

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** ed353 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b> W.T. Ward	<b>Locality:</b> J.Amos/R.Simpson, Woodville
<b>Date Desc.:</b> 07/09/87	<b>Elevation:</b> 296 metres
<b>Map Ref.:</b> Sheet No. : 8837_N 1:50000	<b>Rainfall:</b> No Data
<b>Northing/Long.:</b> 6660400 AMG zone: 55	<b>Runoff:</b> No Data
<b>Easting/Lat.:</b> 781250 Datum: AGD66	<b>Drainage:</b> No Data

#### Geology

<b>ExposureType:</b> Undisturbed soil core	<b>Conf. Sub. is Parent. Mat.:</b> No Data
<b>Geol. Ref.:</b> No Data	<b>Substrate Material:</b> No Data

#### Land Form

<b>Rel/Slope Class:</b> No Data	<b>Pattern Type:</b> No Data
<b>Morph. Type:</b> No Data	<b>Relief:</b> No Data
<b>Elem. Type:</b> Pediment	<b>Slope Category:</b> Gently inclined
<b>Slope:</b> 2 %	<b>Aspect:</b> 180 degrees

**Surface Soil Condition (dry):** Hardsetting

#### Erosion:

#### Soil Classification

<b>Australian Soil Classification:</b> N/A	<b>Mapping Unit:</b> N/A
<b>ASC Confidence:</b> Confidence level not specified	<b>Principal Profile Form:</b> Dr2.13
	<b>Great Soil Group:</b> Red-brown earth

**Site Disturbance:** Complete clearing. Pasture, native or improved, cultivated at some stage

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11	0 - 0.1 m	Dark reddish brown (5YR3/2-Moist); Dark reddish grey (5YR4/2-Dry); ; Sandy loam; Weak grade of structure, 2-5 mm, Granular; Moderate grade of structure, 10-20 mm, Platy; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 0.01m2) Medium (2-5mm) macropores, Moderately moist; Weak consistence; Field pH 5.8 (pH meter); Common, very fine (0-1mm) roots;
A12	0.1 - 0.2 m	Dark reddish grey (5YR4/2-Moist); , 5YR52, 10-20% , 15-30mm, Distinct; Sandy clay loam; Moderate grade of structure, 10-20 mm, Platy; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Weak consistence; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Wavy change to -
B21	0.2 - 0.55 m	Reddish brown (5YR4/4-Moist); , 5YR22, 0-2% , 5-15mm, Distinct; , 5YR53, 0-2% , 0-5mm, Distinct; Light clay; Moderate grade of structure, 50-100 mm, Prismatic; Moderate grade of structure, 10-20 mm, Subangular blocky; Smooth-ped fabric; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subrounded, Ironstone, coarse fragments; Field pH 8 (pH meter); Few, very fine (0-1mm) roots;
B22	0.55 - 1 m	Reddish brown (5YR4/4-Moist); ; Light medium clay; Weak grade of structure, 50-100 mm, Prismatic; Moderate grade of structure, 10-20 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Ironstone, coarse fragments; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 8.8 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B23	1 - 1.85 m	Yellowish brown (10YR5/4-Moist); , 7.5YR44, 10-20% , 5-15mm, Distinct; Light medium clay; Weak grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 10-20 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subrounded, Ironstone, coarse fragments; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 8.8 (pH meter); Few, very fine (0-1mm) roots;
C	1.85 - 2.63 m	Red (2.5YR4/6-Moist); , 7.5YR56, 10-20% , 5-15mm, Prominent; Light medium clay; Weak grade of structure, 50-100 mm, Angular blocky; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 2-10%, medium gravelly, 6-20mm, subrounded, Ironstone, coarse fragments; Few (2 - 10 %), Calcareous, Medium (2 -6 mm), Veins; Field pH 8.8 (pH meter); Abrupt, Smooth change to -

