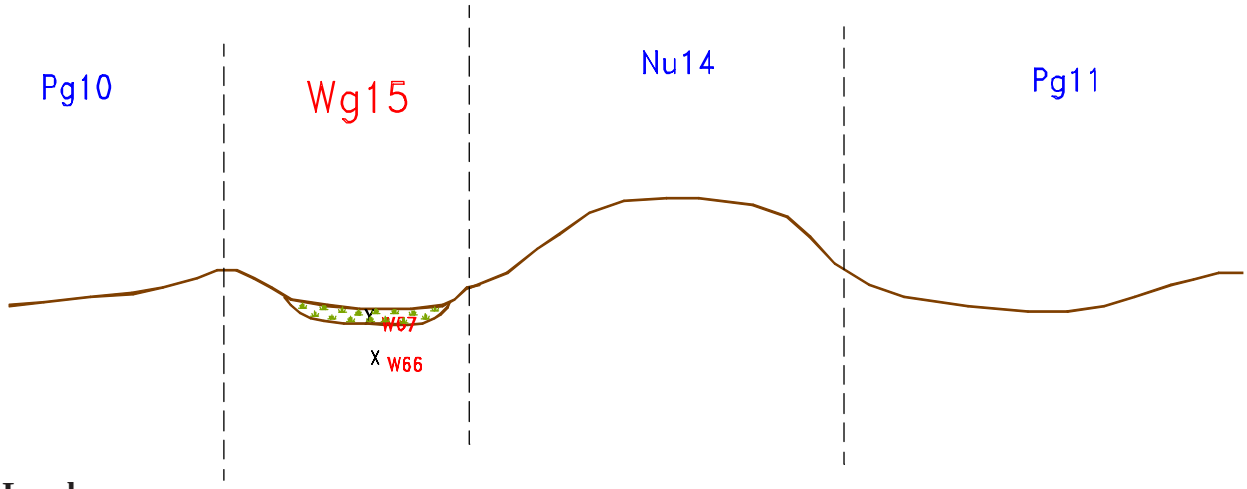
6.2.15 INTERMITTENT SWAMPS - 15 LAND ELEMENT
Map unit Wg15



Landscape

This land element differentiates the intermittent waterbodies, used for grazing and in some cases cropping, from the permanent waterbodies (Wg16), which are not agriculturally viable. Many of these swamps where not able to be delineated because of their close proximity to permanent waterbodies and therefore have been mapped as a complex (Wg17). Lunettes are common on the eastern side of the swamps, and where possible they have been mapped individually as Nu14, but in some cases they may be too small to appear on the map.

The water source of the intermittent swamps is mainly from local runoff or recharge from the surrounding dunes.

Due to the high perched watertable often present in the intermittent swamps, rushes commonly occur, and in these cases the land use in summer is restricted to grazing.

Native Vegetation

Red gum is the major tree species and a variety of rushes and grass species are found as an understorey. On the edge of some swamps where cracking clays occur, Black Box and Lignum Bush can be found.

Plate 30 Intermittent swamp

Soil types

As the formation of the lakes are variable, there is a range of soil types occurring on the swamp floor.

Grey clay surface or subsurface soils (W66) are common and may crack on drying. The depth of sand above the clay is variable, ranging from less than 10 cm to greater that one metre (W67). A high percentage of fine sand in the clay subsoil is common due to a combination of alluvial deposition and the sand falling through the cracks when the subsoil shrinks.

The clay tends to become paler at depth where the soil is undergoing more anaerobic (lack of oxygen) conditions. The presence of a calcium carbonate layer, or at least pockets of carbonate, is common at depth.

During the winter months, the perched watertable intersects with the surface which creates the intermittency of the swamps. During the summer months, the watertable drops to varying depths. The perched watertable level can be as close as 50 cm from the surface and could create problems for deeper rooted plants.

Current land use

During the winter months, when the perched watertable is at or close to the surface, grazing is often restricted to the outer edges, or otherwise not at all. Pugging of the soil caused by grazing when wet is a problem because as well as destroying the surface soil structure, it also induces waterlogging through competition.

When the watertable recedes during the drier months, grazing of the swamps is common. In some areas where the swamps have been drained or the perched watertable is lower than rooting depth, cropping can occur.

Representative soil type for land element

Although two soil types have been described for this land element - W66 and W67 - W66 is regarded as the most representative soil type.

REPRESENTATIVE SOIL TYPE FOR THE INTERMITTENT SWAMPS-Wg15 LAND ELEMENT

MAP UNIT: Wg 15 **Site No.: W66**

Position in landscape: Swamp **Geo. Ref:** 533 800 E, 5935 500 N;

General Landscape Description:

This unit forms the intermittent swamps that typically dry summer. The swamps dry to varying degrees, some totally while others still have signs of a perched watertable close to the surface. This particular soil description is taken from the edge of the swamp and the perched watertable recedes over the drier months. The soils developed on the swamp bed is variable, with some swamps having deeper sand deposition over the clay (W67) compared with this description.

Soil Profile Morphology:

Topsoil
A1 0-10 cm Brown (7.5YR5/4) sand. pH 5.5. Abrupt transition to:

Subsoil
B21 10-30 cm Grey (10YR5/1) structure medium heavy clay (fine sandy), plastic consistence, some oxidised roots. pH 7.1. Diffuse transition to:

B22 30-50 cm Dark grey medium heavy clay (fine sandy) little structure, plastic consistence, a few mottles and oxides roots.

