

HILLY TO UNDULATING TERRAIN ON TERTIARY VOLCANICS

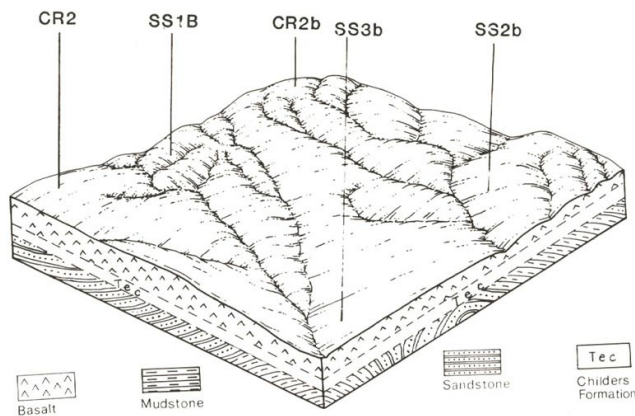
Land System: Neerim (Nm) – Freehold land only

This land type consists of low hills and undulating terrain with a rounded topography and dendritic drainage pattern. It occurs in scattered patches, most commonly on crests along the western edge of the catchment. Minor areas of steep, landslip prone slopes occur near the Tanjil River above Tanjil South. The land contains dissected slopes and broad rounded crests formed on early Tertiary olivine basalt residuals and associated sediments (TVT, TVO, TEC, TE). These residual basal areas occur within both the Devonian and Tertiary sediments areas of the catchment.

The soils are consistently red or reddish brown in colour, gradational and strongly structured. They are very friable, well drained, and in most areas, deep. Because of these properties they are often favoured for intensive cropping.

The native vegetation has been almost totally cleared to enable grazing or cultivation. However the original vegetation seems likely to have been an open forest where messmate (*E. oblique*), candlebark (*E. rubida*), and manna gum (*E. viminalis*), were the major species.

Five basic mapping units have been identified on the basis of topographic position and slope. Two crest areas, CR2 and CR2b, have been delineated, the second being a less common shallower soil variant of the first. The sideslopes to the hills have been divided into three separate slope classes SS1b, 2b, and 3b.

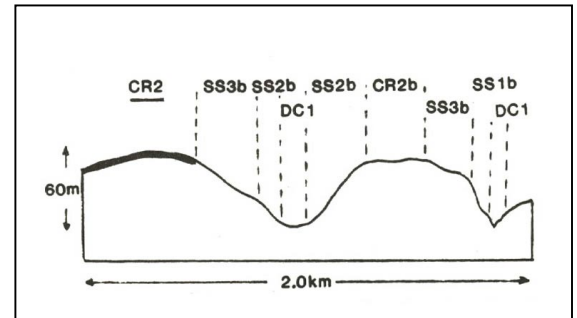


Neerim Land System (Freehold map units shown)

UNDULATING TERRAIN ON TERTIARY VOLCANICS

Map Unit: CR2
CR2 – Crests and upper slopes with deep soils.

Extent of Occurrence:
225 ha – scattered, mainly between Willow Grove and Fumina South, but also almost down to Tanjil South on eastern side of river (Freehold land only).



Landscape: Generally broad, rounded crests and upper hill slopes, commonly undulating.

Slope Range: 0-8% **Elevation Range:** 120-310 m
Relief: 2-20 m **Surface Drainage:** Moderately well drained, to well drained

Soils: Structured red earths, structured brown earths, and rare, yellow brown earths (Soil Types 3, 4, 2)

Classification: Gn4.11, Gn4.31, Gn4.51 and Gn2.24
Karsnozems, Brown Earths and rare Yellow Earths

Depth: greater than 120 cm **Surface Texture:** Light sandy clay loam to loam

Stone/Gravel: 2-5%, ferruginous gravel in subsoil in limited areas **Profile Drainage:** Well drained

Shrink-Swell Potential: Low-moderate **Dispersibility:** Low

CAPABILITY EVALUATION					Limiting Factors						
FOR	Steepness	Site Drainage	Landslip Risk	Flood Risk	Proximity to River	Soil Depth	Soil Drainage/Permeability	Soil Dispersability	Soil Shrink-Swell	Stones/Gravel	Capability Rating
General Construction	●								●		● 2
Effluent Disposal	●								●		● 2
Erosion Risk											1
<i>Dot size indicates importance of factor</i>					Overall Rating: Rural-Residential Development						● 2

Limitations to Development:

1. Slight erosion hazard, but only in steeper areas.
2. Subsoil display moderate shrink swell behaviour in some areas, making use of concrete slabs preferable to strip footings or stumps for house construction.
3. Earth fill dams likely to be difficult to seal due to strong soil structure and low dispersibility.

