

# GBH Gilbert Hill Land System

<b>Area:</b>	71.5 km <sup>2</sup>
<b>Landscape:</b>	A range of rolling low hills with narrow drainage lines south-west of Carrieton. Soils are shallow rocky clay loam over rock or have thin clay subsoils. Shallow soils with much rock outcrop. Deeper soils in gullies have pronounced gully erosion. Named from Gilbert Hill, the highest hill in the range.
<b>Annual rainfall:</b>	290 – 415 mm average
<b>Geology:</b>	Dolomites, such as Nackara Dolomite, siltstones and calc-siltstones of the Saddleworth Formation and inter-bedded quartzites. Appilla Tillite underlies the more prominent ridges.
<b>Topography:</b>	Rolling to steep rises and low hills. Drainage lines are narrow
<b>Elevation:</b>	Range stands between 490 m asl in the north to 630 m asl at Gilbert Hill in the south
<b>Relief:</b>	Relief ranges from 30 m in the north-east to 120 m in the south-west
<b>Typical soils:</b>	<p>Shallow loam over calcareous clay loam and/or weathering rock (Tenosols/Dermosols) occur on upper slopes where they overlie calc-siltstones and dolomites.</p> <p>Silty loam over calcareous clay or clay loam grading to weathered calc-siltstone occur on undulating rises and plains. Scalding and gully erosion is common on these soils.</p> <p>Friable loam over red friable clay soils (Chromosols/Sodosols) occur on small pediment slopes within the land system.</p> <p>Shallow hard loam over red hard prismatic clay soils (Sodosols) occur over calc-siltstone on both upper and lower slopes.</p>
<b>Main soils:</b>	<p><b>L1</b> (43%) Shallow soil on rock (Rocky Rudosol-Tenosol)</p> <p><b>RR</b> (24%) Bare rock</p> <p><b>A2</b> (15%) Calcareous loam on rock (Paralithic Calcarosol)</p>
<b>Minor soils:</b>	<p><b>D1</b> (5%) Loam over clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)</p> <p><b>D7</b> (3%) Loam over poorly structured clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)</p> <p><b>D4</b> (3%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)</p>
<b>Summary:</b>	The Gilbert Hill Land System consists of two parallel ranges trending northeast to southwest separated by a narrow valley with a relatively level floor. The ranges are formed from resistant rocks such as the pre-Cambrian Appilla Tillite, and the gentler terrain is underlain by Nackara Dolomite and Saddleworth Formation siltstones. Soils are commonly shallow with nearly 25% bare rock outcrop. The steeper land is used mostly for grazing. Texture contrast soils occur on gentle slopes over weathered siltstones and on pediments. These are cropped where cultivation can be achieved between rocky outcrops.