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D1	2.63 - 3.1 m	Red (2.5YR4/6-Moist); , 10YR54, 2-10% , 5-15mm, Distinct; Light clay; Weak grade of structure, 20-50 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Ironstone, coarse fragments; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 8.8 (pH meter); Abrupt, Smooth
D2	3.1 - 3.64 m	Reddish brown (2.5YR4/4-Moist); , 7.5YR54, 10-20% , 0-5mm, Prominent; Light medium clay; Strong grade of structure, 50-100 mm, Lenticular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Few cutans, <10% of ped faces or walls coated, distinct; Few (2 - 10 %), Calcareous, Medium (2 -6 mm), Veins; Field pH 8.8 (pH meter);

### **Morphological Notes**

A11	Several fragments of ironstone between 40 and 70cm in lower part of sandy surface wash; more fragments at 90 suggest pedisediment extends to this depth. Calcareous nodules start at 50cm. Roots at 70-80 are mostly in vertical faunal passageways.
A12	Broken subrounded small quartz pebble at 140cm. A waterworn subrounded sandstone pebble lies at 182cm. Sampled at 240-250cm because of gravel band at 250-260cm which may be the contact, pedisediment to Garawilla/Purlawaugh. The sediment below the gravel is clayey at top, sandier beneath, to 310cm, where there are quartz gravels and ironstones. Note carbonate-coated plate of ironstone at 225cm. The break at 263cm separates Purlawaugh (from 263-310) from pedisediment above
B21	
B22	with waterworn ironstone and some quartz gravel at the 263cm contact. Garawilla Volcanics lie below 310cm. The material at 250-260 appeared to be a slightly redder version of 120-130 sample, but when aggregates were broken they were found
B23	to be quite red, suggesting an inherited prior soil horizon as parent material. This red weathering extends down to 364, the bottom of the hole. At 350 the stains in fissures may be hydromorphic. Colluvium from sandstone and Purlawaugh, containing prior soil formed in this colluvium, over Purlawaugh/Garawilla. This is a red-weathered pedisediment which has a lot of carbonate in it, otherwise similar to Murrumbilla transect.
C	

### **Observation Notes**

Parent Rock: colluvial sediment, from sandstone, with lime, mudstone colluvium, weathered

### **Site Notes**

Site 353 is 90m from 352 and at the same level.

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**Laboratory Test Results:**

Depth	pH	1:5 EC	Exchangeable Cations			Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Na	Acidity		%
						Cmol (+)/kg			
0 - 0.1	6.04A	0.087A	2.83B	4.07	0.64	0.31			
0.1 - 0.2	6.59A	0.039A	2.49B	2.91	0.23	0.57			
0.3 - 0.4	8.57A	0.081A	5.14B	10.81	0.21	5.29			
0.7 - 0.8	9.15A	0.505A	4.27B	10.94	0.26	8.75			
1.2 - 1.3	9.26A	0.641A	3.71B	7.61	0.31	8.48			
2.4 - 2.5	9.29A	0.625A	2.83B	7.48	0.26	9.4			
2.8 - 2.9	9.36A	0.536A	2.64B	7.28	0.2	8.67			
3.5 - 3.6	9.33A	0.738A	3.23B	9.969999	0.2	13.64			

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size		Analysis	
m	%	%	mg/kg	%	%	%	Mg/m3	GV	CS	FS %	Silt Clay
0 - 0.1	<0.1B	1.55C	10.4J								
0.1 - 0.2	<0.1B	0.62C	6.8J								
0.3 - 0.4	<0.1B	0.33C	<1J								
0.7 - 0.8	0.4B	0.25C	<1J								
1.2 - 1.3	0.3B	0.14C	4.6J								
2.4 - 2.5	2.1B	0.09C	4.3J								
2.8 - 2.9	1.6B	0.07C	7.7J								
3.5 - 3.6	5.5B	0.05C	3.2J								

[illegible]

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**Laboratory Analyses Completed for this profile**

15A2_CA	Exchangeable bases (Ca <sup>2+</sup> ,Mg <sup>2+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ) - 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
19B1	Carbonates - manometric
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
6B3	Total organic carbon - high frequency induction furnace, infrared
7B1	Water soluble nitrate - automated colour
9B1	Bicarbonate-extractable phosphorus - manual colour