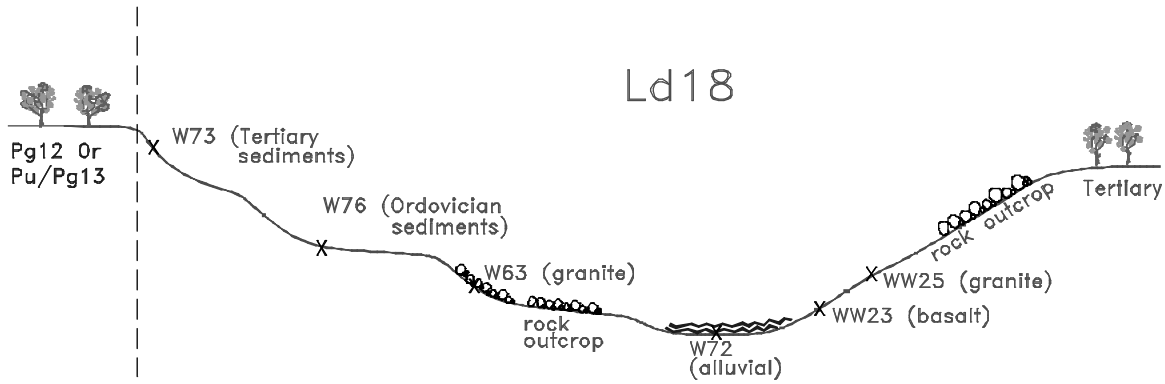
6.2.18 DISSECTED TABLELANDS - 18 LAND SYSTEM
Map units Hd18, Ld18, Lu18, Rd18, Ru18



Landscape
This land system incorporates a range of geologies occurring as part of the dissected tablelands in the south of the shire. The dissected hills and rises are formed by the Glenelg River and its immediate tributaries. The main geology consists of Tertiary sediments that form a tableland that has been dissected to expose a variety of other geologies. In addition there are alluvial deposits on the valley floor.

The flat plateau surface is commonly made up of Tertiary sediments or Quaternary aeolian material over Tertiary sediments, and has been mapped as Red Gum Plains and Rises -12 or Sand Plains and Rises -13 land systems, depending on the depth of sand deposits. The steeper slopes, up to 50 per cent, are mainly Tertiary sediments (W73) with a variety of rock outcrops of older sediment (W76), granite (W63 & WW25), basalt (W23) and occasionally limestone. The valley floor often has alluvial terraces or floodplains (W72).

Many of the steep slopes show evidence of landslip as accumulations of colluvial material on the lower slopes has occurred.

Plate 25 Dissected tablelands

There are also significant occurrences of recent minor landslip throughout these steep slopes. Gully erosion and salting is apparent on the lower slopes.

Plate 26 A steep slope on Tertiary sediment leading to the valley floor. Gully erosion is evident at the break of slope.

Plate 27 Spiny rush is an indicator of salinity and poor drainage in a drainage depressions.

Native Vegetation

Red Gum is the major tree species found on this land system, with other eucalypts occasionally found.

Soil types

The majority of the area is Tertiary sediments. Wind blown material can still be found deposited on top of the sediments, although there seems to be more clay material derived from the weathering of the parent rock. As with most of the soils in the area there is a strong textural contrast between the sandy topsoil and the mottled clay subsoil. Large amounts of ferruginised iron nodules occur and can be as large as 10-20 cm in diameter. In some cases kaolinite clay occurs at depth (W73).

Outcrops of granite can be seen in some places on the dissected slopes. The soils are often quite shallow and can have large amounts of surface boulders. The common soil type is a sandy topsoil over a clay subsoil. A bleached A2 horizon may be present. Weathered granitic rock occurs at varying depths (WW25 and W63).

Small areas of Ordovician sediments also outcrop on the dissected steeper slopes below the Tertiary capping (tableland). The soil can be quite shallow higher in the landscape, although there are areas of deeper soil on the lower reaches of the landscape where colluvial material has accumulated. There is still the strong textural contrast between the topsoil and subsoil that is consistent with most soils in the shire (W76).

Basalt outcrops with large numbers of boulders are scattered throughout the southern part of the shire. Basalt can also be found outcropping through other geologies. The associated soils are commonly well structured uniform clay. Although there can be evidence of mottles in the subsoil, these soils are quite well drained (WW23).

