

Project Name: Regional
Project Code: REG **Site ID:** T88 **Observation ID:** 1
Agency Name: CSIRO Division of Soils (QLD)

Site Information

Desc. By:	G.G. Murtha	Locality:	3.7KM north of Atherton on Baron Road:
Date Desc.:	25/05/69	Elevation:	760 metres
Map Ref.:	Sheet No. : 7963 1:100000	Rainfall:	1270
Northing/Long.:	145.483333333333	Runoff:	Moderately rapid
Easting/Lat.:	-17.2333333333333	Drainage:	No Data

Geology

ExposureType:	Undisturbed soil core	Conf. Sub. is Parent. Mat.:	No Data
Geol. Ref.:	Cza	Substrate Material:	Auger boring, Basalt

Land Form

Rel/Slope Class:	Gently undulating rises 9-30m 1-3%	Pattern Type:	Plateau
Morph. Type:	No Data	Relief:	15 metres
Elem. Type:	Plain	Slope Category:	Gently inclined
Slope:	0 %	Aspect:	No Data

Surface Soil Condition (dry): Soft

Erosion:

Soil Classification

Australian Soil Classification:	Mapping Unit:	N/A
Melanic Mesotrophic Red Ferrosol	Principal Profile Form:	Gn3.11
ASC Confidence:	Great Soil Group:	Krasnozem
All necessary analytical data are available.		

Site Disturbance: No effective disturbance. Natural

Vegetation:

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A1	0 - 0.1 m	Dusky red (2.5YR3/2-Moist); ; Clay loam; Moderate grade of structure, <2 mm, Granular; Moist; Very weak consistence; Very few (0 - 2 %), , Medium (2 -6 mm), Nodules; Many
A1	0.1 - 0.2 m	Dusky red (2.5YR3/2-Moist); ; Clay loam; Weak grade of structure, 2-5 mm, Granular; Moist; Very weak consistence; Very few (0 - 2 %), , Medium (2 -6 mm), Nodules; Many
A3	0.2 - 0 m	Dusky red (2.5YR3/2-Moist); ; Clay loam (Heavy); Weak grade of structure, 2-5 mm, Polyhedral; Rough-ped fabric; Moist; Very weak consistence; Very few (0 - 2 %), , , Nodules; Few
B1	0.3 - 0.6 m	Dusky red (2.5YR3/2-Moist); ; Light clay (Heavy); Weak grade of structure, 2-5 mm, Polyhedral; Common (1-5 per 100mm2) Fine (1-2mm) macropores, Moist; Weak consistence; Very few (0 - 2 %), , , Nodules;
B21	0.6 - 0.9 m	Dusky red (2.5YR3/2-Moist); ; Light medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Common (1-5 per 100mm2) Fine (1-2mm) macropores, Moist; Weak consistence; Very few (0 - 2 %), , , Nodules;
B21	0.9 - 1.2 m	Dusky red (2.5YR3/2-Moist); ; Light medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Common (1-5 per 100mm2) Fine (1-2mm) macropores, Moist; Weak consistence; Very few (0 - 2 %), , , Nodules;
B21	1.2 - 1.5 m	Dusky red (2.5YR3/2-Moist); ; Light medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Moist; Weak consistence; Few (2 - 10 %), Argillaceous, Coarse (6 - 20 mm), Nodules;
B21	1.5 - 1.8 m	Dusky red (2.5YR3/2-Moist); ; Light medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Moist; Weak consistence; Few (2 - 10 %), Argillaceous, Coarse (6 - 20 mm), Nodules; Diffuse change to -
B22	1.8 - 2.1 m	Dark reddish brown (2.5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Moist; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules;
B22	2.1 - 2.4 m	Dark reddish brown (2.5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Moist; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules; Diffuse change to -

