

Project Name: Regional
Project Code: REG **Site ID:** T137 **Observation ID:** 1
Agency Name: CSIRO Division of Soils (QLD)

Site Information

Desc. By:	R.F. Isbell	Locality:	McDonnell experimental area:
Date Desc.:	18/07/70	Elevation:	No Data
Map Ref.:	Sheet No. : 7474 1:100000	Rainfall:	1680
Northing/Long.:	142.55	Runoff:	No Data
Easting/Lat.:	-11.75	Drainage:	No Data

Geology

ExposureType:	Undisturbed soil core	Conf. Sub. is Parent. Mat.:	No Data
Geol. Ref.:	Jkb	Substrate Material:	Undisturbed soil core, 6 m deep, Sandstone

Land Form

Rel/Slope Class:	Undulating rises 9-30m 3-10%	Pattern Type:	Rises
Morph. Type:	Ridge	Relief:	No Data
Elem. Type:	Hillslope	Slope Category:	Gently inclined
Slope:	1 %	Aspect:	No Data

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:		Mapping Unit:	N/A
Ferric Dystrophic Red Kandosol		Principal Profile Form:	Gn2.64
ASC Confidence:		Great Soil Group:	Yellow earth
All necessary analytical data are available.			

Site Disturbance: No effective disturbance other than grazing by hoofed animals

Vegetation:

Tall Strata - Heath shrub, 1.01-3m, Mid-dense. *Species includes - None Recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.05 m	Greyish brown (10YR5/2-Moist); Grey (10YR6/1-Dry); ; Loamy sand; Weak grade of structure, 5-10 mm, Angular blocky; Massive grade of structure; Dry; Very firm consistence; Few, fine (1-2mm) roots; Clear change to -
A12	0.05 - 0.1 m	Brown (10YR4/3-Moist); Pale brown (10YR6/3-Dry); ; Sandy loam; Weak grade of structure, 5-10 mm, Angular blocky; Massive grade of structure; Dry; Very firm consistence; Few, medium (2-5mm) roots; Gradual change to -
A2	0.1 - 0.2 m	Yellowish brown (10YR5/4-Moist); Light yellowish brown (10YR6/4-Dry); ; Sandy loam; Weak grade of structure, 5-10 mm, Angular blocky; Massive grade of structure; Dry; Very firm consistence; Few, coarse (>5mm) roots; Gradual change to -
A2	0.2 - 0.3 m	Brownish yellow (10YR6/6-Moist); Brownish yellow (10YR6/6-Dry); ; Sandy loam (Heavy); Massive grade of structure; Dry; Very firm consistence; Few, fine (1-2mm) roots; Gradual change to -
A3	0.3 - 0.4 m	Brownish yellow (10YR6/6-Moist); Yellow (10YR7/7-Dry); ; Sandy clay loam (Light); Massive grade of structure; Moderately moist; Weak consistence; Gradual change to -
A3	0.4 - 0.5 m	Brownish yellow (10YR6/6-Moist); Yellow (10YR7/7-Dry); ; Sandy clay loam (Light); Massive grade of structure; Moderately moist; Very weak consistence; Gradual change to -
B1	0.5 - 0.6 m	Reddish yellow (7.5YR7/8-Moist); , 5YR6/8; Sandy clay loam; Massive grade of structure; Moderately moist; Very weak consistence; Gradual change to -
B1	0.6 - 7.5 m	Reddish yellow (7.5YR7/7-Moist); , 2.5Y76, 2-10% , 5-15mm, Faint; , 2-10% , 5-15mm, Faint; Sandy clay loam; Massive grade of structure; Moderately moist; Weak consistence; Gradual change to -
B21	0.75 - 0.9 m	Reddish yellow (5YR6/8-Moist); , 2.5YR58, 2-10% , 0-5mm, Distinct; , 10YR78, 2-10% , 0-5mm, Distinct; Sandy clay loam; Massive grade of structure; Moderately moist; Weak consistence; Gradual change to -
B21	0.9 - 1.05 m	Reddish yellow (5YR6/8-Moist); , 10YR78, 2-10% , 15-30mm, Distinct; , 2.5YR58, 2-10% , 15-30mm, Distinct; Sandy clay loam (Heavy); Massive grade of structure; Dry; Very firm consistence; Gradual change to -

