wy WYONG

Landscape—broad poorly drained deltaic floodplains and alluvial flats of Quaternary sediments on the Central Coast Lowlands. Slope gradients <3%; local relief <10 m. Meander scrolls, oxbows, and swamps are common. Extensively cleared open-forest.

Soils—deep (>200 cm) Yellow Podzolic Soils (Dy5.11, Dy5.51), Brown Podzolic Soils (Db2.11), Soloths (Dy5.81, Dy5.41) with some Humus Podzols (Uc2.22) around lake edges.

Limitations—flooding, seasonal waterlogging, foundation hazard, permanent waterlogging (localised), stream bank erosion (localised), acid sulphate potential (localised), strongly acid, poorly drained, impermeable soils of very low fertility with saline subsoils.

LOCATION

Broad, poorly drained floodplains on Quaternary alluvium in the Central Coast Lowlands. Small areas are associated with floodplains and deltas adjacent to Brisbane Water and the Broadwater in the Erina Hills.

LANDSCAPE

Geology

Quaternary sediments—sand, silt, gravel and clay.

Topography

Generally broad (2 km), poorly drained, deltaic floodplains and alluvial flats. Slope gradients <3% and local relief <10 m. Levees, meander scrolls, oxbows and swamps are common. Low lying, slightly elevated terraces are occasionally present.

Vegetation

The original closed-forest has been extensively cleared and replaced with pasture. Remaining species include *Melaleuca linariifolia* and prickly-leaved paperbark (*Melaleuca styphelioides*), woollybutt (*Eucalyptus longifolia*) and swamp mahogany (*E. robusta*). Some sydney blue gum (*E. saligna*) occurs along the better drained levee banks and terraces whilst swamp oak (*Casuarina glauca*) often line tidal channel banks.

Land Use

The dominant land use is cattle and horse grazing on improved kikuyu (*Pennisetum clandestinum*) pastures. Small rural subdivisions and hobby farms are numerous. Industrial and urban areas occur near Wyong.

Existing Erosion

No appreciable erosion occurs over most of this landscape except for severe stream bank erosion along major drainage channels (Marschke 1989).

Included Soil Landscapes

Small areas of Tacoma Swamp **(ts)** soil landscape occur on the floodplain. Non-tidal sand flats of the Woy Woy **(ww)** soil landscape have been included along the lake edges and adjacent to mouths of the major drainage channels.

SOILS

Dominant Soil Materials

wy1—Brownish black pedal loam. Brownish black loam to silty clay loam with moderate sub-angular structure and a rough ped fabric. It occurs as topsoil (A horizon)

This material usually has a friable surface condition and is occasionally hardsetting when dry. Colour ranges from a common brownish black (10YR 1.7/1) when organic matter is abundant to greyish yellow brown (10YR 4/2). The pH ranges from strongly acid to slightly acid (pH 6.0). Roots are common, but charcoal and rock fragments are absent.

wy2—Mottled brownish grey plastic clay. Brownish silty to heavy clay with massive structure when wet and strong angular blocky structure when dry. It occurs as subsoil (B horizon).

This material is often plastic and silty. It is often permanently waterlogged at depth with strong anaerobic odour. Colour ranges from brownish grey (10YR 4/1, 10YR 6/1) to yellowish brown (10YR 4/8). Orange and straw coloured mottles are often present along root channels. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.0). Roots are rare and charcoal and rock fragments are absent.

Associated Soil Materials

A bleached greyish yellow brown to dull yellow orange sandy clay loam occasionally occurs as an A_2 horizon.

A loose yellowish brown sand can occur as lenses and splays anywhere in the soil profile.

Soil materials of Woy Woy **(ww)** soil landscape occur along lake edges and at the mouth of major drainage lines.

ww1—Dark brown loose loamy sand
ww2—Grey loose sand
ww3—Brown waterlogged loose sand

Occurrence and Relationships

Generally 10–40 cm of brownish black pedal loam **(wy1)** overlies >200 cm of mottled brownish grey clay **(wy2)** [Yellow Podzolic Soils (Dy5.11, Dy5.51), Brown Podzolic Soils (Db2.11)]. Occasionally the associated soil material bleached greyish yellow brown to dull yellow orange sandy clay loam occurs between **wy1** and **wy2** [Soloths (Dy5.81, Dy5.41)]. Splays and lenses of sand can occur in the soil profile.

