096/36	N2-0.0-0.1	16.1	0.0	33.1	42.2	20.8	11.6	46.1	30
H2096/37	N2-0.2-0.3	13.6	0.3	27.0	32.2	23.3	18.1	49.7	30
H2096/38	N2-0.5-0.6	13.8	0.1	21.3	27.7	25.0	18.7	53.7	31
H2096/39	N2-0.8-0.9	15.3	0.7	25.8	36.0	22.8	12.6	51.4	31
H2096/40	N2-0.9-1.0	15.5	0.3	25.0	32.1	24.0	16.9	51.0	31
H2096/41	N3-0.0-0.1	22.4	0.0	9.9	38.0	37.8	9.7	52.3	30
H2096/42	N3-0.2-0.3	14.4	0.4	25.2	32.4	24.0	16.9	50.8	29
H2096/43	N3-0.5-0.6	14.5	0.7	33.1	40.5	18.7	11.3	48.2	29
H2096/44	N3-0.8-0.9	14.8	0.3	20.7	37.8	26.8	9.7	52.6	29
H2096/45	N3-0.9-1.0	14.9	0.5	21.3	33.2	28.6	16.8	50.0	29
H2096/46	N4-0.0-0.1	12.2	0.7	76.4	93.2	17.9	1.1	5.7	11
H2096/47	N4-0.2-0.3	9.1	0.2	56.3	66.2	17.3	7.5	26.3	16
H2096/48	N4-0.5-0.6	8.1	0.4	56.0	65.6	21.5	12.0	22.5	14
H2096/49	N4-0.8-0.9	7.8	0.3	58.5	60.7	18.2	16.0	23.3	15
H2096/50	N4-0.9-1.0	8.3	0.5	50.1	59.3	26.8	17.6	23.1	14
H2096/51	N5-0.0-0.1	16.9	0.3	78.3	78.6	7.6	7.3	14.1	14
H2096/52	N5-0.2-0.3	11.0	1.2	62.8	67.0	14.6	10.3	22.6	18
H2096/53	N5-0.5-0.6	9.3	1.3	65.5	65.0	7.0	7.5	27.5	20
H2096/54	N5-0.8-0.9	10.9	2.1	63.1	62.2	4.0	5.0	32.9	20
H2096/55	N5-0.9-1.0	11.2	1.6	55.7	61.6	15.2	9.3	29.1	21
H2096/56	N6-0.0-0.1	22.8	0.1	51.2	54.4	22.5	19.3	26.2	22
H2096/57	N6-0.2-0.3	13.9	0.0	48.3	56.7	21.5	13.1	30.2	23
H2096/58	N6-0.5-0.6	16.5	0.1	21.8	29.0	27.2	20.1	51.0	31
H2096/59	N6-0.77-0.87	15.9	1.6	32.0	36.9	30.8	25.9	37.2	26
H2096/60	N6-0.9-1.0	14.7	4.3	40.5	47.5	23.2	16.3	36.3	22
H2096/61	N7-0.0-0.1	25.9	1.1	64.1	64.1	12.4	12.4	23.5	14
H2096/62	N7-0.2-0.3	9.8	1.4	52.5	66.7	24.2	9.9	23.3	17
H2096/63	N7-0.5-0.6	10.6	0.6	50.1	59.9	14.1	4.3	35.8	20
H2096/64	N7-0.8-0.9	13.8	2.4	42.0	53.7	22.9	11.3	35.1	23
H2096/65	N7-0.9-1.0	14.6	1.5	42.9	49.6	17.9	11.3	39.1	22
H2096/66	N8-0.0-0.1	15.8	1.3	74.1	77.3	9.2	6.0	16.7	13
H2096/67	N8-0.2-0.3	9.8	1.2	62.2	69.9	18.4	10.7	19.4	17
H2096/68	N8-0.5-0.6	12.1	3.4	44.6	58.5	21.3	7.4	34.1	24
H2096/69	N8-0.8-0.9	14.0	1.2	35.1	53.2	25.3	7.3	39.6	26
H2096/70	N8-0.9-1.0	15.9	2.8	34.4	47.2	22.8	9.9	42.9	26
H2096/71	N9-0.0-0.1	16.1	1.7	71.5	81.8	17.3	7.0	11.2	12
H2096/72	N9-0.2-0.3	7.0	1.2	62.2	76.4	18.3	4.1	19.5	13
H2096/73	N9-0.55-0.65	10.4	1.6	55.6	65.1	15.9	6.4	28.5	19
H2096/74	N9-0.75-0.85	9.5	2.3	60.8	59.9	15.0	15.9	24.2	17
H2096/75	N9-0.9-1.0	10.4	0.7	59.1	55.5	13.5	17.1	27.4	18



