Project Name: Soil Studies in the Lower Namoi Valley

Project Code: EDGEROI Site ID: ed362 Observation ID: 1

Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Desc. By: W.T. Ward Locality: Frank O'Neill, Llano

Date Desc.: Elevation: 22/01/87 197 metres Map Ref.: Sheet No.: 8837 N 1:50000 Rainfall: No Data Northing/Long.: 6675100 AMG zone: 55 Runoff: No Data 751250 Datum: AGD66 Easting/Lat.: Drainage: No Data

Geology

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

Land Form

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

Surface Soil Condition (dry): Self-mulching, Recently cultivated

Erosion:

Soil Classification

Australian Soil Classification: N/A Mapping Unit: Principal Profile Form: Ua5.16 ASC Confidence: **Great Soil Group:** Grey clay

Confidence level not specified

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A11i 0 - 0.1 m Dark brown (7.5YR3/2-Moist); Brown (7.5YR4/2-Dry); , 10YR51, 0-2% , 5-15mm, Distinct; , 10YR62, 0-2%, 0-5mm, Faint; Heavy clay; Moderate grade of structure, 10-20 mm. Angular

blocky; Moderate grade of structure, 5-10 mm, Platy; 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, Quartz, coarse fragments; Field pH 8 (pH

meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -

A12 0.1 - 0.25 m Dark brown (7.5YR3/2-Moist); , 10YR62, 0-2% , 0-5mm, Faint; Heavy clay; Moderate grade of

structure, 20-50 mm, Lenticular; Moderate grade of structure, 5-10 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; Field pH 8.5 (pH meter); Common, very fine

(0-1mm) roots;

Dark brown (7.5YR3/2-Moist); , 10YR62, 2-10% , 0-5mm, Distinct; Heavy clay; Moderate grade A13 0.25 - 0.7 m

of structure, 50-100 mm, Lenticular; 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 strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change

R21 0.7 - 1 m Dark reddish grey (5YR4/2-Moist); , 7.5YR32, 10-20% , 15-30mm, Distinct; Medium heavy clay;

Moderate grade of structure, 20-50 mm, Lenticular; Smooth-ped fabric; Fine, (0 - 5) mm crack;

Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Very few (0 - 2 %),

Gypseous, Fine (0 - 2 mm), Crystals; Field pH 9 (pH meter); Few, very fine (0-1mm) roots;

Dark reddish grey (5YR4/2-Moist); , 7.5YR42, 0-2% , 15-30mm, Distinct; Medium heavy clay; B22 1 - 1.7 m

Moderate grade of structure, 50-100 mm, Lenticular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 0.01m2) Medium (2-5mm) macropores, Moderately moist; Very firm consistence; 0-

2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Very few (0 - 2 %),

Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter); Few, very fine (0-1mm) roots;

Diffuse, Smooth change to

Reddish brown (5YR4/3-Moist); , 5YR41, 20-50% , 30-mm, Prominent; Medium heavy clay; Moderate grade of structure, 20-50 mm, Lenticular; Weak grade of structure, 10-20 mm, B23q 1.7 - 3.05 m

Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine

(0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %),

Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter);

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B24g 3.05 - 3.7 m Dark reddish grey (5YR4/2-Moist); , 10YR51, 20-50% , 30-mm, Prominent; , 5YR46, 0-2% , 5-

15mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Lenticular; Weak 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; Very firm consistence; Few (2 - 10 %), Calcareous, Very coarse (20 - 60 mm), Nodules; Field pH 9 (pH meter); Gradual,

Smooth change to -

2A1 3.7 - 5.1 m Dark reddish grey (5YR4/2-Moist); , 10YR51, 20-50% , 30-mm, Prominent; Light medium clay;

Weak grade of structure, 100-200 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; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Very few (0 - 2%), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Diffuse, Smooth change to -