Alluvial soils are common on the valley floor of the dissected tablelands. These soils have been formed by rivers continually moving soil through a flooding regime and therefore the soil type is quite variable. Silt and fine sand is common throughout the subsoil; some areas may have two or more separate deposits of soil depending on the flooding regime. The soils are often grey in colour indicating seasonal waterlogging caused by restrictive drainage.

Very small and isolated areas of limestone can occur. The soils on the limestone are generally quite red and well drained; a high percentage of calcium carbonate or solid limestone occurs reasonably close to the surface (refer to WW2 and WW24).

Current land use

Due to the steep slopes and the susceptibility to erosion, much of the land use in this land system is restricted to grazing. On some of the flatter, better drained basalt areas, lucerne can be grown. There is some mining of basalt where exposed by the dissection of the landscape.

Plate 28 Mining on a basalt cone

Representative soil type of land units

Although a number of site descriptions have been made for this land system to cover the range of geologies, the Tertiary sediments soil description (W73) is regarded as the most appropriate soil type to represent the whole land system. It is the most dominant geology of the dissected tablelands.

REPRESENTATIVE SOIL TYPE FOR THE DISSECTED TABLELAND -18 Hd18, Ld18/Lu18/Rd18/Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** W73

Position in Landscape: Mid slope **Geo. Ref:** 545 900 E, 5882 600 N

General Landscape Description:

Tertiary sediments occur throughout most of the Shire, although it is often overlain by younger wind blown deposits. Most of the Tertiary sediments outcrop in the south of the Shire in the dissected hill country formed by the Glenelg River and it's tributaries. The Tertiary sediments either appear on the flat plateau leading to the dissected hills, or on the steep slopes of the hills mixed with older Ordovician sediments, granite, basalt and occasionally limestone.

Soil Profile Morphology:

Topsoil

A1 0-20 cm Dark reddish grey (5YR4/2) loamy sand. pH 6.5.

A2 20-50 cm Weak red (2.5YR5/4) loamy coarse sand, large ferruginised iron nodules are abundant. pH 6.1.

Subsoil

B21 50 cm + Yellowish brown (10YR5/6) light medium clay, strong polyhedral structure, smooth faced peds, light yellowish brown and dark yellowish brown mottles are abundant. pH 5.2.

Whitish Kaolinite clay often occurs at depth.

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	slightly acid	low	-	-	moderately well drained	low
Subsoil (B21 horizon)	strongly acid	low	sodic	nil		

Key Profile Features:

- Large amount of large ferruginised iron nodules 'ironstone' above the clay (ferric pan)
- Mottled subsoil
- Acidic topsoil
- Acidic subsoil

Soil Restrictions and Management Prescriptions

Feature	Result	Management Prescription
Ferric pan	Restricted root penetration into the subsoil. Indication of period waterlogging.	Select shallow rooted species. Improve topsoil by increasing organic matter and nutrition. Ripping may assist if pan is continuous and close to the surface, include gypsum if subsoil is sodic. Consider subsoil drainage (if appropriate).
Mottled subsoil	Indication of periodic waterlogging, particularly if grey and yellow mottles predominate.	Consider sub-surface drainage (if appropriate). Apply gypsum if subsoil is sodic and close to the surface.
Acidic topsoil	Potential nutrient imbalance. Unsuitable for acid intolerant plants.	Apply lime.
Acidic subsoil	Potential nutrient imbalance. Unsuitable for acid intolerant plants.	Grow acid tolerant species or varieties.

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Landscape
Canola	3	Landscape, soil
Chickpeas	3	Climate, landscape, soil
Lentils	3	Climate, landscape, sol
White clover seed	3	Climate, landscape
Lucerne for seed production	3	Landscape, soil
Viticulture	3	Landscape
Apples	3	Landscape, soil
Potatoes	3	Landscape
Carrots	3	Landscape
Onions	3	Landscape
Sweet corn	3	Landscape, soil
Radiata Pine	2	Climate, landscape, soil
Blue Gum	2	Climate, landscape, soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2*	High rainfall
	Landscape	3	Landform, rock floaters
	Soil	2	Hydrophobicity, slightly acid subsoil pH
Canola	*Climate*	2	Slightly high rainfall
	Landscape	3	Landform, rock floaters
	Soil	3	Acid subsoil pH
Chickpeas	*Climate*	3	High rainfall
	Landscape	3	Landform, rock floaters
	Soil	3	Topsoil texture, acid subsoil pH
Lentils	*Climate*	3	High rainfall
	Landscape	3	Landform, rock floaters
	Soil	3	Topsoil texture, acid subsoil pH
White clover seed	*Climate*	3	High rainfall
	Landscape	3	Landform, rock floaters
	Soil	2	Slightly acid subsoil pH, hydrophobicity
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	3	Rock floaters
	Soil	3	Acid subsoil pH

