

# PUL Pulpara Land System

<b>Area:</b>	86.5 km <sup>2</sup>
<b>Landscape:</b>	Dissected pediments and valley floor drainage system with calcareous soils on slopes and red Sodosols on valley floors, which are often scalded.
<b>Annual rainfall:</b>	210 – 265 mm average
<b>Geology:</b>	Holocene alluvium/colluvium, with isolated hard rock rises, including Pre-Cambrian Pepuarta Tillite and Waukaringa Siltstone.
<b>Main soils:</b>	<p><b>A4</b> (29%) Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)</p> <p><b>A3</b> (27%) Deep moderately calcareous loam (Calcic Calcarosol)</p> <p><b>D4</b> (14%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)</p> <p><b>A6</b> (11%) Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)</p>
<b>Minor soils:</b>	<p><b>C1</b> (8%) Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)</p> <p><b>A2</b> (6%) Calcareous loam on rock (Paralithic Calcarosol)</p>
<b>Summary:</b>	The Pulpara Land System consists of dissected pediments with gradational calcareous soils on slopes and red, sodic, texture-contrast soils on valley floors, which are often scalded.

## Soil Landscape Unit summary: Pulpara Land System (PUL)

SLU	% of area	Component	Main soils	Prop#	Notes
ABB	0.2	Rise	L1A2	D	Rises with linear rocky quartzite outcrops and shallow rocky soils on interbedded fine-grained rocks. <b>ABB</b> Rolling rises Relief is 9-30m, slopes are 10-30%. <b>ABG</b> Undulating rises as above. 10-20% gullied and eroded watercourses. Relief is less than 30m, slopes are 3-10%. Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Calcareous loam on rock - A2</u> .
ABG	0.2	Rise	L1A2	D	
AJg	1.9	Rise	L1C2	E	Gently undulating rises and fans with shallow soils formed on fine-grained rocks (Umberatana Group tillites). Less than 20% of soils have secondary carbonate. Soils on rises are shallow over calcareous rocks with deeper soils on fans. Moderately gullied and scalded. Salinity occurs on less than 10% of land. Non-arable. Main soils: <b>Rises:</b> <u>Shallow stony soils on rock - L1</u> and <u>Gradational loam on rock - C2</u> . <b>Fans:</b> <u>Clay loam over pedaric red clay - D4</u> , <u>Deep moderately calcareous loam - A3</u> and <u>Deep alluvial loam - M1</u> .
		Fan	D4A3 M1	E	



AYB	0.4	Low hill	A2L1	D	Low hill on fine-grained rocks, especially siltstones of the Tapley Hill Formation. More than 20% of soils contain secondary carbonate. Relief is less than 30m, slopes are 10-30%.  Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow stony soils on rock</u> - <b>L1</b> .
EHII	1.8	Rise	A2C2	V	Gently undulating rises and pediments on calcareous siltstones and limestones. Severely scalded (40-50% of land affected) and gullied (over 20% of land affected). Slopes are 1-3%, relief is less than 30m.  Main soils: <b>Rises:</b> <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Gradational loam on rock</u> - <b>C2</b> . <b>Fans:</b> <u>Deep moderately calcareous sandy loam</u> - <b>A3</b> and <u>Gradational sandy loam</u> - <b>C1</b> .
		Fan	A3C1	E	
EOG	5.3	Rise	A2	V	Gently undulating rises and fans with pulverulent calcareous soils. Slopes are 1-3%, relief is less than 30m. Moderately gullied (10-20%)  Main soils: <b>Rises:</b> <u>Calcareous loam on rock</u> – <b>A2</b> . <b>Fans:</b> <u>Deep moderately calcareous sandy loam</u> - <b>A3</b> and <u>Gradational sandy loam</u> - <b>C1</b> .
		Fan	A3C1	L	
EZB	1.2	Rise	A2	V	Rises and fans with mostly shallow calcareous soils on weathered siltstones of the Tapley Hill Formation and the Tarcowie Siltstone. Fans are associated landforms.  <b>EZB</b> Gently undulating rises with rocky outcrops. Up to 5% of land is gullied and/or scalded. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 30m.  <b>EZI</b> Gently undulating rises with rocky outcrops, severely scalded (40-50% of land affected) and gullied (20% of land affected). Slopes are 1-3%, relief is less than 30m.  Main soils: <b>Rises:</b> <u>Calcareous loam on rock</u> – <b>A2</b> . <b>Fans:</b> <u>Deep moderately calcareous loam</u> - <b>A3</b> and <u>Gradational sandy loam</u> - <b>C1</b> .
		Fan	A3C1	L	
EZI	2.3	Rise	A2	V	
		Fan	A3C1	E	
JLI	3.2	Fan	D4A3	D	Fans with more than 20% pedaric, texture contrast (loam over crumbly red clay) soils, but less than 20% calcareous gradational soils.  <b>JLI</b> Gently sloping fans. Moderately scalded and gullied. Slopes are 1-3%, relief is less than 9m. <b>JLvw</b> Gently sloping fans. Severely gullied and scalded. Slopes are 1-3%, relief is less than 9m.  Main soils: <u>Clay loam over pedaric red clay</u> - <b>D4</b> and <u>Deep moderately calcareous loam</u> - <b>A3</b> .
JLvw	0.5	Fan	D4A3	D	
JMu	2.4	Flat	D4A3	V	Plains with stony, pedaric, red, texture contrast soils with quartz gravel on the surface.  Severely scalded (over 50%) plains with moderately scalded drainage depressions. Moderately saline.  Main soils: <b>Flats:</b> <u>Clay loam over pedaric red clay</u> - <b>D4</b> and <u>Deep moderately calcareous loam</u> - <b>A3</b> . <b>Drainage depressions:</b> <u>Clay loam over pedaric red clay</u> - <b>D4</b> .
		Drainage depression	D4	C	