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B22	1.05 - 1.2 m	Light red (2.5YR6/8-Moist); , 10YR78, 2-10% , 15-30mm, Distinct; , 2.5YR58, 2-10% , 15-30mm, Distinct; Sandy clay loam (Heavy); Massive grade of structure; Dry; Very firm consistence; Few (2 - 10 %), Argillaceous, Medium (2 -6 mm), Nodules; Gradual change to -
B22	1.2 - 1.5 m	Light red (2.5YR6/8-Moist); , 10YR68, 10-20% , 15-30mm, Distinct; , 2.5YR58, 10-20% , 15-30mm, Distinct; Sandy clay loam (Heavy); Massive grade of structure; Moderately moist; Weak consistence; Gradual change to -
B23	1.5 - 1.8 m	Red (2.5YR5/8-Moist); , 7.5YR66, 10-20% , 15-30mm, Distinct; , 10YR68, 10-20% , 15-30mm, Distinct; Clay loam (Heavy); Massive grade of structure; Moderately moist; Weak consistence; Gradual change to -
B23	1.8 - 1.9 m	Red (2.5YR5/8-Moist); , 7.5YR66, 10-20% , 15-30mm, Distinct; , 10YR68, 10-20% , 15-30mm, Distinct; Clay loam (Heavy); Massive grade of structure; Moderately moist; Weak consistence; Few (2 - 10 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Clear change to -
B23	1.9 - 2.1 m	Red (2.5YR5/8-Moist); ; Clay loam (Heavy); Massive grade of structure; Moderately moist; Weak consistence; Very many (50 - 100 %), Ferruginous, Very coarse (20 - 60 mm), Nodules; Gradual change to -
	2.1 - 2.4 m	Red (2.5YR5/8-Moist); , 5YR66; Light clay; Massive grade of structure; Weak consistence; Many (20 - 50 %), Ferruginous, Very coarse (20 - 60 mm), Nodules; Gradual change to -
	2.4 - 2.7 m	Red (2.5YR5/8-Moist); , 5YR66, 2-10% , 5-15mm, Distinct; , 10YR76, 2-10% , 5-15mm, Distinct; Light medium clay; Massive grade of structure; Firm consistence; Many (20 - 50 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Gradual change to -
	2.7 - 3 m	Red (2.5YR4/8-Moist); , 5YR66, 2-10% , 5-15mm, Distinct; , 10YR76, 2-10% , 5-15mm, Distinct; Light medium clay; Massive grade of structure; Weak consistence; Common (10 - 20 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Gradual change to -
	3 - 3.3 m	Red (2.5YR5/8-Moist); , 5YR66, 2-10% , 5-15mm, Distinct; , 10YR76, 2-10% , 5-15mm, Distinct; Light medium clay; Massive grade of structure; Firm consistence; 10-20%, medium gravelly, 6-20mm, Sandstone, coarse fragments; Few (2 - 10 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Gradual change to -
	3.3 - 3.6 m	Red (2.5YR5/8-Moist); , 10YR76, 10-20% , 15-30mm; , 10YR81, 10-20% , 15-30mm; Medium clay; Massive grade of structure; Firm consistence; 10-20%, coarse gravelly, 20-60mm, Sandstone, coarse fragments; Very few (0 - 2 %), Ferruginous, , Nodules; Gradual change to -
	3.6 - 3.9 m	Red (2.5YR5/8-Moist); , 10YR78, 10-20% , 15-30mm, Distinct; , 2.5YR48, 10-20% , 15-30mm, Distinct; Medium clay; Massive grade of structure; Firm consistence; 2-10%, coarse gravelly, 20-60mm, Sandstone, coarse fragments; Very few (0 - 2 %), Ferruginous, , Nodules; Gradual change to -
	3.9 - 4.4 m	Light red (2.5YR6/8-Moist); , 10YR78, 10-20% , 0-5mm, Distinct; , 10-20% , 0-5mm, Distinct; Medium clay; Massive grade of structure; Firm consistence; 2-10%, coarse gravelly, 20-60mm, Sandstone, coarse fragments; Gradual change to -
	4.4 - 4.9 m	Red (2.5YR5/8-Moist); , 10YR78, 10-20% , 5-15mm, Distinct; , 10YR81, 10-20% , 5-15mm, Distinct; Medium clay; Massive grade of structure; Very firm consistence; 2-10%, coarse gravelly, 20-60mm, Sandstone, coarse fragments; Gradual change to -
	4.9 - 5.4 m	Red (2.5YR5/6-Moist); , 5Y81, 10-20% , 15-30mm, Distinct; , 7.5YR58, 10-20% , 15-30mm, Distinct; Medium heavy clay; Weak grade of structure, 10-20 mm, Angular blocky; Very firm consistence; 2-10%, medium gravelly, 6-20mm, Sandstone, coarse fragments; Gradual change to -
	5.4 - 5.65 m	Red (2.5YR5/6-Moist); , 5Y81, 10-20% , 15-30mm, Distinct; , 7.5YR58, 10-20% , 15-30mm, Distinct; Medium heavy clay; Weak grade of structure, 10-20 mm, Angular blocky; Very firm consistence; 2-10%, coarse gravelly, 20-60mm, Sandstone, coarse fragments; Gradual change to -
C	5.65 - 6 m	; Abrupt change to -