Viticulture	*Climate*	2	Moderate frost risk
	Landscape	3	Rock floaters
	Soil	2	Slightly acid subsoil pH, slightly impeded internal drainage, hydrophobicity
Apples	*Climate*	2	Moderate frost risk
	Landscape	3	Rock floaters
	Soil	3	Acid subsoil pH
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Landform, rock floaters, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage, hydrophobicity
Carrots	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock floaters
	Soil	2	Slightly impeded internal drainage, hydrophobicity
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Landform, gully erosion hazard, rock floaters
	Soil	2	Topsoil texture, slightly impeded internal drainage, hydrophobicity
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	3	Landform, rock floaters
	Soil	3	Sandy topsoil texture
Radiata Pine	*Climate*	2	Slightly low rainfall
	Landscape	2	Landform, rock outcrop, wind erosion hazard, gully erosion hazard, rock floaters
	Soil	2	Slightly acid subsoil pH, depth to hardrock, hydrophobicity
Blue Gum	*Climate*	2	Slightly low rainfall
	Landscape	2	Landform, gully erosion hazard, wind erosion hazard, rock outcrop, rock floaters
	Soil	2	Slightly acid subsoil pH, depth to hardrock, hydrophobicity

* Some areas may have higher rainfall

ASSOCIATED SOIL TYPE FOR THE DISSECTED TABLELAND -18 Hd18/Ld18/Lu18/Rd18/Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** W76

Position in Landscape: Lower slope

General Landscape Description:

The older Ordovician sediments outcrop in association mainly with granite and Tertiary sediments. Ordovician sediments occur on the steeply dissected hillslopes leading to the Glenelg River and it's tributaries. Soil development can be minimal, although as this example indicates there is often a lot of colluvial deposition on the lower slopes. The very steep slopes can range between 45 and 50 per cent and the gentler colluvial slopes can range from 15-20 per cent. Chemical analysis was not conducted for this site.

Soil Profile Morphology:

A1 0-120 cm Dark greyish brown heavy loam, strong angular blocky structure. Mostly colluvial deposition from up slope.

B2 120 - 130 cm Dusky red (2.5YR4/4) clay, sedimentary gravel is abundant.

C 130 cm + Weathered sedimentary bedrock

Bedrock Depth is variable, depending on the amount of colluvial material. In some places solid sedimentary bedrock can be as close as 40 cm to the surface.

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	-	-	-	-	moderately well drained	nil
Subsoil (B21 horizon)	-	-	-	-		

Key Profile Features:

- Variable depth of soil
- Bedrock can be close to the surface in places.
- Large amount of sedimentary gravel above the clay
- Areas with deep deposits of colluvial material

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Landscape
Canola	3	Landscape
Chickpeas	3	Climate, landscape
Lentils	3	Climate, landscape
White clover seed	3	Climate, landscape
Lucerne for seed production	2	Landscape, soil
Viticulture	3	Landscape
Apples	3	Landscape
Potatoes	3	Landscape
Carrots	3	Landscape
Onions	3	Landscape
Sweet corn	3	Landscape
Radiata Pine	2	Climate, landscape, soil
Blue Gum	2	Climate, landscape, soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2*	Moderate to high rainfall, moderate frost risk
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation
Canola	*Climate*	2	Slightly high rainfall, moderate frost risk
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation
Chickpeas	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
Lentils	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage

White clover seed	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Landform, water erosion hazard, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Slightly impeded internal drainage, depth to hardrock
Viticulture	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly impeded internal drainage, depth to hardrock
Apples	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly impeded internal drainage, depth to hardrock
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Landform, rock floaters, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage
Carrots	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Landform, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October-March)
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
Radiata Pine	*Climate*	2	Slightly low rainfall
	Landscape	2	Landform, water erosion hazard, gully erosion hazard, rock outcrop
	Soil	2	Depth to hardrock
Blue Gum	*Climate*	2	Slightly low rainfall
	Landscape	2	Landform, water erosion, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Depth to hardrock

* Some areas may have higher rainfall

ASSOCIATED SOIL TYPE FOR THE DISSECTED TABLELAND -18 Hd18/Ld18/Lu18/Rd18/Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** W72

Position in Landscape: Terrace **Geo. Ref:** 552 400 E, 5886 000 N;

General Landscape Description:
This soil type occurs on the Glenelg River terrace. As is common with most alluvial terraces and floodplains, the soil type is variable depending on the flood regime of the associated water course. A high percentage of sand and silt is common in these soils.

Soil Profile Morphology:

Topsoil
A1 0-20 cm Very dark greyish brown (10YR3/2) fine sandy clay loam, strong subangular blocky structure. pH 6.4.

A2 20-45 cm Dark grey (2.5Y4/1) silty clay loam, sporadically bleached light grey (10YR4/1), moderate subangular blocky structure. pH 6.4.

Subsoil
B21 45 - 80 cm + Dark grey (2.5YR4/1) silty clay, moderately structured. pH 7.7.

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	slightly acidic	medium	-	nil[1]	poorly drained	nil
Subsoil (B21 horizon)	slightly alkaline	high	-	complete		

1 strong dispersion after remoulding

Key Profile Features:

- Bleached A2 horizon
- Grey colour of the soil

Soil Restrictions and Management Prescriptions

Feature	Result	Management Prescription
Bleached A_2 horizon	Indication of waterlogged condition (impeded internal drainage) within the topsoil. Poor soil structure (often massive). Low organic matter, water holding capacity and nutrition within the horizon.	*Dryland cropping* - include deep rooted crops in the rotation, minimum tillage and stubble retention. Apply gypsum if the topsoil is sodic. Optimise plant growth through a regular and balanced fertiliser programme. *Horticulture* - improve organic matter through maintaining optimum plant growth and growing green manure crops between the rows. Minimum tillage and surface vegetative cover. Apply gypsum if the topsoil is sodic. Optimise plant growth through a regular and balanced fertiliser programme. Install subsoil drainage (if appropriate).
Grey subsoil	Indication of periodic waterlogging	Consider sub-surface drainage (if appropriate). Apply gypsum if subsoil is sodic and close to the surface.

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Soil
Canola	3	Soil
Chickpeas	3	Climate, soil
Lentils	3	Climate, soil
White clover seed	3	Climate, soil
Lucerne for seed production	3	Soil
Viticulture	3	Soil
Apples	3	Soil
Potatoes	3	Landscape, soil
Carrots	3	Landscape, soil
Onions	3	Landscape, soil
Sweet corn	3	Soil
Radiata Pine	2	Climate, landscape, soil
Blue Gum	2	Climate, landscape, soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2#	High rainfall, moderate frost risk
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Canola	*Climate*	2	Slightly high rainfall, moderate frost risk
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Chickpeas	*Climate*	3	High rainfall
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Lentils	*Climate*	3	High rainfall
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
White clover seed	*Climate*	3	High rainfall
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Viticulture	*Climate*	2	Moderate frost risk
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Apples	*Climate*	2	Moderate frost risk
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Gully erosion hazard
	Soil	3	Impeded internal drainage
Carrots	*Climate*	1	No major limitation
	Landscape	3	Gully erosion hazard
	Soil	3	Impeded internal drainage
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Gully erosion hazard
	Soil	3	Impeded internal drainage

Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	2	Gully erosion hazard
	Soil	3	Impeded internal drainage
Radiata Pine	*Climate*	2	Slightly low rainfall
	Landscape	2	Gully erosion hazard
	Soil	2*	Impeded internal drainage
Blue Gum	*Climate*	2	Slightly low rainfall
	Landscape	2	Gully erosion hazard
	Soil	2*	Slightly impeded internal drainage

Some areas may have higher rainfall

* Some areas lower in the landscape within the land unit may be a class 3 for internal drainage

ASSOCIATED SOIL TYPE FOR THE DISSECTED TABLELANDS -18 Hd18, Ld18, Lu18, Rd18, Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** WW25

Position in Landscape: Mid slope **Grid Ref:** 518 900 E, 5866 200 N;

General Landscape Description:

Granite material is mainly found dissecting the major waterways in the south of the Shire. The occurrence of granite is scattered and is commonly found in association with Tertiary and Ordovician sediments or basalt. Due to the steep slopes, the lower slopes tend to have colluvial material deposited on top. This site is located near Dergholm and therefore the climate ratings reflect the change in rainfall further south.