**Soil Landscape Unit summary:** Gilbert Hill Land System (GBH)

SLU	% of area	Component	Main soils	Prop#	Notes
AAB	0.4	Rolling rises	L1	D	Rises and hills with shallow rocky calcareous soils formed on Tapley Hill Formation calc-siltstones. <b>AAB</b> Rolling rises. Relief is less than 30m, slopes are 10-30%. <b>AAC</b> Rolling hills. Relief is 90- 300m, slopes are 10-30%.  Main soils: <u>Shallow stony soils on rock - L1</u> . Minor soils: <u>Loam over poorly structured clay on rock - D7</u> .
AAC	4.7	Rolling hills	L1	D	
ABB	1.4	Rolling rises	L1RR	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>ABC</b> Rolling low hills. Relief is 30-90m, slopes are 3-10%.  Main soils: <u>Shallow stony soils on rock - L1</u> . <u>Rock outcrop - RR</u> is common.
ABC	69.0	Rolling low hills	L1RR	D	
ADC	1.1	Rolling low hills	L1	D	Non-arable rocky rises with thin soil cover formed on limestone and calc-siltstone with very shallow loamy soils. <b>ADC</b> Rolling low hills as above. Relief: 30-90m, slopes: 3-10%. <b>ADN</b> Rolling rises as above, with scalding and sheet erosion. Relief is 9-30m, slopes are 10-30%  Main soils: calcareous loamy, <u>Shallow stony soils on rock - L1</u> ; <u>gradational red clay-loam over clay</u> (Red clayey pedaric Dermosols) - <b>C2</b> and <u>Calcareous clay loam on rock - A2</u> . Non-arable, limited pastoral use.
ADN	7.0	Rolling rises	L1	D	
APC	1.1	Rolling low hills	L1D1	D	Hills and rises formed on coarse-grained rocks, with shallow, often rocky, soils with sandy textures ranging from loamy sand to sandy clay loam. <b>APC</b> Rolling low hills. Relief is 30-90m, slopes are 3-10%. <b>API</b> Rolling low hills with eroded watercourses. Relief is 30-90m, slopes are 3-10%.  Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Clay loam over pedaric red clay on rock - D1</u> . Non-arable, suited to grazing on native pastures.
API	2.9	Rolling low hills	L1D1	D	
DNH	1.5	Undulating rises	D2D1	D	Rises with shallow texture contrast soils formed on fine-grained rocks, typically Brachina Shale Formation. The soils have clay loam surface textures. <b>DNH</b> Undulating rises; 10-20% of land is gullied. Relief is 9-30m, slopes are 3-10%. <b>DNm</b> Undulating rises. Gullying affects up to 20% of land and scalding occurs on 5-50%. Relief is 9-30m, slopes are 3-10%.  Main soils: <u>Sandy Clay Loam over red clay - D2</u> and <u>Sandy Clay loam over pedaric red clay on rock - D1</u> .
DNm	1.5	Undulating rises	D2D1	D	
JAG	1.6	Gently undulating pediments	D4E2 C3	D	Gently undulating pediments with clay loam surface textures on texture contrast and gradational soils. Red clays are also common. Slopes: 1-3%, gullying affects 10-20%.  Main soils: <u>Loam over pedaric red clay - D4</u> , <u>Red cracking clay - E2</u> and <u>Friable gradational clay loam - C3</u> . <b>D4</b> and <b>C3</b> soils have surfaces which are highly susceptible to water erosion.
JNU	0.2	Plains	D4D2 A5	D	Level plain with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly; 5-10% scalded.



					Main soils: <u>Loam over pedaric red clay - D4</u> , <u>Loam over red clay - D2</u> and <u>Rubbly calcareous loam on clay - A5</u> . Red clay soils occur in minor association
JYG	6.0	Gently undulating pediments	D4D1 D7	D	Pediments with mostly clay loam surfaced texture contrast soils and more than 10% soils which are calcareous throughout.
JYH	1.1	Undulating pediments	D4D1 D7	D	<b>JYG</b> gently undulating pediments. Slopes: 1-3%, relief: <9m. <b>JYH</b> Undulating pediments Slopes are 3-10%, relief is less than 9 metres. Gullying affects 5-10% of land.  Main soils: <u>Loam over pedaric red clay - D4</u> and <u>Loam over clay on rock - D1</u> . Significant minor soils include <u>Rubbly calcareous loam on clay - A5</u> and <u>Gradational loam on rock - C2</u> .
KJG	0.4	Gently undulating pediments	C4C3 A6	D	Pediments with clay loam surface-textured red gradational soils with calcareous subsoils and gradational calcareous soils. <b>KJG</b> Gently undulating pediments 10-20% gullying. Slopes are 1-3%, relief is less than 9m.  Main soils: <u>Hard gradational clay loam - C4</u> , <u>Friable gradational sandy clay loam - C3</u> and <u>Gradational calcareous clay - A6</u> .

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

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

### Detailed soil profile descriptions:

- A5** Rubbly calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)  
Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubbly. Clayey substrate occurs at >60 cm and <120 cm.
- A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)  
Calcareous loams to clay loams grading into brown-red clay. Often rubbly.
- C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)  
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.
- C4** Hard gradational clay loam (Calcic-Hypercalcic Sodic Red Dermosol-Calcarosol)  
Topsoil <30 cm over a poorly structured subsoil. Often hard setting clay loam to loam grading into prismatic/poorly structured/sodic red (-brown) alkaline clayey to clay loamy subsoil. Includes eroded former texture contrast soils.
- D1** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)  
Medium thickness hard gravelly loam over red clay, friable and finely structured, calcareous with depth, grading to weathering basement rock within 100 cm.
- D2** Hard loam over red clay (Calcic / Hypercalcic, Red Chromosol)  
Hard setting sandy loam to clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth.



- 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.
- D7** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)  
Medium thickness hard gravelly loam over a red clay, friable and finely structured (D1), to hard, coarsely structured and dispersive (D7), calcareous with depth, grading to weathering basement rock within 100 cm.
- E2** Red cracking clay (Epicalcareous, Epipedal, Red Vertosol)  
Dark strongly structured clay grading to a well structured red calcareous medium to heavy clay continuing below 100 cm. Often containing gypsum segregations in subsoil.
- RR** Bare rock

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