Occasionally around the foreshore of the lakes and where the banks of major drainage channels enter the lakes, deep deposits of coarse quartz sands have been deposited to form non-tidal sand flats (see Woy Woy soil landscape). Here 10–50 cm of dark brown loose loamy sand **(ww1)** overlies 10–50 cm of grey loose sand **(ww2)** and >200 cm of brown waterlogged loose sand **(ww3)** [Humus Podzols (Uc2.22)]. Watertable is present at <100 cm.

LIMITATIONS TO DEVELOPMENT

Landscape Limitations

Flooding hazard
Seasonal waterlogging
Permanent waterlogging (localised)
High watertables
Stream bank erosion hazard (localised)
Acid sulphate potential (localised)
High run-on
Foundation hazard
Mine subsidence district (localised)

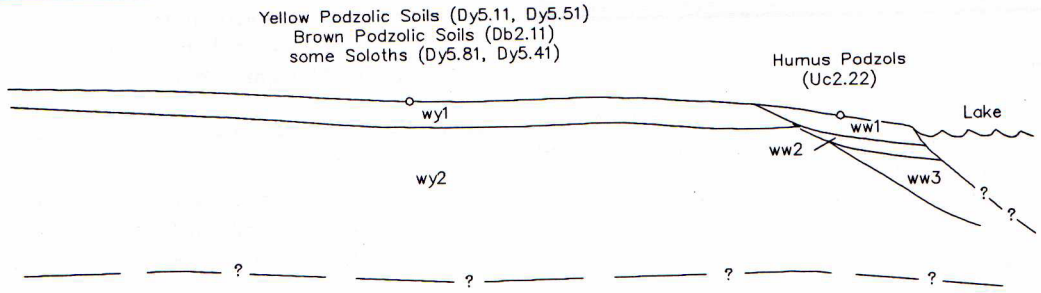
Soil Limitations

wy1
Very strongly acid
Sodicity
High potential aluminium toxicity
Low fertility
Hardsetting surface
Moderate erodibility

wy2
Very strongly acid
Low fertility
Low permeability
Strong sodicity
Acid sulphate potential (localised)
Shrink-swell (localised)
High potential aluminium toxicity
Moderate erodibility
High plasticity
Low wet bearing strength (localised)
Moderately saline

Fertility

Fertility of the soil materials is low. Although CECs are low **(wy1)** and moderate **(wy2)** and available water-holding capacities are moderate to high, the soil materials are very strongly acid, are sodic, have low available nutrients and have a high potential for aluminium toxicity. This soil landscape is poorly drained and seasonal waterlogging is common. Topsoils are hardsetting when dry. Soil volume available for root penetration is generally high except where high watertables occur. The general fertility is low.



■ *Schematic cross-section of the Wyong soil landscape illustrating the occurrence and relationship of the dominant soil materials.*

Erodibility

	K factor	Non-concentrated flows	Concentrated flows	Wind
wy1	0.030	moderate	moderate	low
wy2	0.028	moderate	moderate	low

Erosion Hazard

	Non-concentrated flows	Concentrated flows*	Wind
grazing	slight	moderate	slight
cultivation	slight	moderate	slight
urban	slight	moderate	slight

Foundation Hazard

The foundation hazard is high due to the flooding hazard and moderate shrink-swell subsoil. Localised areas of soils with high acid sulphate soil and/or swampy areas with high organic matter content may occur. Depth to subsoil is 10–40 cm. Total soil depth is >200 cm.

Urban Capability

High to severe limitations for urban development due to flooding hazard.

Rural Capability

Generally low limitations for cultivation except for waterlogged areas which have high to severe limitations. Generally low to moderate limitations for grazing.

* Concentrated flows include channelled flows and wave erosion in this soil landscape.