

## Topographic Key

Topographic (Landform) Units		Slope	Code
FLATS/LEVEL TERRAIN			
	Flat Plain	0-1%	FP
	Peneplain	<3%	PP
ROLLING TERRAIN			
	Undulating Hills	10-30%	UH
	Undulating Low Hills	3-10%	ULH
	Undulating Terrain	1-3%	UT
HILLY TERRAIN			
	Dissected Terrain	>30%	DT
	Hill	10-30%	H
	Low Hill	3-10%	LH
	High Rise	<10%	HR
	Low Rise	2-3%	LR
	Dunes	<30%	D
	Lunettes	<30%	Lu
SLOPING TERRAIN/HILL ELEMENTS			
	Very Gentle Slope	<3%	VGS
	Gentle Slope	3-10%	GS
	Moderate Slope	10-30%	MS
	Steep Slope	>30%	SS
	Fan	3-10%	F
	Foot Hill	<15%	FH
	Foot Slope	<10%	FS
	Crest	0-1%	Cr
LOWLAND TERRAIN			
	Alluvial Plain	0-1%	AP
	Covered Plain	0-1%	CP
	Drainage Complex	0-1%	DC
	Levee	<10%	L
	Open Depression	<4%	OD
	Swamp	-	S

## Soil Key

Soil Type No.	Geology Coding	Brief Soil Description*
1	E	Shallow to moderately deep, well structured red, brown and yellow gradational earths with clay loam friable crumb surfaces and gritty medium clay subsoils. Minor red and mottled yellow duplex soils.
2	Oi Qrc off Oi Oms (minor)	A complex of (i) shallow to moderately deep, well structured, red and yellow smooth ped gradational earths with massive clay loam surfaces and coarse subangular blocky, gritty clay subsoils; and (ii) moderately deep sandy pedal yellow and brown duplex variants, in which loamy sands to sandy loam surfaces predominate. Bleached A <sub>2</sub> horizons are common. Minor instances of very shallow skeletal soils occur.
3	Qra, Qs off Oi	Deep well structured yellow and brown gradational earths with minor instances of stratified and sandy pedal duplex soils. Gravel and sand inclusions are not uncommon.
4	Cgm, Cgv, Dgr, Dgd	A complex of shallow to deep profiles consisting of (i) pedal mottled yellow duplexes with sandy and clayey sand surfaces and strongly structured medium clay subsoils, (ii) yellow well structured smooth ped gradational earths with massive sandy loam surfaces and gritty light clay subsoils.

Soil Type No.	Geology Coding	Brief Soil Description*
5	Qra off Dgd, Dgr	Variable site specific deep profiles comprising (i) pale yellow uniform apedal coarse siliceous sands and (ii) yellow to pale brown pedologically underdeveloped sands and earth sands. Very minor sandy pedal yellow duplexes.
6	Dvj	Moderately deep to deep friable mottled brown and yellow duplex soils which incorporate conspicuously bleached A <sub>2</sub> horizons and, often a layer of ferruginised buckshot gravels immediately above the clayey subsoils.
7	Dvj	A complex of shallow to moderately deep, brown to grey smooth ped gradational earths which may exhibit sand and/or gravel layers and/or a lateritic pan. Profiles may overlie buried grey smooth ped uniform clays.
8	Clk Qrc off Clk	A complex of (i) shallow, weakly structured yellow and yellowish brown duplexes and (ii) moderately deep friable red duplexes. Profiles have a massive sand or sandy loam surface with a weakly structured sandy clay subsoil. Bleached A <sub>2</sub> horizons may occur in the sandier profile variants. Gravel and stone are very common on steeper terrain. Minor skeletal soils are present.
9	Clk, Qra, Qra, Qs, Tpp (minor)	A complex of (i) shallow to moderately deep, yellow and yellowish brown duplexes with single grained sand to clayey sand surfaces and strong angular blocky sandy clay subsoils. Occasional bleached A <sub>2</sub> horizons and mottled subsoils occur, and (ii) deep sandy pedal black, dark grey and brown friable duplex soils with apedal sand and loamy sand surfaces and coarse strong angular blocky silty clay subsoils. Minor gravel pans and shallow skeletal soils may be seen.

\* Geological coding is based on that used in the 1:250,000 geological series as published through the Department of Minerals and Energy. Specifically these maps involve the Ballarat, Horsham, Hamilton and St Arnaud mapsheets.


