

ca

CAMBEWARRA

Erosional



Landscape—steep to very steep hills with broad colluvial benches on latite. Relief 100–200 m. Slope gradients >30%. Partially cleared to extensive stands of closed-forest.

Soils—deep (>150 cm) Red Solonchic Soils (Dr5.31) or Krasnozems (Gn4.11) occur on upper slopes and benches. Lithosols (Um6.24) occur on basanite outcrops.

Limitations—steep slopes, mass movement hazard, rock fall hazard, extreme water erosion hazard, shallow soil, rock outcrop, stoniness, low available water-holding capacity (topsoil), low wet bearing strength (subsoil) and sodicity.

LOCATION

Steep to very steep hills with broad colluvial benches on latite and Illawarra Coal Measures on the Illawarra Escarpment. Examples include upper reaches of Cambewarra Range, the Kangaroo Valley and of Stockyard Mountain.

LANDSCAPE

Geology

Cambewarra Latite Member—felsic latite with scattered olivine basanite outcrops; Illawarra Coal Measures—interbedded quartz lithic sandstone, mudstones, carbonaceous claystones and coals.

Topography

Steep to very steep hills with broad (600 m) colluvial benches. Relief 100–300 m. Slope gradients >30%. Crests and ridges are convex and narrow. Isolated moderately wide plateaux occur—for example, Stockyard Mountain. Hillslopes are steep (>50%) with talus comprising latite boulders and scattered rock outcrops with occasional terracettes and landslips. Drainage lines are closely spaced and deeply incised.

Vegetation

Uncleared to partially cleared closed-forest. Common species include coachwood (*Ceratopetalum apetalum*), churnwood (*Citronella moorei*), white cedar (*Melia azedarach* var. *australasica*), red cedar (*Toona australis*), giant stinging tree (*Dendrocnide excelsa*), brittlewood (*Claoxylon australe*), bolly gum (*Litsea reticulata*), native laurel (*Cryptocarya glaucescens*), native tamarind (*Dipolglottis cunninghamii*), sassafras (*Doryphora sassafras*), hairy clerodendrum (*Clerodendrum tomentosum*), rough tree-fern (*Cyathea australis*), olivers sassafras (*Cinnamomum oliveri*) and bangalow palm (*Archontophoenix cunninghamiana*).

Land Use

Cattle grazing and hobby farms on improved pastures. Undisturbed rainforest and National Parks including Morton National Park.

Existing Erosion

Widespread rock falls and slumps along road batters especially after heavy rain. Minor gully erosion.

Included Soil Landscape

Small areas of Illawarra Escarpment (**ie**) soil landscape occur.

SOILS

Dominant Soil Materials

ca1—Friable very dark reddish brown sandy clay loam (topsoil)

Colour	very dark reddish brown (5YR 2/3) (with occasional bleach)
Texture	sandy clay loam to light sandy loam
Structure	moderately pedal, 10–20 mm sub-angular blocky peds
Fabric	rough-faced, porous
pH	5.5–6.0
Stones	2–10% 2–6 mm rounded and sub-rounded, dispersed
Roots	common, in-ped

ca2—Very dark reddish brown silty clay loam (topsoil)

Colour	very dark reddish brown (2.5YR 2/3)
Texture	silty clay loam
Structure	moderately pedal, 5–50 mm polyhedral to angular blocky peds
Fabric	rough-faced, porous
pH	5.5–6.0
Stones	50–90% 2–6 mm angular, dispersed
Roots	few, ex-ped

ca3—Bright brown strongly pedal light clay (subsoil)

Colour	bright brown (7.5YR 5/8) to reddish brown (2.5YR 4/8)
Texture	light clay to light medium clay
Structure	strongly pedal, 10–20 mm angular blocky peds
Fabric	rough-faced, porous
pH	4.5
Stones	2–10% 2–6 mm rounded and sub-rounded, dispersed
Roots	few, in-ped

ca4—Mottled bright reddish brown strongly pedal medium clay (subsoil)

Colour	bright reddish brown (5YR 5/8) with yellow (50%) and grey (40%) mottles
Texture	medium clay

Structure	strongly pedal, 10–20 mm angular blocky peds
Fabric	rough-faced, porous
pH	3.5–5.5
Stones	nil to localised 10–20% 6–60 mm angular and sub-angular, dispersed
Roots	nil

Occurrence and Relationships

Steep slopes and benches. Up to 50 cm friable very dark reddish brown sandy clay loam (**ca1**) overlies <70 cm bright brown light clay (**ca3**) which overlies <80 cm mottled bright reddish brown strongly pedal medium clay (**ca4**). Boundaries are clear to gradual [Red Solonchic Soils (Dr5.31)]. Total depth is <250 cm. Up to 50 cm **ca1** overlies <70 cm **ca3** which in turn overlies <150 cm **ca4**. Boundaries are gradual [Krasnozems (Gn4.11)]. Total depth is <200 cm.

Very steep slopes. Up to 30 cm very dark reddish brown silty clay loam (**ca2**) overlies bedrock [Lithosols (Um6.24)].

LIMITATIONS TO DEVELOPMENT

Soil Limitations

ca1	Stoniness Very low available water-holding capacity Sodicity
ca2	Stoniness Shallow Slight sodicity
ca3	Strongly acid Stoniness
ca4	Strongly acid Stoniness Low permeability Low wet bearing strength

Fertility

General fertility is moderate. The soils are deep except on steep slopes, well structured and well drained. The topsoils have a moderate CEC and are moderately to slightly acid. Subsoils may be extremely acid.

Erodibility

The topsoils (**ca1** and **ca2**) are well structured but stony and have moderate erodibility. The subsoils (**ca3** and **ca4**) have low erodibility.

Erosion Hazard

Erosion hazard for non-concentrated flows is extreme. The calculated soil loss for the first 12 months of urban development ranges up to 1 200 t/ha for topsoils and 600 t/ha for exposed subsoils. The erosion hazard for concentrated flows is extreme.

Surface Movement Potential

These soils are stable.

Landscape Limitations

Steep slopes
Mass movement hazard
Rock fall hazard
Water erosion hazard
Shallow soil
Rock outcrop

Urban Capability

Generally high to severe limitations for urban development

Rural Capability

Generally high to severe limitations for cultivation and grazing.