Soil Profile Morphology:

Topsoil

A1 0-10 cm Brown (7.5YR4/2) *sandy loam*, moderate subangular blocky structure, (peds 5-10 mm), weak consistence when dry, many (30%) granitic fragments. pH 5.7. Clear to abrupt transition to:

A2 10-140 cm Brown (7.5YR4/2) *sandy clay loam*, conspicuously bleached, weak to massive structure, weak consistece when dry, many (40-50%) granitic fragments. pH 5.7.

Subsoil

B2 140-150 cm Dusky red (2.5YR4/3) *medium heavy clay*, polyhedral structure, smooth faced peds, granitic fragments are common (15%). pH 5.6.

C 150+ cm Weathered granitic bedrock

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	moderately acid	very low	-	-	moderately well drained	nil
Subsoil (B21 horizon)	moderately acid	very low	-	nil[1]		

1 moderate dispersion after remoulding

Key Profile Features:

- Strong texture contrast between topsoil and subsoil
- Bleached A2 horizon
- Acidic topsoil
- Acidic subsoil
- Small amount of clay formation from the granite bedrock
- Strong structure of the subsoil

Soil Restrictions and Management Prescriptions

Feature	Result	Management Prescription
Strong textural contrast between topsoil and subsoil (duplex)	Strong texture and structure difference between the topsoil and the subsoil. Can result in impeded internal drainage and restricted root growth	Improve organic matter through maintenance of vegetative cover and growing green manure crops. Reduce tillage. Mounding for orchards and vineyards. Bed formation for vegetables. Optimise plant growth through regular balanced fertiliser programme. Consider sub-surface drainage (if appropriate).
Bleached A_2 horizon	Indication of waterlogged condition (impeded internal drainage) within the topsoil. Poor soil structure (often massive). Low organic matter, water holding capacity and nutrition within the horizon.	*Dryland cropping* - include deep rooted crops in the rotation, minimum tillage and stubble retention. Apply gypsum if the topsoil is sodic. Optimise plant growth through a regular and balanced fertiliser programme. *Horticulture* - improve organic matter through maintaining optimum plant growth and growing green manure crops between the rows. Minimum tillage and surface vegetative cover. Apply gypsum if the topsoil is sodic. Optimise plant growth through a regular and balanced fertiliser programme. Install subsoil drainage (if appropriate).
Acidic topsoil	Potential nutrient imbalance. Unsuitable for acid intolerant plants.	Apply lime.
Acidic subsoil	Potential nutrient imbalance. Unsuitable for acid intolerant plants.	Grow acid tolerant species or varieties.

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Climate, landscape
Canola	3	Climate, landscape
Chickpeas	3	Climate, landscape
Lentils	3	Climate, landscape
White clover seed	3	Climate, landscape
Lucerne for seed production	2	Landscape, soil
Viticulture	3	Landscape
Apples	3	Landscape
Potatoes	3	Landscape
Carrots	3	Landscape
Onions	3	Landscape
Sweet corn	3	Landscape
Radiata Pine	2	Landscape, soil
Blue Gum	2	Landscape, soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	3	High rainfall
	Landscape	3	Landform
	Soil	1	No major limitation
Canola	*Climate*	3	High rainfall
	Landscape	3	Landform
	Soil	2	Slightly acid pH
Chickpeas	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Subsoil pH, slightly impeded internal drainage, slightly acid subsoil pH
Lentils	*Climate*	3	High rainfall
	Landscape	3	Landform
	Soil	2	Slightly acid subsoil pH, slightly impeded internal drainage, topsoil texture
White clover seed	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation

Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Subsoil pH, slightly impeded internal drainage
Viticulture	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly acidic subsoil pH, slightly impeded internal drainage
Apples	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly acidic subsoil pH, slightly impeded internal drainage
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage
Carrots	*Climate*	1	No major limitation
	Landscape	3	Landform, rock outcrop, gully erosion
	Soil	2	Slightly impeded internal drainage
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Landform, rock outcrop, gully erosion
	Soil	2	Slightly impeded internal drainage
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	3	Landform, rock outcrop
	Soil	2	Topsoil texture, slightly impeded internal drainage
Radiata Pine	*Climate*	1	No major limitation
	Landscape	2*	Rock outcrop, landform, gully erosion hazard, rock floaters
	Soil	2	Depth to hardrock
Blue Gum	*Climate*	1	No major limitation
	Landscape	2*	Rock outcrop, landform, gully erosion hazard, rock floaters
	Soil	2	Depth to hardrock

* Some areas may be unsuitable due to steep slopes and rock outcrop

ASSOCIATED SOIL TYPE FOR THE DISSECTED TABLELANDS -18
Hd18/ Ld18/Lu18/ Rd18/ Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** W63

Position in Landscape: Mid slope **Geo. Ref:** 551 700 E, 5885 800 N

General Landscape Description:
Granite material is mainly found dissecting the major waterways in the south of the Shire. The occurrence of granite is scattered and is commonly found in association with Tertiary and Ordovician sediments or basalt. Due to the steep slopes this geology is often associated with the lower slopes tend to have colluvial material deposited on top.

Soil Profile Morphology:

A1 0-30 cm Dark greyish brown (10YR4/2) coarse sandy clay loam, weakly structured, granitic gravel fragments are common. Clear transition to:

B2 30-45 cm Dark greyish brown (2.5YR4/2) clay, strong angular to subangular blocky structure, smooth fabric, a few mottles. pH 6.8. Gradual transition to:

C 45 cm + Weathered granitic bedrock

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	-	-	-	-	moderately well drained	nil*
Subsoil (B21 horizon)	moderately acid	very low	-	nil[1]		

* estimate
1 slight dispersion after remoulding

Key Profile Features:

- Shallow soil development

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Landscape
Canola	3	Landscape
Chickpeas	3	Climate, landscape
Lentils	3	Climate, landscape
White clover seed	3	Climate, landscape
Lucerne for seed production	2	Landscape, soil
Viticulture	3	Landscape, soil
Apples	3	Landscape, soil
Potatoes	3	Landscape
Carrots	3	Landscape
Onions	3	Landscape
Sweet corn	3	Landscape
Radiata Pine	2	Climate, landscape, soil
Blue Gum	2	Climate, landscape, soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2#	Moderate to high rainfall
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation
Canola	*Climate*	2	Slightly high rainfall, moderate frost risk
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation
Chickpeas	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
Lentils	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
White clover seed	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly alkaline topsoil pH, soil salinity
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Slightly impeded internal drainage

Viticulture	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	3	Depth to hardrock
Apples	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	3	Depth to hardrock
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock outcrop
	Soil	2	Slightly impeded internal drainage, topsoil pH, depth of topsoil
Carrots	*Climate*	1	No major limitation
	Landscape	3	Landform, rock outcrop, gully erosion
	Soil	2	Slightly impeded internal drainage, depth of topsoil, topsoil pH, soil salinity
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Landform, rock outcrop, gully erosion
	Soil	2	Slightly impeded internal drainage, depth of topsoil, topsoil pH, soil salinity
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
Radiata Pine	*Climate*	2	Slightly low rainfall
	Landscape	2	Landform, gully erosion, rock outcrop, rock floaters
	Soil	2*	Depth to hardrock
Blue Gum	*Climate*	2	Slightly low rainfall
	Landscape	2	Rock outcrop, landform, gully erosion hazard, rock floaters
	Soil	2*	Depth to hardrock

\# Some areas may have higher rainfall
* Some areas may be unsuitable due to shallow depth to hardrock

ASSOCIATED SOIL TYPE FOR THE DISSECTED TABLELANDS - 18 Hd18/Ld18/Lu18/Rd18/Ru18 LAND UNITS

MAP UNIT: Hd18, Ld18, Lu18, Rd18, Ru18 **Site No.:** WW23

Position in Landscape: Lower slope
Aust. Soil Class.: Melanic, Black FERROSOL (Confidence level 4)

General Landscape Description:

The basalt in the shire commonly occurs as isolated cones or as steeply dissected hills and rises leading to the Glenelg River and it's tributaries. Basalt is often found outcropping through the Tertiary sediments and in association with older sediments and granite. Due to the steep slopes the lower slopes often have an accumulation of colluvial material deposited on top.