## METHOD DESCRIPTIONS

## Soil

Reference: H2096

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## Methods used to Analyse Samples

Analyte	ALHS*	Uncertainty %	LOQ	Unit	Name	Method Description
pH	4A1	1.1	0.1	pH	pH	1:5 water extr, pH meter
EC	3A1	5.4	0.01	dS/m	Electrical conductivity	1:5 water extr, EC meter
Cl	5A2	10.0	10.0	mg/kg	Chloride	1:5 water extr, (AA) colorimetric
NO3-N	7C2	6.7	1.0	mg/kg	Nitrate-nitrogen	1:5 water extr, (AA) colorimetric
NH4-N	7C2	7.8	0.6	mg/kg	Ammonium-nitrogen	1M KCl extr, (AA) colorimetric
Bicarb.P	9B2	16.8	1.0	mg/kg	Bicarb.ext.phosphorus	0.5M NaHCO3 @ pH 8.5, (AA) colorimetric
Exch.Ca	15B/C1	7.2	0.18	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Mg	15B/C1	4.7	0.31	meq/100g	Exchangeable magnesium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.Na	15B/C1	9.6	0.09	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
Exch.K	15B/C1	4.8	0.02	meq/100g	Exchangeable calcium	1M NH4OAc @ pH 7.0/8.5 leach, AAS
CEC	15I3	5.7	1.0	meq/100g	Cation Exchange Capacity	KNO3 + Ca(NO3)2 extr, (AA) colorimetric
ADMC	2A1	11.9	0.4	%	Air Dried Moisture Content	Gravimetric oven dry @ 105C
R1	NA	20.2	NA		Dispersion Ratio	Ratio [Aqueous dispersible (Silt + Clay):Total (Silt + Clay)]
SO4-S	10B3	11.5	0.6	mg/kg	Sulfate sulfur	Ca(H2PO4)2 @ pH 4.0 extractable sulfate-sulfur, ICPOES
Sand	no ref	22.1	1.0	%	Particle size, sand	Hydrometer, gravimetric & Sieve
Silt	no ref	16.6	1.0	%	Particle size, silt	Hydrometer, gravimetric
Clay	no ref	12.7	1.0	%	Particle size, clay	Hydrometer, gravimetric

\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

For Manager  
Analytical Services:**D E Baker BSc MASSSI**Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia*. CSIRO Publishing: Collingwood.

Soluble Salts included in Exchangeable Cations - Except PRE-WASHED (if EC&gt;0.3dS/m).

QUALITY CONTROL DATA

Soil

Reference: H20965

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\* Australian Laboratory Handbook of Soil and Water Chemical Methods (1992)

Test Method	Units		Actual Value	Acceptance Criteria [Range]
pH	pH	B		5.0 - 5.3
EC	dS/m	B		0.27 - 0.32
Cl	mg/kg	B		10 - 35
NO3-N	mg/kg	B		10 - 16
NH4-N	mg/kg	NA		NA
Bicarb.P	mg/kg	B		51 -75
Total Kjeldahl N	%	ASPAC 34	0.110	.100 - .120
Total P	%	ASPAC 34	0.02	.019 - .021
Organic Carbon	%	B		1.82 - 2.3
Ca (Exch. cations)pH7	meq/100g	B		6.96 - 8.04
Mg (Exch. cations)pH7	meq/100g	B		1.88 - 2.22
Na (Exch. cations)pH7	meq/100g	B		.057 - .182
K (Exch. cations)pH7	meq/100g	B		1.209 - 1.411
Exch. Acidity	meq/100g			NA
ECEC	meq/100g	A		NA
CEC	meq/100g	S12		58 - 73
ESP	%	A		NA
Coarse sand	%	B	17.0	17.3 - 22.4
Fine Sand	%	B	22.0	20.0 - 25.7
Silt	%	B	16.0	10.5 - 19.8
Clay	%	B	44.0	37.9 - 48.9
R1		B		0.23 - 0.38

Test Method	Units	Test Soil	Actual Value	Acceptance Criteria [Range]
DTPA-Cu	mg/kg	SB		2.37 - 3.25
DTPA-Zn	mg/kg	SB		3.15 - 3.81
DTPA-Mn	mg/kg	SB		97.7 - 149.0
DTPA-Fe	mg/kg	SB		24.3 - 32.6
0.33 Bar	%	G		32 - 51
15 Bar	%	G		23 - 30
Ca (Exch. cations)pH8.5	meq/100g	S12		27.7 - 35.4
Mg (Exch. cations)pH8.5	meq/100g	S12		22.88 - 24.5
Na (Exch. cations)pH8.5	meq/100g	S12		2.0 - 2.28
K (Exch. cations)pH8.5	meq/100g	S12		1.64 - 2.09