JPU	1.1	Flat	D4	D	Pediments and plains with texture contrast soils formed on outwash sediments derived from basement rocks. Calcareous in some part of the profile. More than 20% of soils are pedaric (fine crumbly structure in subsoils). <b>JPU</b> Plains, 10-50% scalded. <b>JPY</b> Creek flats, 10-50% scalded. <b>JPyy</b> Drainage depression. Severely gullied (over 20%) and scalded (over 50%).  Main soils: <u>Clay loam over pedaric red clay</u> - <b>D4</b> .
JPY	3.3	Drainage depression	D4	D	
JPyy	1.5	Drainage depression	D4	D	
JZI	4.1	Fan	D4A3	V	Fan-basement rock complex with gently sloping fans with red texture contrast soils and 20-30% rocky rises with shallow texture contrast soils.  <b>JZI</b> Gently undulating fan and rocky rise complex. Pediments have between 10-50% of gullied land, with 20-75% scalded. Rises are not affected. Slopes are 1-3% on fans and 3-10% on rises. <b>JZm</b> Undulating fan and rocky rise complex. Scalding affects nearly 50% and gullyng affects more than 20% of fans. Rises have less than 5% scalding and around 15% gullyng. Slopes: 3-10%; relief: <9m on fans and 9-30m on rises. <b>JZv</b> Gently undulating fan and rocky rise complex. 10-50% of land on pediments is scalded, and gullyng affects 10-20%. Slopes 1-3% on pediments and 3-10% on rises.  Main soils: <b>Fans:</b> <u>Clay loam over pedaric red clay</u> - <b>D4</b> and <u>Deep moderately calcareous loam</u> - <b>A3</b> . <b>Rises:</b> <u>Calcareous loam on rock</u> - <b>A2</b> .
		Rise	A2	L	
JZm	1.7	Fan	D4A3	V	
		Rise	A2	L	
JZv	1.8	Fan	D4A3	V	
		Rise	A2	L	
KfV	2.7	Flat	A3D4	E	
		Rise	A4	E	
KfK	5.1	Flat	A3D4	E	
		Rise	A4	E	
KfI	28.9	Fan	A4	V	
		Drainage depression	A3D4	C	
KLB	8.2	Rise	A4A3	D	Rises and drainage depressiions with clay loamy calcareous soils.  <b>KLB</b> Gently undulating pediment. Subsoils have moderate salinity. Slopes are 1-3%, relief is less than 9m. <b>KLE</b> Drainage depression.  Main soils: <b>Rises:</b> <u>Deep (rubbly) calcareous sandy loam</u> - <b>A4</b> and <u>Deep moderately calcareous loam</u> - <b>A3</b> . <b>Drainage depressions:</b> <u>Deep moderately calcareous loam</u> - <b>A3</b> .
KLE	0.6	Drainage depression	A3		
KOV	13.2	Fan	A3A4	D	



					Main soils: <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubblly) calcareous sandy loam -A4</u> .
KQB	0.8	Fan	A3A4	V	Gently undulating fan and basement-rise complexes with mostly calcareous gradational soils. Slopes are 1-3%, relief is less than 9m on fans and 9-30m on rises.  Main soils: <b>Fans:</b> <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubblly) calcareous sandy loam -A4</u> . <b>Rises:</b> <u>Deep (rubblly) calcareous sandy loam -A4</u> .
		Rise	A4	L	
KVg	6.8	Fan	A3A4	D	Fans and plains formed on calcareous outwash sediments derived from basement rock. More than 90% of soils are calcareous throughout (Calcarosols).  <b>KVg</b> Fan, 5-10% gullied and soils are moderately saline. <b>KVo</b> Creek flat; 5-10% is gullied, 10-50% is scalded.  Main soils: <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubblly) calcareous sandy loam -A4</u> .
KVo	0.8	Flat	A3A4	D	
XOA	0.3	Flat	A3	D	Floodplain flat, swampy and marginally saline, with clayey calcareous soils on alluvium. 0-5% scalding. Main soils: <u>Deep moderately calcareous loam - A3</u> .

# PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

- D Dominant in extent (>90% of SLU)
- V Very extensive in extent (60–90% of SLU)
- E Extensive in extent (30–60% of SLU)
- C Common in extent (20–30% of SLU)
- L Limited in extent (10–20% of SLU)
- M Minor in extent (<10% of SLU)

### Detailed soil profile descriptions:

**A2/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2) OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)

**A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)  
Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO<sub>3</sub> buildup in the subsoil (<20% CO<sub>3</sub> in subsoil). Pediment type Calcarosols.

**A4** Deep (rubblly) calcareous loam Hypercalcic-Lithocalcic Calcarosol)  
Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO<sub>3</sub> buildup in the subsoil. Often rubblly. Soil usually >120cm in depth

**C1** Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)  
Friable sandy to loamy topsoil grading into massive red-brown alkaline loamy to clay loamy subsoil.

**C2** Gradational loam on rock (Calcic / Hypercalcic Red Dermosol)  
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to weathering rock within 100 cm.



**D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)

Thin to medium thickness fine sandy loam to loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.

**L1** Shallow stony loam (Paralithic, Leptic Tenosol)

Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.

**M1** Alluvial loam (Orthic Tenosol)

Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.

**Further information:** [DEWNR Soil and Land Program](#)

