

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** ed361 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b>	W.T. Ward	<b>Locality:</b>	Frank O'Neill, Llano
<b>Date Desc.:</b>	21/01/87	<b>Elevation:</b>	198 metres
<b>Map Ref.:</b>	Sheet No. : 8837_N 1:50000	<b>Rainfall:</b>	No Data
<b>Northing/Long.:</b>	6672950 AMG zone: 55	<b>Runoff:</b>	No Data
<b>Easting/Lat.:</b>	752400 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>	Fan	<b>Slope Category:</b>	Level
<b>Slope:</b>	0 %	<b>Aspect:</b>	No Data

**Surface Soil Condition (dry):** Surface crust, Trampled

#### 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>	Ug5.4
		<b>Great Soil Group:</b>	Grey clay

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

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11	0 - 0.1 m	Very dark brown (10YR2/2-Moist); Dark grey (10YR4/1-Dry); , 10YR62, 2-10% , 5-15mm, Prominent; Light medium clay; Moderate grade of structure, 20-50 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, subangular, Quartz, coarse fragments; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots;
A12	0.1 - 0.25 m	Very dark brown (10YR2/2-Moist); , 10YR72, 0-2% , 0-5mm, Distinct; Light medium clay; 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%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 7.5 (pH meter); Few, very fine (0-1mm) roots;
A13	0.25 - 0.55 m	Very dark brown (10YR2/2-Moist); ; Light medium clay; Moderate grade of structure, 50-100 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, subrounded, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B21	0.55 - 1 m	Brown (10YR5/3-Moist); , 10YR31, 0-2% , 15-30mm, Distinct; Medium clay; Weak grade of structure, 50-100 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; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter);
B22	1 - 1.9 m	Brown (10YR5/3-Moist); , 10YR41, 0-2% , 5-15mm, Faint; Medium clay; Moderate grade of structure, 50-100 mm, Lenticular; Weak grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter);
B23	1.9 - 3.05 m	Brown (7.5YR4/2-Moist); ; Medium clay; Moderate grade of structure, 50-100 mm, Lenticular; Weak 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; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH

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B24	3.05 - 4.05 m	Brown (7.5YR4/2-Moist); , 10YR41, 0-2% , 5-15mm, Faint; Medium clay; Moderate grade 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 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter);
B25	4.05 - 4.7 m	Dark reddish grey (5YR4/2-Moist); ; Light medium clay; Moderate grade 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 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to -
C	4.7 - 5.46 m	Brown (7.5YR5/4-Moist); ; Light clay; Massive grade of structure; Sandy (grains prominent) fabric; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; 0-2%, coarse gravelly, 20-60mm, subrounded, Calcareous, coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Abrupt, Smooth change to -
2B2	5.46 - 6.4 m	Brown (7.5YR4/2-Moist); ; Medium clay; Moderate grade of structure, 20-50 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; Strong consistence; Few cutans, <10% of ped faces or walls coated, prominent; Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to -
2C	6.4 - 6.73 m	Brown (7.5YR4/4-Moist); , 5GY61, 0-2% , 5-15mm, Prominent; Medium clay; Moderate grade of structure, 10-20 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; Strong consistence; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter);

#### **Morphological Notes**

A11	Llano 2. Note platy surface. Slickenside at 1m. The core was extremely hard to cut at 30-40cm. Manganese flecks (stains) commence at about 400cm. Patches of sand occur at 470cm. At 546cm a layer of gravel rests sharply on a prior clayey B2
A12	horizon. A large carbonate concretion (8cm across) occurs at 625cm. Textures below 546cm are 'with sand'.

#### **Observation Notes**

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

#### **Site Notes**

The section revealed by the Llano cores when laid side by side shows three main layers. The first extends down to about 80cm and is deepest in the south. It is basically the organic-stained surface horizon and is brown and greyish brown in

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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