Fact sheet: Development affecting acid sulfate soils in coastal floodplains

Purpose of this fact sheet

This fact sheet will help private landholders to understand the development application requirements for development on coastal floodplain land containing acid sulfate soils.

Disclaimer: This fact sheet is a guide only and is designed to give readers a plain English overview of the planning approval processes associated with coastal floodplain works. This fact sheet is not legal advice nor does it replace the need for professional legal advice in individual cases. For further advice, it is recommended you contact the Drainage Applications Coordinator or your relevant council.

Background

What are acid sulfate soils?

Acid sulfate soils are naturally occurring sediments, commonly located along the NSW coast. These soils contain iron sulfides, which are harmless when left undisturbed. However, when disturbed or exposed to air, the iron sulfides react with oxygen, releasing sulfuric acid. Metals in the soil, like iron and aluminium are more soluble in acidic conditions and can be released in toxic amounts. The acid and released metals can harm aquatic animals (such as causing red-spot disease in fish or weakening oyster shells) and can corrode steel and concrete structures.

Acid sulfate soils can impact industries on the NSW coast, including recreational and commercial fishing, oyster farming, cropping, grazing, and dairying.

Acid sulfate soils are mapped in Local Environmental Plans (LEPs).

Acid sulfate soil and coastal floodplains

A coastal floodplain is the low-lying and generally flat land surrounding an estuary. In their natural state, large areas of coastal floodplains were wetlands that were inundated with brackish water during high tides and/or flooded with freshwater after heavy rainfall and remained wet for prolonged periods.

Low-lying parts of coastal floodplains also have groundwater levels close to ground surface levels. Most of the current problems with acid sulfate soils in NSW have arisen from past practices in drainage and flood mitigation for low lying coastal areas. From the late 1800s to the mid-1970s, many of these areas were modified and had floodgates installed to lower the ground water level, keep out high tides and remove surface water (see **Figure 1**). This has changed the landscapes and allowed these areas to be used for other purposes, including urban development and agriculture. However, it has also led to unintended environmental and economic impacts such as poor water quality and

habitat loss which has impacted downstream ecosystems, communities and industries such as fishing and tourism.

Agricultural diffuse source runoff, which includes acidity from acid sulfate soils, was identified as a key threat to the environmental, social, cultural and economic values of the marine estate in the 2017 NSW Threat and Risk Assessment (TARA), particularly to water quality and coastal habitats in estuaries. Some coastal floodplain drainage areas are a major source of this runoff. The NSW Marine Estate Management Strategy Coastal Floodplain Prioritisation Studies has identified priority sources of acid sulfate soil discharge in seven large NSW coastal floodplains. For further information, visit the NSW Marine Estate Management Strategy website.

