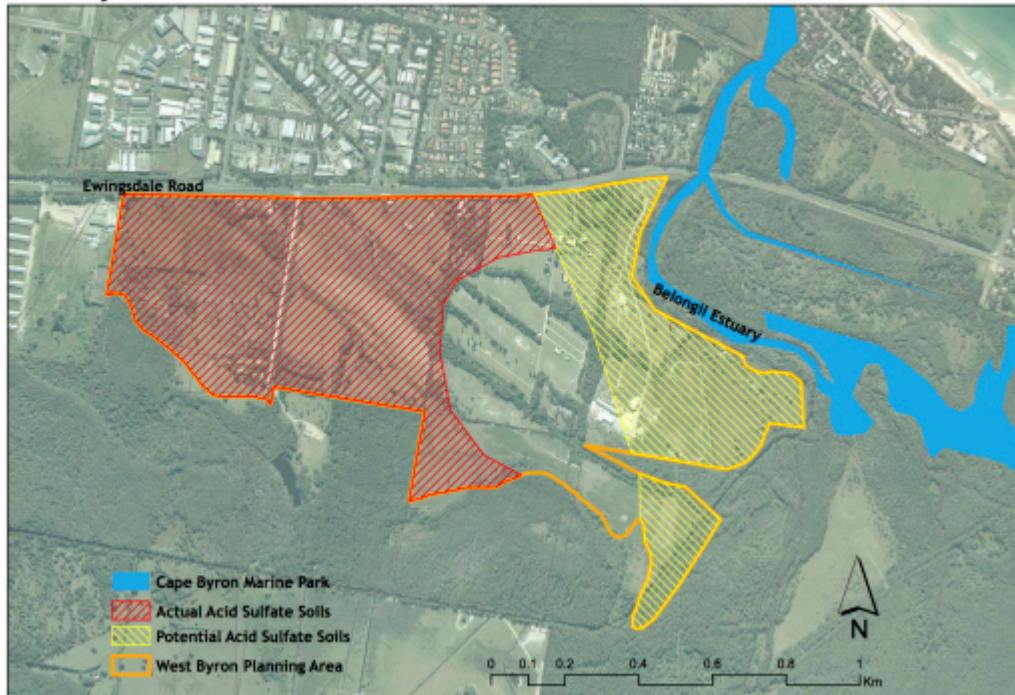


Acid Sulfate Soils

West Byron - Acid Sulfate Soils



What are Acid Sulfate Soils?

Acid sulfate soils (ASS) are the common name given to sediments and soils containing iron sulfides which, when exposed to oxygen, generate sulfuric acid. The impacts of acid sulfate soil oxidation constitute the most acute water-based environmental problem in coastal areas of NSW, comparable in environmental and economic terms to the effects of salinity on inland waters.

Activities such as cropping, grazing, urban and tourism development, highway construction, flood mitigation drains and floodgates, dredging, sandmining and aquaculture can all oxidise these soils causing major environmental harm.

Water discharges are acidic and contain toxic concentrations of dissolved aluminium and iron that kill or make fish and oysters more vulnerable to disease. Acidic soil water also stunts farm crops, creates scalds and enables acid tolerant weeds to spread. Economic losses caused by acid discharges are a major concern and threaten coastal industries. Acid discharges also cause millions of dollars worth of damage to concrete and steel structures such as bridges, roads, and stormwater pipes.

The story so far:

When the West Byron proposal was originally on exhibition the report^[1] on Acid Sulfate Soils (ASS) was not included in the exhibition documents. The report identifies 50% of the land with Actual Acid Sulfate Soils and 27% with Potential Acid Sulfate Soils.

The Department of Planning and Infrastructure (DPI) appear unconcerned with the potential environmental degradation that this development would precipitate — they have ignored submissions that both highlight this problem and insist that the impacts on Belongil Creek first be properly assessed.

What would happen if the development was to proceed?

The site is recognised as residing within the Belongil Swamp Acid Sulfate Soil Priority Management Hotspot. Acid Sulfate Soils are widespread across the site – see above map. The development proposal is predicated upon constructing a huge drain up to 30m wide and 4m deep through the centre of the site to lower the water table and drain Acid Sulfate Soils into the Belongil estuary.

This will have the effect of exposing large areas of the ASS to the air, which will result in their oxidation and consequently the generation of sulphuric acid and the mobilisation of toxic concentrations of aluminium, iron, and heavy metals into Belongil Creek.

The developers and the Department know the risks:

“The provision of utilities ... and earthworks ... is in all likelihood, a certainty, and such activities will require excavation to cater for both subsurface and aboveground infrastructure. In such cases where the likelihood of ASS disturbance is high, implications arise in terms of ASS oxidation as a result of these works. In association with acidic discharges to nearby sensitive environments (during and following construction efforts), the potential for damage to constructed services and structures (due to acidic corrosion) may also occur.

The mobilisation of dissolved metals such as aluminium, iron, manganese and cadmium may have serious toxicological impacts upon aquatic and terrestrial biota exposed to suitably high concentrations of such substances. Elevated levels of mobilised trace heavy metals in soil and water can be toxic to aquatic life if released into the drainage system during high flow events or a rise in the local groundwater table.” [2]

[1] Preliminary acid sulfate soil assessment report as part of a state significant study at West Byron Bay Urban Release Area, Byron Bay. Prepared by EAL Consulting 14 Dec 2010.

[2] as above