Soil Type No.	Geology Coding*	Brief Soil Description
13	Tpd	Deep mottled yellow and yellowish brown friable duplex soils with crumb structured sandy loam surfaces and strong coarse subangular blocky light clay subsoils. Some minor gradational variants occur. Bleached A <sub>2</sub> horizons are common becoming the typical hard soil layer when dry.
14	Tpd	Deep, well structured greyish brown earths with massive clay loam surfaces and mottled coarse moderate angular blocky heavy clay subsoils.
15	Tp1	Sandy and friable pedal yellow duplexes, with a massive to weak subangular blocky sandy loam to sandy clay surface. Subsoils are moderate to strongly structured medium to heavy clays which may incorporate sand and some mottling. Gravels and some salting may occur throughout the profile.
16	Tp1	Black, rough ped gradational earths with minor buckshot gravels. Surfaces comprise fine granular to moderate medium crumb clay loams or silty clay loams; minor fine sands may be present. Subsoils are medium clays with a moderate sub-angular blocky structure.
17	Qrn	A complex of (i) pedal mottled yellow duplexes with massive clay loam surfaces and moderate to strongly structured medium to heavy silty clays. Bleached A <sub>2</sub> horizons common; (ii) uniformly fine textured mottled clays with a moderate well structured silty light clay surface and a coarse moderate subangular blocky silty medium clay subsoil. Salting is evident lower lying areas.
18	Qpa	A complex of stratified alluvial soils comprising coarse uniform and yellow duplex profiles. Surfaces are single grained to massive sands and loamy sands whilst subsoils have variable structure from single grained to moderate subangular blocky, with medium to heavy clays that may contain silt and sand.
19	Qs, Qc, Qrs	A variable complex of deep profiles consisting of (i) friable yellow and yellowish brown well structured gradational earths with sandy loam surfaces; (ii) friable and sandy mottled yellow duplex soils with loamy sand surfaces and often a bleached A <sub>2</sub> horizon, with a buckshot gravel pan overlying the clayey subsoil; (iii) black and grey smooth ped gradational earths; (iv) variable but site specific stratified alluvial soils of sandy pedal duplex types.
20	Qs, Qc	Deep dark grey uniformly fine textured seasonally cracking clays with hear setting (sometimes self mulching) surfaces. Some areas may have thin sand veneers. Very rare red, red brown gradational earths.
21	Q1	Deep pale single grained sands which incorporate a dry compacted bleached massive A <sub>2</sub> horizon. At depth these sands overlie a strongly structured seasonally cracking clay.
22	Qu	Deep pedologically developed, uniformly coarse textured, brown and red earths sandy and siliceous sands.
23	Qrd, Q1	A complex of deep sands including (i) weak to firm pale and pale yellow profiles with sporadically bleached A <sub>2</sub> horizons; (ii) layered grey to yellow brown sands; (iii) minor sandy pedal mottled yellow duplexes with bleached A <sub>2</sub> horizons; and; (iv) uniformly coarse textured apedal very pale brown to white (isolated red) clayey sands.
24	Qrd	Deep uniformly fine textured, pedologically underdeveloped, stratified, pale and pale brown (to white) siliceous sands with organic surfaces common. Very minor instances of brown to yellow duplex soils with deep sand surfaces.
25	Qs, Qra	A complex of deep variable soils comprising (i) alluvials, (ii) brownish sands; (iii) sandy pedal yellow and yellowish brown duplexes and friable brown duplexes (these soils show single grained apedal surfaces).

Soil Type No.	Geology Coding*	Brief Soil Description
26	Qra	Complex and site specific deep apedal soils comprising yellow and yellow brown duplexes. Profiles are commonly stratified. Surfaces are dark grey and brown single grained sands which overlie uniformly fine textured massive smooth ped medium to heavy clays. Mottling is common in these subsoils.
27	Qs	Complex and site specific deep soils consisting of (i) brown and yellow sometimes mottled strongly structured, smooth ped gradational earths with unbleached A <sub>2</sub> horizons frequent. Surfaces are often friable hydrophobic crumb structured, non-cracking, brown to light olive brown plastic clays. Surfaces often show some organic litter residues.

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| Built-up area, National route marker             | Fence: Live or bank                        | Lake, perennial; Stream, perennial       |
| Principal road and highway, Cutting              | Mine: Windmill; Yard; Quarry               | Lake, intermittent; Stream, intermittent |
| Secondary road, Embankment                       | Building: Church, Barn, Drive-in theatre   | Lake, mainly dry; Stream, mainly dry     |
| Minor road, Road bridge                          | Trig station, Bench mark; Spot elevation   | Swamp, perennial; Intermittent           |
| Vehicular track                                  | GH: Contour with value; Depression contour | Land subject to inundation: Rice field   |
| Gate, Cattle grid                                | Forest: dense; medium; scattered           | Bore or well; Spring; Tank or small dam  |
| Railway, multiple track; Station; Railway bridge | Scrub: dense; medium; scattered            | Breakwater; Pier; Wharf                  |
| Railway, single track; Railway tunnel            | Tropical rainforest; Pine plantation       | Wharf, exposed; Lighthouse               |
| Light railway or tramway                         | Orchard; plantation or vineyard; Mangrove  | Reef; Rock ledge                         |
| Power transmission line                          | Windbreak                                  |  |

SCALE 1: 100 000  
  
 HEIGHTS IN METRES, CONTOUR INTERVAL 40 METRES  
WITH SELECTED 20 METRE ALTERNATE CONTOURS SHOWN AS DASHED LINES  
 BASE MAP PRODUCED BY THE ROYAL AUSTRALIAN SURVEY CORPS.



ADJOINING MAP

	2	5	8
1A	3	6	9
1B	4	7	10