UNDULATING TERRAIN ON TERTIARY VOLCANICS

Map Unit: CR2b
CR2b – Crests and upper slopes with shallower soils.

Extent of Occurrence:
254 ha – mainly north of Fumina South

Landscape: Rounded crests and upper hill slopes, commonly undulating.

Slope Range: 0-6% **Elevation Range:** 320-580 m

Relief: 2-10 m **Surface Drainage:** Moderately well drained

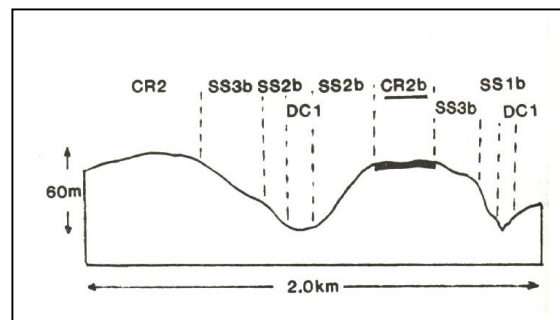
Soils: Structured red earths, and less commonly, structured brown earths (Soil Types 3, 4)

Classification: Gn4.11, Gn3.24
Karsnozems, Brown Earths

Depth: 30 to 100 cm **Surface Texture:** Loam

Stone/Gravel: 2-5%, ferruginous subsoil
gravels are common **Profile Drainage:** Well drained

Shrink-Swell Potential: Moderate **Dispersibility:** Low



CAPABILITY EVALUATION					Limiting Factors						
FOR	Steepness	Site Drainage	Landslip Risk	Flood Risk	Proximity to River	Soil Depth	Soil Drainage/Permeability	Soil Dispersibility	Soil Shrink-Swell	Stones/Gravel	Capability Rating
General Construction						●			●		●
Effluent Disposal		●				●			●		●
Erosion Risk											
<i>Dot size indicates importance of factor</i>					Overall Rating: Rural-Residential Development						●

Limitations to Development:

1. Soils are commonly shallow, limiting effluent disposal and possibly causing construction difficulties, although underlying rock is often very weathered.
2. Concrete slabs are recommended for building foundations due to moderate shrink-swell behaviour of subsoil.
3. Earth fill dams likely to be difficult to seal due to strong soil structure and low dispersibility.

UNDULATING TERRAIN ON TERTIARY VOLCANICS

Map Unit: SS1b
SS1b – Steep hill slopes

Extent of Occurrence:
205 ha – scattered from Fumina to just north of Tanjil South (Freehold land only)

Landscape: Steep sideslopes to hills and escarpments, commonly with landslip “scars” and terracettes.

Slope Range: 25-50% *Elevation Range:* 80-500 m

Relief: 30-160 m *Surface Drainage:* Excessively well drained

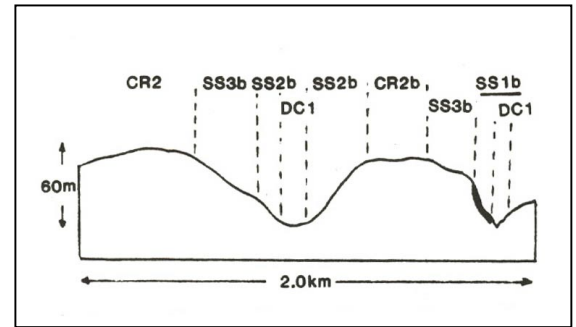
Soils: Structured red earths and, less commonly, structured brown earths (Soil Types 3, 4)

Classification: Gn4.11, Gn4.31
Karsnozems, Brown Earths

Depth: 80 to greater than 150 cm *Surface Texture:* Loam

Stone/Gravel: 2-5% subsoil gravel in some Areas *Profile Drainage:* Well drained

Shrink-Swell Potential: Low to moderate *Dispersibility:* Low, but slaking readily occurs



CAPABILITY EVALUATION					Limiting Factors						
FOR	Steepness	Site Drainage	Landslip Risk	Flood Risk	Proximity to River	Soil Depth	Soil Drainage/Permeability	Soil Dispersability	Soil Shrink-Swell	Stones/Gravel	Capability Rating
General Construction	●		●			●			●		● 5
Effluent Disposal	●					●					● 5
Erosion Risk	●		●						●		5
<i>Dot size indicates importance of factor</i>					Overall Rating: Rural-Residential Development						● 5

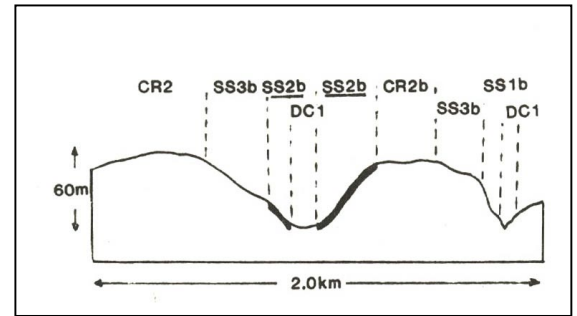
Limitations to Development:

1. High erosion and landslip hazard due to slope and unstable subsoils.
2. Earth fill dams likely to be difficult to seal due to strong soil structure and low dispersibility.