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B23	2.4 - 2.7 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Moist; Weak consistence;
B23	2.7 - 3 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Moist; Weak consistence;
	3 - 3.3 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Weak consistence;
	3.3 - 3.6 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Weak consistence;
	3.6 - 3.9 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Weak consistence;
	3.9 - 4.2 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Weak consistence;
	4.2 - 4.5 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules;
	4.5 - 4.8 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules;
	4.8 - 5.1 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules;
	5.1 - 5.4 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules;
	5.4 - 5.8 m	Dark red (2.5YR3/6-Moist); ; Medium clay; Strong grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Weak consistence; Few (2 - 10 %), Manganiferous, Medium (2 -6 mm), Nodules; Gradual change to -
	5.8 - 6.15 m	Dark reddish brown (5YR3/3-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Weak consistence; Many (20 - 50 %), Manganiferous, Very coarse (20 - 60 mm), Nodules;
	6.15 - 6.6 m	Dark reddish brown (5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Weak consistence; Common (10 - 20 %), Manganiferous, Medium (2 -6 mm), Nodules;
B	6.6 - 6.9 m	Dark reddish brown (5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Moist; Weak consistence; Common (10 - 20 %), Manganiferous, Medium (2 -6 mm), Nodules;
	6.9 - 7.2 m	Dark reddish brown (5YR3/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Polyhedral; Weak consistence; Common (10 - 20 %), Manganiferous, Medium (2 -6 mm), Nodules;
	7.2 - 7.5 m	Yellowish red (5YR3/6-Moist); ; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules;
	7.5 - 8.1 m	Yellowish red (5YR3/6-Moist); ; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules;
	8.1 - 8.7 m	Yellowish red (5YR3/6-Moist); ; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules;
	8.7 - 9.3 m	Dark red (2.5YR3/6-Moist); , 2.5Y50; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence;
	9.3 - 9.9 m	Dark red (2.5YR3/6-Moist); , 2.5Y50; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence;
	9.9 - 0.2 m	Dark red (2.5YR3/6-Moist); , 2.5Y50; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Firm consistence;
BC	0.2 - 0.35 m	Dark red (2.5YR3/6-Moist); , 2.5Y50; Medium heavy clay; Strong grade of structure, 2-5 mm, Polyhedral; Moist; Firm consistence; 0-2%, Basalt, coarse fragments;

Morphological Notes

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Observation Notes

TRACE OF SOFT WEATHERED BASALT FROM 1020CM:

Site Notes

TOLGA

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations			Na	Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Cmol (+)/kg	Acidity			%
0 - 0.1	6A	2958A	11.7B	2.3	1.29	1.4	0.36F		17.1F	
0.1 - 0.2	6.3A	0.038A	10.4B	1.8	0.96	0.37				
0.2 - 0.3	6.4A	0.127A	7.5B	1.4	0.83	0.4	0.12F		10.2F	
0.3 - 0.6	6.3A	0.071A	5.4B	1.2	0.71	0.34	0.06F		7.7F	
0.6 - 0.9	6.3A	0.029A								
0.9 - 1.2	6.1A	0.061A	2.5B	1.4	0.52	0.26	0.04F		4.7F	
1.2 - 1.5	5.8A	0.038A								
1.5 - 1.8	5.5A	0.055A	2B	1	0.39	0.24	0.04F		3.7F	
1.8 - 2.1	5.4A	0.035A								
2.1 - 2.4	5.2A	0.055A	1.6B	1.3	0.17	0.22	0.04F		3.3F	
2.4 - 2.7	4.9A	0.038A								
2.7 - 3	4.8A	0.05A								
3 - 3.3	5.1A	0.062A								
3.3 - 3.6	5A	0.074A								
3.6 - 3.9	5.2A	0.074A								
3.9 - 4.2	5.2A	0.062A	1.8B	1.1	0.05	0.22				
4.2 - 4.5	5.5A	0.041A								
4.5 - 4.8	5.6A	0.023A								
4.8 - 5.1	5.7A	0.02A								
5.1 - 5.4	5.8A	0.023A	1.7B	1.5	0.04	0.31				
5.4 - 5.8	5.7A	0.023A								
5.8 - 6.15	5.7A	0.017A								
6.15 - 6.6	5.7A	0.014A								
6.6 - 6.9	5.8A	0.02A	1.6B	3	0.07	0.27				
6.9 - 7.2	5.8A	0.02A								
7.2 - 7.5	5.7A	0.017A								
7.5 - 8.1	5.5A	0.023A								
8.1 - 8.7	5.6A	0.02A	1B	3	0.05	0.3				
8.7 - 9.3	5.7A	0.02A								
9.3 - 9.9	5.8A	0.02A								
9.9 - 0.2	5.8A	0.02A								
0.2 - 0.35										

Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	Particle		Size	Analysis	
m	%	%	P	P	N	K	Density	GV	CS	FS	Silt	Clay
0 - 0.1		3.34D	113A	0.314A	0.432A	0.27A		<2	8D	7	13	61
0.1 - 0.2		1.57D	112B	0.24A	0.215A	0.26A		<2	3D	9	16	65
0.2 - 0.3		0.97D	35A	0.214A	0.126A	0.25A		<2	4D	8	20	65
0.3 - 0.6		0.44D	59A	0.166A	0.084A	0.24A		<2	4D	8	15	62
0.6 - 0.9			26.3B									
0.9 - 1.2		0.14D	25A	0.162A	0.018A	0.3A		<2	4D	8	18	54
1.2 - 1.5			13.9B									
1.5 - 1.8		0.07D		5.3B	0.175A	0.008A	0.3A	<2	4D	5	17	65
1.8 - 2.1												
2.1 - 2.4			16.5B	0.17A		0.27A		<2	2D	7	22	65

Age Group	0.236A	0.15A	<2	2D	3	22	62
2.4 - 2.7							
2.7 - 3				1D	5	33	67
3 - 3.3							
3.3 - 3.6							
3.6 - 3.9							
3.9 - 4.2	0.236A	0.15A	<2	2D	3	22	62
4.2 - 4.5							
4.5 - 4.8							
4.8 - 5.1							
5.1 - 5.4	0.293A	0.13A	<2	3D	3	27	66
5.4 - 5.8							
5.8 - 6.15							
6.15 - 6.6							
6.6 - 6.9	0.389A	0.19A	<2	9D	4	25	65
6.9 - 7.2							
7.2 - 7.5	0.362A	0.19A					
7.5 - 8.1							
8.1 - 8.7	0.384A	0.14A	<2	7D	8	23	52
8.7 - 9.3							
9.3 - 9.9	0.341A	0.1A					
9.9 - 0.2							
0.2 - 0.35							

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Laboratory Analyses Completed for this profile

10A1	Total sulfur - X-ray fluorescence
13C1_FE	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
15A2_CA	Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15G_C	Exchange acidity (hydrogen and aluminium) - meq per 100g of soil - By 1M KCl exch. acidity by titration to pH 8.4
15J1	Effective CEC
17A1	Total potassium - X-ray fluorescence
2_LOI	Loss on Ignition (%)
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A2	Chloride - 1:5 soil/water extract, automated colour
6A1_UC	Organic carbon (%) - Uncorrected Walkley and Black method
7A2	Total nitrogen - semimicro Kjeldahl , automated colour
9A1	Total phosphorus - X-ray fluorescence
9B_9C	Available P (mg/kg) - Bicarbonate P - 0.5M NaHCO ₃ extractable
9G_BSES	Available P (mg/kg) - Acid P - 0.005M H ₂ SO ₄ (BSES)
9H1	Phosphate retention
MIN_EC	Exchange Capacity - Minerology
P10_GRAV	Gravel (%)
P10_PB_C	Clay (%) - Plummet balance
P10_PB_CS	Coarse sand (%) - Plummet balance
P10_PB_FS	Fine sand (%) - Plummet balance
P10_PB_Z	Silt (%) - Plummet balance
XRD_C_Ch2	Chloritized 2:1 minerals - X-Ray Diffraction
XRD_C_Gb	Gibbsite - X-Ray Diffraction
XRD_C_Hm	Hematite - X-Ray Diffraction
XRD_C_Ht0	Halloysite (10 Å) - X-Ray Diffraction
XRD_C_K2O	K ₂ O - X-Ray Diffraction or Clay Fraction (air dry)
XRD_C_Ka	Kaolin - X-Ray Diffraction
XRD_C_Mh	Meghemite - X-Ray Diffraction
XRD_C_Mu	Muscovite - X-Ray Diffraction