B23 50-75 cm Dark grey medium heavy clay (fine sandy), structureless, plastic consistence, a few mottles and oxides roots. pH 8.4. Clear to gradual boundary to:

B24 75-90+ cm Grey (10YR6/1) structured clay (fine sandy), plastic consistence, calcium carbonate is abundant at greater than 90 cm. pH 9.0.

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	moderately acid	low	-	-		nil
Subsoil (B21 horizon)	neutral	low	-	-	poorly drained[#]	
Deeper subsoil	strongly	low	-	-		

(at 1 metre)	alkaline					

most impeding horizon of the profile that will affect plant growth

Key Profile Features:

- Acidic topsoil and alkaline subsoil at depth
- Poorly drained
- Presence of fine sand in the subsoil may indicate the subsoil cracks on drying.
- Oxidised roots indicate waterlogging
- Grey colour of the subsoil indicates the clay is undergoing anaerobic conditions (lack of oxygen) for many months of the year.
- Calcium carbonate occurring at depth

Land Suitability Rating Table

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

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2	Slightly high rainfall
	Landscape	2	Wind erosion hazard
	Soil	2*	Slightly impeded internal drainage
Canola	*Climate*	2	Slightly high rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage

Chickpeas	*Climate*	3	High rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil
Lentils	*Climate*	3	High rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil
White clover seed	*Climate*	2	Slightly rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage
Viticulture	*Climate*	1	No major limitation
	Landscape	1	No major limitation
	Soil	3	Impeded internal drainage
Apples	*Climate*	2	Slightly high mean maximum January temperature
	Landscape	1	No major limitation
	Soil	3	Impeded internal drainage
Potatoes	*Climate*	2	Slightly high mean maximum January temperature
	Landscape	2	Wind erosion hazard
	Soil	3	Depth of topsoil, impeded internal drainage
Carrots	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazards
	Soil	3	Impeded internal drainage, depth of topsoil
Onions	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, depth of topsoil
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil, depth of topsoil
Radiata Pine	*Climate*	2#	Moderate to low rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage

Blue Gum	*Climate*	2#	Moderate to low rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage

* Some areas are a class 3 for impeded internal drainage as the soils are too wet in the majority of years to allow economic wheat production

\# Some areas may have lower rainfall

ASSOCIATED SOIL TYPE FOR THE INTERMITTENT SWAMPS-Wg15 LAND ELEMENT

MAP UNIT: Wg15 **Site No.: W67**

Position in landscape: Swamp **Geo. Ref:** 533 800 E, 5932 500 N;

General Landscape Description:

This unit forms the intermittent swamps that typically dry in summer. The swamps dry to varying degrees, some totally while others still have signs of a perched watertable close to the surface, which is represented in this description. The soil developed on the swamp bed is variable depending on how and when the lake was formed. This description has deeper sand accumulation on top of the clay, as compared to W66 which only has a shallow sand deposit. No chemical analysis was conducted on this soil type.

Soil Profile Morphology:

Topsoil

A11 0-40 cm Brown (10YR4/3) to dark greyish brown (10YR5.6) structureless sand.

A12 40-70 cm Yellowish brown (10YR5/6) sand.

A13 70-105 cm Sand. Perched watertable is evident.

Subsoil

B21 105 cm+ Grey (10YR4/1) clay

Soil Profile Characteristics:

Horizon	pH	Salinity	Sodicity	Dispersion	Internal Drainage	Hydro-phobicity
Surface (A1 horizon)	-	-	-	-	very poorly drained	nil
Subsoil (B21 horizon)	-	-	-	-		
Deeper subsoil (at 1 metre)	-	-	-	-		

Key Profile Features:

- Deep sand deposit over clay
- Perched watertable still evident in the summer months.

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	Soil
Lucerne for seed production	3	Soil
Viticulture	3	Soil
Apples	3	Soil
Potatoes	3	Soil
Carrots	3	Soil
Onions	3	Soil
Sweet corn	3	Soil
Radiata Pine	3	Soil
Blue Gum	3	Soil

Land Suitability Assessment and Primary Limitations

Wheat	*Climate*	2	Slightly high rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Canola	*Climate*	2	Slightly high rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Chickpeas	*Climate*	3	High rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil and perched watertable
Lentils	*Climate*	3	High rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil and perched watertable

White clover seed	*Climate*	2	Slightly high rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil and perched watertable
Lucerne for seed production	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Viticulture	*Climate*	1	No major limitation
	Landscape	1	No major limitation
	Soil	3	Impeded internal drainage and perched watertable
Apples	*Climate*	2	Slightly high mean maximum January temperature
	Landscape	1	No major limitation
	Soil	3	Impeded internal drainage and perched watertable
Potatoes	*Climate*	2	Slightly high mean maximum January temperature
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Carrots	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazards
	Soil	3	Impeded internal drainage, depth of topsoil and perched watertable
Onions	*Climate*	1	No major limitation
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Sweet corn	*Climate*	2	Slightly low mean monthly temperature (October - March)
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage, sandy topsoil and perched watertable

Radiata Pine	*Climate*	2*	Moderate to low rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable
Blue Gum	*Climate*	2*	Moderate to low rainfall
	Landscape	2	Wind erosion hazard
	Soil	3	Impeded internal drainage and perched watertable

* Some areas may have lower rainfall