2B21g 5.1 - 6.05 m Dark reddish grey (5YR4/2-Moist); , 10YR61, 2-10% , 5-15mm, Prominent; Medium clay; Strong

grade of structure, 20-50 mm, Lenticular; 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 8.5 (pH meter);

2B22g 6.05 - 7.13 m Dark reddish grey (5YR4/2-Moist); , N60, 2-10% , 0-5mm, Prominent; Medium clay; Strong grade

of structure, 50-100 mm, Lenticular; 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

8.5 (pH meter);

Morphological Notes

A11j Llano 1B. Grey colours appear at about 170cm. This core has contained at least one

large worm. Topsoil contamination occurs at 385-390 cm (break in core). At 520cm the

wedge structure reappears. The grey colour extends down the fissures. A

A12 very small amount of carbonate at 650-660cm. Uncertain buried soil with indistinct upper

boundary at 370. The ?buried topsoil separates two gleyed zones. Heavy carbonate

occurs at top, and in upper part of burial. Sample 350-360 is possibly

not B2g but the top of the buried soil, the contact being somewhere about 350,

immediately below heavy carbonate accumulation.

Observation Notes

Parent Rock: alluvial sediment, mixed texture, with lime, parna on fourth fan

Site Notes

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Laboratory Test Results:

Depth	рН	1:5 EC		hangeable Mg	Cations K	Na E	xchangeable Acidity	CEC	ECEC	ESP
m		dS/m	Ca	wig	N.	Cmol (+)				%
0 - 0.02 0 - 0.1	8.97A	0.102A	28.89B	11.39	1.18	3.89				
0.1 - 0.1	9.14A	0.148A	28.47B	12.42	0.9	5.38				
0.3 - 0.4	9.28A		27.67B	12.22	0.85	8.63				
0.7 - 0.8	8.92A		26.05B	14.91	1.08	13.58				
1.2 - 1.3	8.86A	0.935A	25.66B	14.05	1.43	15.01				
2.5 - 2.6	9.02A	0.837A	24.09B	12.98	1.08	14.7				
3.5 - 3.6	9.04A	0.859A	23.43B	12.1	0.92	15.21				
4.5 - 4.6	8.48A	0.739A	22.24B	11.62	0.83	13.82				
5.5 - 5.6	8.26A		24.92B	12.83	0.76	17.5				
6.5 - 6.6	8.22A	0.856A	24.34B	12.74	0.91	21.25				
Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	Part	icle Size	Analysis
Бериі	oaooo	C	P	P	N	K	Density		CS FS	Silt Clay
m	%	%	mg/kg	%	%	%	Mg/m3		%	· · · · · · · · · · · · · · · · · · ·
0 - 0.02	0.2B	0.57C	15J							17.5 57.4
0 - 0.1										
0.1 - 0.2	0.4B	0.55C	13.3J							16.7 55.9
0.3 - 0.4	0.4B	0.44C	13.4J							17.5 56.2
0.7 - 0.8	1.8B	0.31C	16.2J							19.9 61.7
1.2 - 1.3	0.9B	0.1C	14.3J							18.2 66.7
2.5 - 2.6	1.2B	0.09C	5.6J							13.7 61.4
3.5 - 3.6	7.5B	0.11C	4.9J							15.3 60.6
4.5 - 4.6	<0.1B		<1J							12 57.4
5.5 - 5.6	<0.1B		4J							14 61.8
6.5 - 6.6	<0.1B	0.04C	4.7J							12.4 63.6
Depth	Depth COLE Gravimetric/Volumetric Water Contents K sat K unsat									
Бериі	JOLL	Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar		Bar	it sut	it anout
m		Juli	5.55 Bui		g - m3/m				mm/h	mm/h
0 0 00				_						

^{0 - 0.02}

^{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 3.5 - 3.6 4.5 - 4.6 5.5 - 5.6 6.5 - 6.6

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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 Silt (%) - Coventry and Fett pipette method