

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** ed419 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b> M.E. Heape	<b>Locality:</b> Bruce Tout, Oakvale
<b>Date Desc.:</b> 09/04/86	<b>Elevation:</b> 299 metres
<b>Map Ref.:</b> Sheet No. : 8837_N 1:50000	<b>Rainfall:</b> No Data
<b>Northing/Long.:</b> 6663500 AMG zone: 55	<b>Runoff:</b> No Data
<b>Easting/Lat.:</b> 775900 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> Hillcrest	<b>Slope Category:</b> Very gently sloped
<b>Slope:</b> 1 %	<b>Aspect:</b> 70 degrees

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

#### 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> Dr4.43
	<b>Great Soil Group:</b> Solodic soil

**Site Disturbance:** Cultivation. Rainfed

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A1	0 - 0.11 m	Dark brown (7.5YR3/2-Moist); Brown (7.5YR4/2-Dry); ; Clayey sand; Weak grade of structure, 20-50 mm, Angular blocky; Weak grade of structure, 2-5 mm, Granular; Rough-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Firm consistence; Field pH 7 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to -
A2	0.11 - 0.16 m	Brown (7.5YR5/2-Moist); ; Fine sandy light clay; Weak grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; 2-10%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 7 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
B21	0.16 - 0.55 m	Yellowish red (5YR4/6-Moist); , 7.5YR42, 2-10% , 0-5mm, Distinct; Medium heavy clay; Weak grade of structure, 20-50 mm, Prismatic; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Rough-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 8 (pH meter); Few, fine (1-2mm) roots; Gradual,
B22k	0.55 - 1.13 m	Reddish brown (5YR5/4-Moist); , 5YR21, 2-10% , 0-5mm, Distinct; Light clay; Moderate grade of structure, 50-100 mm, Prismatic; Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Consolidated rock (unidentified), coarse fragments; Common (10 - 20 %), Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
C1	1.13 - 1.9 m	Pale yellow (2.5Y8/4-Moist); , 10YR33, 2-10% , 30-mm, Prominent; Light clay; Massive grade of structure; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Few (2 - 10 %), Calcareous, Very coarse (20 - 60 mm), Nodules; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots;
C2	1.9 - 3.03 m	Yellow (10YR8/6-Moist); ; Clayey coarse sand; Massive grade of structure; Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 6.5 (pH meter); Few, fine (1-2mm) roots;

#### Morphological Notes

A1 From 16-22cm there is a dark, organic-enriched layer, being the top of the B2. The break

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A2                      vel bands. Roots extend to at least 220cm. Carbonates stop at 160cm. The sandstone has abundant, very fine white clay cementing the sand grains. Overall, this is a most red/brown profile. Apparently well aerated. Co-author McGarry.

**Observation Notes**

Parent Rock: alluvial sediment, from sandstone, with lime, Tertiary beds

**Site Notes**

Site located approximately 100 m from grid point. Field situated 100 m away has hard setting soil (by Northcote classification) although natural soil is loose, not hard setting.

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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	6.05A	0.199A	8.4B	2.53	0.65	0.03			
0.1 - 0.16	6.33A	0.075A	7.45B	3.16	0.58	0.19			
0.3 - 0.4	7.67A	0.181A	13.25B	9.83	0.63	1.1			
0.7 - 0.8	9.14A	0.36A	9.46B	9.91	0.35	2.06			
1.2 - 1.3	9.57A	0.442A	7.84B	17.7	0.29	4.46			
2.5 - 2.6	7.01A	0.322A	3.17B	18.95	0.17	7.86			

Depth m	CaCO <sub>3</sub>	Organic C	Avail. P mg/kg	Total P %	Total N %	Total K %	Bulk Density Mg/m <sup>3</sup>	Particle Size		Analysis Silt	Clay
	%	%					GV	CS	FS %		
0 - 0.1	<0.1B	1.72C	17.9J							5.9	17
0.1 - 0.16	<0.1B	0.82C	6.6J							5.4	17.1
0.3 - 0.4	<0.1B	0.46C	<1J							5.5	31.9
0.7 - 0.8	9.9B	0.18C	<1J							5.3	27.4
1.2 - 1.3	4.9B	0.07C	<1J							10	28.5
2.5 - 2.6	<0.1B	0.06C	2.3J							13.7	29.1

[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
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method