Morphological Notes

C Coarse 10YR68(M) SST.+ lenses of SC+5YR66(M) pan like mat:

Observation Notes

10-40CM A1 MATERIAL INTERMIXED: 565-600CM FERRUGINOUS PAN LIKE MATERIALPRESENT:

Site Notes

HEATHLANDS

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Laboratory Test Results:

Depth	pH	1:5 EC	Ca	Exchangeable Mg	Cations K	Na	Exchangeable Acidity	CEC	ECEC	ESP
m		dS/m				Cmol (+)/kg				%
0 - 0.05	5.7A	0.035A	0.19B	0.17	0.07	0.11	3.5F	2.1C	4F	5.24
0.05 - 0.1	5.8A	0.029A								
0.1 - 0.2	5.7A	0.029A								
0.2 - 0.3	5.8A	0.023A	0.04B	0.11	0.06	0.08	1.4F	0.9C	1.7F	8.89
0.3 - 0.4	5.8A	0.017A								
0.4 - 0.5	5.7A	0.026A								
0.5 - 0.6	5.8A	0.023A	0.04B	0.09	0.06	0.07	1F	0.7C	1.3F	10.00
0.6 - 0.75	5.9A	0.02A								
0.75 - 0.9	5.9A	0.02A								
0.9 - 1.05	5.8A	0.023A								
1.05 - 1.2	5.6A	0.035A	0.07B	0.23	0.16	0.07	1.4F	0.8C	1.9F	8.75
1.2 - 1.5	5.9A	0.023A								
1.5 - 1.8	5.8A	0.023A								
1.8 - 1.9	5.6A	0.032A								
1.9 - 2.1	5.8A	0.026A	0.04B	0.45	0.13	0.08	2.4F	0.6C	3.1F	13.33
2.1 - 2.4	5.9A	0.023A								
2.4 - 2.7	5.8A	0.032A								
2.7 - 3	5.5A	0.029A								
3 - 3.3	5.7A	0.023A								
3.3 - 3.6	5.5A	0.029A								
3.6 - 3.9	5.4A	0.017A								
3.9 - 4.4	5.7A	0.02A								
4.4 - 4.9	5.5A	0.032A								
4.9 - 5.4	5.4A	0.026A								
5.4 - 5.65	5.7A	0.023A								
5.65 - 6	5.6A	0.02A								

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle GV	Size CS	Analysis FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.05		0.99D	<2A 2B	0.005A	0.05A	0.03A		0	33A	54	3	10
0.05 - 0.1		0.96D			0.05A			0	32A	55	2	11
0.1 - 0.2								0	40A	45	2	13
0.2 - 0.3		0.23D	<2A <2B	0.004A	0.02A	0.03A		0	29A	55	2	14
0.3 - 0.4								0	37A	47	2	15
0.4 - 0.5												
0.5 - 0.6		0.08D	<2B		0.01A							
0.6 - 0.75				0.003A		0.03A		1	30A	55	2	13
0.75 - 0.9								<2	31A	52	2	16
0.9 - 1.05												
1.05 - 1.2			2B	0.006A		0.05A		<2	25A	44	2	29
1.2 - 1.5												
1.5 - 1.8								2	26A	34	1	39
1.8 - 1.9												
1.9 - 2.1			2B	0.011A		0.09A		80	24A	41	2	33
2.1 - 2.4								56	18A	40	2	40
2.4 - 2.7												
2.7 - 3								22	19A	36	4	41

3 - 3.3					
3.3 - 3.6	14	25A	39	4	32
3.6 - 3.9					
3.9 - 4.4					
4.4 - 4.9	20	30A	31	3	36
4.9 - 5.4	10	25A	26	17	32
5.4 - 5.65					
5.65 - 6	40	77A	11	4	8

[illegible]

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Laboratory Analyses Completed for this profile

10A1	Total sulfur - X-ray fluorescence
12_HF_CU	Total element - Cu(mg/kg) - HF/HClO ₄ Digest
12_HF_FE	Total element - Fe(%) - HF/HClO ₄ Digest
12_HF_MN	Total element - Mn(mg/kg) - HF/HClO ₄ Digest
12_HF_ZN	Total element - Zn(mg/kg) - HF/HClO ₄ Digest
13C1_AL	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
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
15D1_CEC	CEC - 1M ammonium acetate at pH 7.0, pretreatment for soluble salts; manual leach
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
2A1	Air-dry moisture content
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
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_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_CS	Coarse sand (%) - Coventry and Fett pipette method
P10_CF_FS	Fine sand (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method
P10_GRAV	Gravel (%)
XRD_C_Hm	Hematite - 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_Qz	Quartz - X-Ray Diffraction