Soil Profile Morphology:

Topsoil
A1 0-10 cm Very dark grey (2.5Y3/1) *light clay*; strong polyhedral structure, (peds 10-20 mm), breaking to strong blocky structure, (peds 5-10 mm), strong consistence when dry. pH 6.5.

Subsoil
B21 10-40 cm Very dark grey (10YR3/1) *light clay*; strong polyhedral structure, (peds 10-20 mm), breaking to strong blocky structure (peds 5-10 mm), very strong consistence when dry. pH 6.9

B22 40-70 cm Very dark grey (10YR3/1) *heavy clay*; strong angular blocky structure, (peds 20-50 mm), breaking to strong polyhedral structure, (peds 5-10 mm), very strong consistence when dry. pH 7.3.

B23 70-120 cm Light olive brown (2.5Y5/3) *heavy clay*; many dark grey and yellow brown mottles, structure and consistence similar to horizon above. pH 7.9.

B24 120 cm + Light olive brown (2.5Y5/3) *heavy clay*; many mottles, structure and consistence similar to above, a few ferruginised iron nodules.

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	slightly acid	very low	-	nil[1]	moderately well drained	nil
Subsoil (B21 horizon)	slightly acid	very low	-	nil[2]		
Deeper subsoil (at 1 metre)	slightly alkaline	very low	-	nil[3]		

1 slight dipsersion after remoulding
2 moderate dispersion after remoulding
3 strong dipsersion after remoulding

Key Profile Features:

- Strong structure throughout
- Uniform clay soil
- Mottling in the deeper subsoil

Soil Restrictions and Management Prescriptions

Feature	Result	Management Prescription
Mottled subsoil at depth	Indication of periodic waterlogging at depth, particularly if grey and yellow mottles predominate.	Consider sub-surface drainage (if appropriate). Apply gypsum if subsoil is sodic and close to the surface.

Land Suitability Rating Table

LAND USE	SUITABILITY CLASS	MAJOR LIMITING COMPONENT
Wheat	3	Landscape
Canola	3	Landscape
Chickpeas	3	Climate, landscape
Lentils	3	Climate, landscape
White clover seed	3	Climate, landscape
Lucerne for seed production	2	Landscape, soil
Viticulture	3	Landscape
Apples	3	Landscape
Potatoes	3	Landscape
Carrots	3	Landscape
Onions	3	Landscape, soil
Sweet corn	3	Landscape
Radiata Pine	3	Landscape
Blue Gum	3	Landscape

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2*	Moderate to high rainfall, moderate frost risk
	Landscape	3	Landform
	Soil	2	Subsoil texture
Canola	*Climate*	2	Slightly high rainfall, moderate frost risk
	Landscape	3	Landform
	Soil	1	No major limitation
Chickpeas	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage, subsoil texture
Lentils	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage, subsoil texture
White clover seed	*Climate*	3	High rainfall
	Landscape	3	Landform, rock outcrop
	Soil	1	No major limitation

Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Slightly impeded internal drainage
Viticulture	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly impeded internal drainage
Apples	*Climate*	2	Moderate frost risk
	Landscape	3	Rock outcrop
	Soil	2	Slightly impeded internal drainage, topsoil depth
Potatoes	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Topsoil texture, slightly impeded internal drainage
Carrots	*Climate*	1	No major limitation
	Landscape	3	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Sandy topsoil, slightly impeded internal drainage
Onions	*Climate*	2	Moderate frost risk
	Landscape	3	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	3	Sandy topsoil
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	3	Landform, rock outcrop
	Soil	2	Slightly impeded internal drainage
Radiata Pine	*Climate*	2	Slightly low rainfall
	Landscape	3	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Depth to hardrock
Blue Gum	*Climate*	2	Slightly low rainfall
	Landscape	3	Landform, gully erosion hazard, rock outcrop, rock floaters
	Soil	2	Depth to hardrock

* Some areas may have higher rainfall