

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** na007 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b> W.T. Ward	<b>Locality:</b> stock route, near Bohena
<b>Date Desc.:</b> 10/03/88	<b>Elevation:</b> 237 metres
<b>Map Ref.:</b> Sheet No. : 8837_S 1:50000	<b>Rainfall:</b> No Data
<b>Northing/Long.:</b> 6630200 AMG zone: 55	<b>Runoff:</b> No Data
<b>Easting/Lat.:</b> 753350 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> Terrace plain	<b>Slope Category:</b> Level
<b>Slope:</b> 0 %	<b>Aspect:</b> No Data

**Surface Soil Condition (dry):** Self-mulching

#### 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> Ug5.16
	<b>Great Soil Group:</b> Grey clay

#### Site Disturbance:

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11	0 - 0.1 m	Very dark greyish brown (10YR3/2-Moist); Dark greyish brown (10YR4/2-Dry); ; Light clay; Moderate grade of structure, 20-50 mm, Angular blocky; Weak grade of structure, <2 mm, Granular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; Field pH 6.5 (pH meter); Few, fine (1-2mm) roots;
A12	0.1 - 0.18 m	Dark greyish brown (10YR4/2-Moist); , 10YR32, 20-50% , 15-30mm, Distinct; Light clay; Moderate grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; Field pH 8 (pH meter); Few, very fine (0-1mm) roots; Gradual, Smooth change to -
B21k	0.18 - 0.55 m	Dark grey (10YR4/1-Moist); ; Medium clay; Weak grade of structure, 100-200 mm, Angular blocky; Weak grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Earthy fabric; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots;
B22y	0.55 - 0.7 m	Dark grey (10YR4/1-Moist); ; Medium clay; Weak grade of structure, 50-100 mm, Angular blocky; Earthy 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 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth
2A1	0.7 - 0.9 m	Greyish brown (10YR5/2-Moist); , N20, 0-2% , 0-5mm, Distinct; Medium clay; Weak grade of structure, 50-100 mm, Subangular blocky; Earthy fabric; Fine, (0 - 5) 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 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 7 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
2B21	0.9 - 1.9 m	Brown (10YR5/3-Moist); ; Medium heavy clay; Weak grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Earthy fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 5.5 (pH meter); Few, very fine (0-1mm)

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2B22	1.9 - 3 m	Greyish brown (10YR5/2-Moist); , 7.5YR44, 0-2% , 0-5mm, Distinct; Light clay; Weak grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 4 (pH meter); Few, fine (1-2mm) roots; Diffuse, Smooth change to -
3B21t	3 - 4.05 m	Light brownish grey (10YR6/2-Moist); ; Light clay; Moderate grade of structure, 50-100 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 4 (pH meter); Few, very fine (0-1mm) roots;
3B22t	4.05 - 5.05 m	Light brownish grey (10YR6/2-Moist); ; Light medium clay; Moderate grade of structure, 100-200 mm, Lenticular; Massive grade of structure; 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 4.5 (pH meter); Few, very fine (0-1mm) roots;
3B23t	5.05 - 6.2 m	Dark red (10R3/6-Moist); , 10YR62, 20-50% , 30-mm, Prominent; Medium clay; Moderate grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Strong consistence; Field pH 4.5 (pH meter); Clear, Smooth change to -
3B24	6.2 - 7 m	Dusky red (10R3/4-Moist); , 10YR56, 10-20% , 15-30mm, Prominent; , 10YR72, 20-50% , 30-mm, Prominent; Light clay; Massive grade of structure; Smooth-ped fabric; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Common (1-5 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 4.5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
3C	7 - 8.01 m	Dusky red (10R3/4-Moist); , 10YR54, 10-20% , 15-30mm, Prominent; , 10YR72, 20-50% , 30-mm, Prominent; Light clay; Massive grade of structure; Smooth-ped fabric; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Common (1-5 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subrounded, Quartz, coarse fragments; Field pH 4.5 (pH meter); Few, very fine (0-1mm) roots;

#### **Morphological Notes**

A11	Brigalow 4. Carbonate as soft segregations appears at 25cm and continues to 40. Gypsum appears at 50cm and continues to 65cm, then in less quantity to 75. A subrounded coarse quartz fragment 4-5mm diameter at 80cm is associated with a horizontal band containing charcoal and scattered pieces of ? baked clay. One which I cleaned and broke was angular, weathered, manganese-stained and sandy. This could be a stratigraphic contact: is this a topsoil beneath younger material at 70cm?
A12	The soil at 70-80 seems also to have more pedality (a granular fracture) than overlying material (a rough to nodular fracture). Note effervescence in fine earth, 10-20cm. Topsoil structure is ? subangular blocky. Very very few gypsum crystals at 70-80cm, coarse fragments include subangular weathered sandstone. Very very few gypsum crystals at 120-130, 250-260 in slickensided partings. 250-260 and 350-360 are noticeably dense and difficult to cut; 350-360 in particular. Root
B21k	ts are mostly on slickensided partings. Minor gypsum continues. Extremely tiny flecks of red colour are seen from 5m on. They appear clearly at 480cm. One smaller coarse fragment at 585 (subangular quartz). Hydromorphic mottles at 650-660 and
B22y	nd 750-760cm in this core follow root and faunal passages infilled now with brown (10YR5/3) and dark brown (10YR3/3) casts. At 750-760 the dusky red colour is represented by clay skins. The occurrence of red stains in the clays above 620cm
2A1	horizon contains an inherited lithological discontinuity
2B21	
3B24	

#### **Observation Notes**

Parent Rock: aeolian sediment, clay, over weathered sands and clayey sands parna on fifth fan, Bohena

#### **Site Notes**

The first hole on the transect that is in brigalow gilgai. Hole is 5m S of the road, among dense brigalow, on top of a gilgai mound. Maximum relief is ~2m.

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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