Project Name: **Soil Studies in the Lower Namoi Valley**
Project Code: **EDGEROI** **Site ID:** **ed096** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Desc. By:	W.T. Ward	**Locality:**	R.H.(Bob) Smart, Nurrawallee
Date Desc.:	08/12/86	**Elevation:**	216 metres
Map Ref.:	Sheet No. : 8837_N 1:50000	**Rainfall:**	No Data
Northing/Long.:	6665500 AMG zone: 55	**Runoff:**	No Data
Easting/Lat.:	762300 Datum: AGD66	**Drainage:**	No Data

Geology

ExposureType:	Undisturbed soil core	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	No Data

Land Form

Rel/Slope Class:	No Data	**Pattern Type:**	No Data
Morph. Type:	No Data	**Relief:**	No Data
Elem. Type:	Terrace plain	**Slope Category:**	Level
Slope:	0 %	**Aspect:**	No Data

Surface Soil Condition (dry): Surface crust

Erosion:

Soil Classification

Australian Soil Classification:
N/A
ASC Confidence:
Confidence level not specified

Mapping Unit: N/A
Principal Profile Form: Ug5.11
Great Soil Group: Grey clay

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A11p	0 - 0.1 m	Very dark grey (10YR3/1-Moist); Grey (10YR5/1-Dry); ; Light clay; Moderate grade of structure, 5-10 mm, Granular; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Field pH 8 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
A12k	0.1 - 0.25 m	Very dark grey (10YR3/1-Moist); ; Light medium clay; Moderate grade of structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.7 (pH meter); Few, very fine (0-1mm) roots;
A13k	0.25 - 0.55 m	Very dark grey (10YR3/1-Moist); ; Medium clay; Strong grade of structure, 100-200 mm, Columnar; Smooth-ped fabric; Medium, (5 - 10) mm crack; Moderately moist; Very strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Few, very fine (0-1mm) roots;
A14	0.55 - 1.05 m	Dark grey (10YR4/1-Moist); , 7.5YR42, 0-2% , 5-15mm, Distinct; Medium heavy clay; Strong grade of structure, 100-200 mm, Columnar; Smooth-ped fabric; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B21	1.05 - 1.9 m	Brown (7.5YR5/2-Moist); , 7.5YR32, 2-10% , 5-15mm, Distinct; Medium heavy clay; Moderate grade of structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots;
B22	1.9 - 2.8 m	Greyish brown (10YR5/2-Moist); , 10YR51, 0-2% , 0-5mm, Faint; Heavy clay; Moderate grade of structure, 50-100 mm, Lenticular; 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; Strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded tabular, Quartz, coarse fragments; Field pH 5.5 (pH meter); Few, very fine (0-1mm)

Morphological Notes

A11p Some of the loose fragments in the surface soil have a thin sandy skin (10YR5/1) and are probably remnants of a surface crust. The hard condition of the horizons below 10cm is possibly due to carbonate cement. A small nest of gypsum crystal

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A12k	s occurs at 95cm. Slickensides appear at about 150cm. 250-260cm has extremely small flecks of carbonate. Coarse fragment observed and kept from a depth of 255cm, is believed to be a chipped stone, other smaller coarse fragments were present
A13k	. The coarse fragment at 65cm has probably fallen down a crack. We think that salts in the profile have moved up towards the surface and produced carbonate cementation. Possibly Ug5.16. Core kept in office at Samford.

Observation Notes

Parent Rock: alluvial sediment, clay, fifth (eroded) fan

Site Notes

Gravel quarry to east shows about 4m water worn gravels, very firm puggy clay 1-3m. Surface cracks filled by cattle trampling. Moderate to strong crust, apparently dispersive topsoil. Mollee box and cypress at quarry nearby on stony solodic

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m				Cmol (+)/kg				%
0 - 0.02	7.63A	0.064A	16B	3.17	2.07	0.06				
0 - 0.1	7.91A	0.203A	14.04B	2.92	2.16	0.41				
0.1 - 0.2	8.68A	0.171A	18.85B	6.01	1.2	1.51				
0.3 - 0.4	9.09A	0.244A	20.93B	10.93	0.92	3.76				
0.7 - 0.8	8.97A	0.61A	18.77B	13.46	0.83	8.02				
1.2 - 1.3	5.06A	1.143A	14.59B	6.74	0.28	7.14				
2.5 - 2.6	4.62A	0.806A	11.36B	6.24	0.28	7.66				

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.02	<0.1B	1.3C									16.3	27.3
0 - 0.1	0.3B	1.29C	10J								14.4	29.9
0.1 - 0.2	2.2B	0.81C	1.2J								16.7	39.4
0.3 - 0.4	2.8B	0.64C	<1J								18.9	46.5
0.7 - 0.8	0.7B	0.6C	<1J								18.3	50.3
1.2 - 1.3	<0.1B	0.27C	17.1J								19	52
2.5 - 2.6	<0.1B	0.09C	3.9J								15.6	57.1

Depth	COLE	Gravimetric/Volumetric Water Contents							K sat	K unsat
		Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar		
m		g/g - m3/m3							mm/h	mm/h
0 - 0.02										
0 - 0.1										
0.1 - 0.2										
0.3 - 0.4										
0.7 - 0.8										
1.2 - 1.3										
2.5 - 2.6										

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Laboratory Analyses Completed for this profile

15A2_CA	Exchangeable bases (Ca2+,Mg2+,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
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