UNDULATING TERRAIN ON TERTIARY VOLCANICS

Map Unit: SS2b
SS2b – Moderate steep hillslopes.

Extent of Occurrence:
461 ha – scattered throughout area from Icy Creek to just north of Tajil South (Freehold land only)



Landscape: Moderately steep, generally convex or rolling, sideslopes to hills.

Slope Range: 10-25% *Elevation Range:* 100-680 m

Relief: 5-100 m *Surface Drainage:* Well drained

Soils: Structured red earths and, less commonly, structured grey and brown earths (Soil Types 3, 1, 4)

Classification: Gn4.11, Gn4.51, Gn3.91, Gn4.31
Karsnozems, Brown Earths

Depth: Greater than 120 cm *Surface Texture:* Loam to clay loam

Stone/Gravel: Up to 5% subsoil gravels in rare areas *Profile Drainage:* Well drained

Shrink-Swell Potential: Low to moderate *Dispersibility:* Low, but soils slake easily

CAPABILITY EVALUATION					Limiting Factors						
FOR	Steepness	Site Drainage	Landslip Risk	Flood Risk	Proximity to River	Soil Depth	Soil Drainage/Permeability	Soil Dispersability	Soil Shrink-Swell	Stones/Gravel	Capability Rating
General Construction	●●		●					●	●		●● 4
Effluent Disposal	●								●		● 3
Erosion Risk	●		●					●	●		● 3
<i>Dot size indicates importance of factor</i>					Overall Rating: Rural-Residential Development						● 3

Limitations to Development:

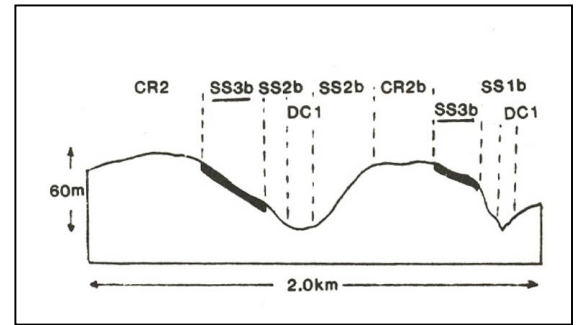
- Moderate erosion hazard in steeper areas.
- Subsoils display moderate shrink-swell behaviour in some areas, making use of concrete slabs preferable to strip footings or stumps for house construction.
- Earth fill dams likely to be difficult to seal due to strong soil structure and low dispersibility.

UNDULATING TERRAIN ON TERTIARY VOLCANICS

Map Unit: SS3b
SS3b – Gentle hillslopes

Extent of Occurrence:

229 ha – scattered throughout area from Icy Creek to just north of Tanjil South (Freehold land only)



Landscape: Gentle, usually convex or rolling sideslopes to hills.

Slope Range: 5-10% *Elevation Range:* 80-640 m

Relief: 2-10 m *Surface Drainage:* Well drained

Soils: Structured red earths and, less commonly, structured brown and grey brown earths (Soil Types 3, 4, 1).

Classification: Gn4.11, Gn4.31, Gn4.51
Krasnozems, Brown Earths

Depth: Greater than 120 cm *Surface Texture:* Loam

Stone/Gravel: - *Profile Drainage:* Moderately well to well drained

Shrink-Swell Potential: Low to moderate *Dispersibility:* Low, but soils slake easily

CAPABILITY EVALUATION					Limiting Factors						
FOR	Steepness	Site Drainage	Landslip Risk	Flood Risk	Proximity to River	Soil Depth	Soil Drainage/Permeability	Soil Dispersability	Soil Shrink-Swell	Stones/Gravel	Capability Rating
General Construction	●								●		●2
Effluent Disposal	●								●		●2
Erosion Risk	●							●	●		●2
<i>Dot size indicates importance of factor</i>					Overall Rating: Rural-Residential Development						●2

Limitations to Development:

1. Slight erosion hazard in some steeper areas.
2. Subsoils display moderate shrink-swell behaviour in some areas, making use of concrete slabs preferable to strip footings or stumps for house construction.
3. Earth fill dams likely to be difficult to seal due to strong soil structure and low dispersibility.