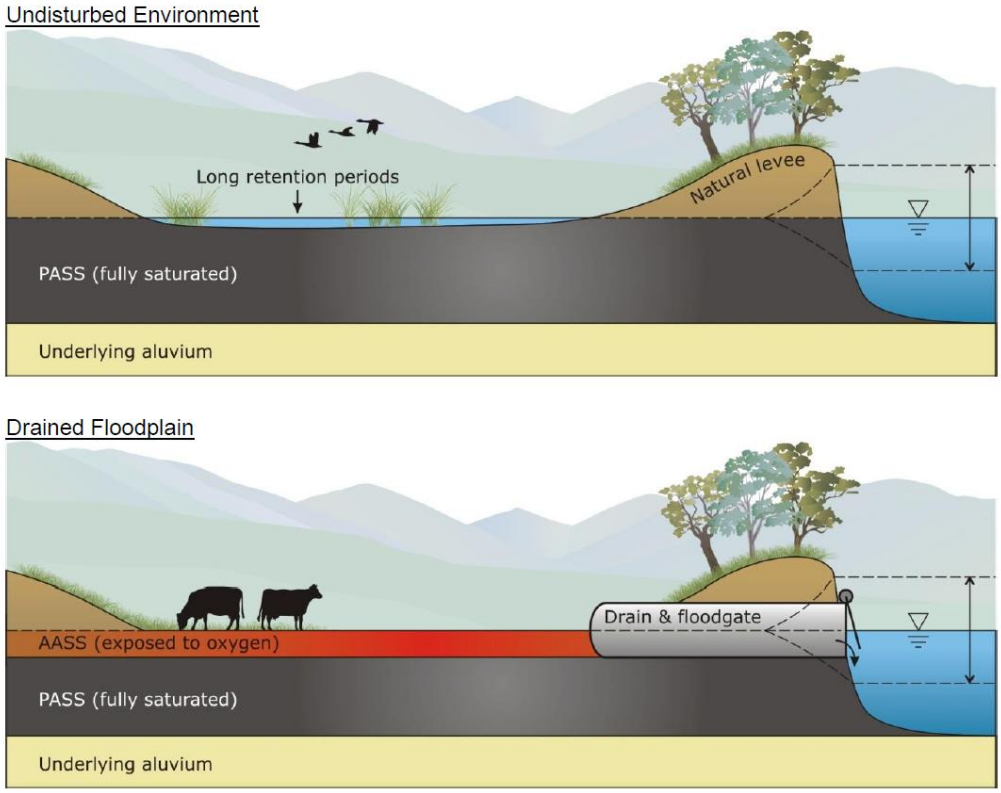

Figure 1: Soil acidification by lowering of groundwater levels

How are acid sulfate soils categorised in LEPs?

Most LEPs include a provision on acid sulfate soils. The purpose of this provision is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage. This provision is connected to an Acid Sulfate Soil Map included under an LEP that can be accessed through the NSW Planning Portal Spatial Viewer. This map identifies five classes of land illustrating the likelihood of acid sulfate soils being present in certain areas and at specific depths:

- Class 1: Acid sulfate soils are likely to be found on and below the natural ground surface.
- Class 2: Acid sulfate soils are likely to be found below the natural ground surface.
- Class 3: Acid sulfate soils are likely to be found more than 1 metre below the natural ground surface.
- Class 4: Acid sulfate soils are likely to be found more than 2 metres below the natural ground surface.

- Class 5: Acid sulfate soils are not typically found in these areas, but these areas are within 500 metres of Class 1, 2, 3, or 4 land.

When is development consent required for drainage works in a coastal floodplain affected by acid sulfate soils?

Development consent is required if works are proposed on a particular class of acid sulfate soil and meet the requirements set by the relevant LEP acid sulfate soil provision. For example, works proposed on Class 2 acid sulfate soils that are carried out below the natural ground surface or are likely to lower the water table will require development consent.

If development consent is required, the Development Application (DA) is required to be accompanied by an acid sulfate soils management plan prepared in accordance with the NSW Acid Sulfate Soils Manual. This is generally a requirement in accordance with the relevant LEP acid sulfate soil provision.

To find out more about the acid sulfate soils provisions of an LEP that applies to you, visit the NSW Planning Portal and search for the relevant LEP by entering the relevant property address.

What types of works are exempt from requiring development consent?

General exemptions

Development consent is not required in certain circumstances as outlined under the relevant LEP acid sulfate soil provision. Exceptions under the LEP acid sulfate soil provision can vary but may include:

- Certain works carried out by a public authority, such as emergency work
- Works that disturb less than 1 tonne of soil and is unlikely to lower the water table.

Sugarcane growers' exemptions

In certain circumstances, sugar cane growers do not require development consent for the carrying out of works in acid sulfate soils for the purpose of agriculture, in accordance with the relevant LEP acid sulfate soil provision. This includes carrying out the works in accordance with a drainage management plan that is prepared in accordance with the NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005) and is endorsed by the Sugar Mill Co-operative as being appropriate for the land.

This exemption is **not** available for other industries nor for works located on land identified as 'coastal wetlands' or as 'littoral rainforest' on the *Coastal Wetlands and Littoral Rainforests Area Map* under the *State Environmental Planning Policy (Resilience and Hazards) 2021.*

Mapping acid sulfate soils

Councils are responsible for mapping acid sulfate soils. Further information on metadata and resources associated with this mapping are available online.