



9 October 2014

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Iron Gates Development - Acid Sulphate Soils

Dear Adam

Hyder has been commissioned by Goldcoral Pty Ltd to undertake a desktop review of acid sulphate soils relating the Iron Gates site, Evans Head.

Acid sulfate soils are acidic soil horizons or layers formed as a result of aeration of soil materials rich in iron sulphides (predominately pyrite - FeS_2). Such characteristics are likely to be found in:

- Marine and estuarine sediments of the recent (Holocene) geological age.
- Soils usually not more than five metres above mean sea level.
- Marine or estuarine settings.
- Inland environments such as:
 - River and stream channels.
 - Lakes.
 - Wetlands.
 - Seepages overlying mineralized zones.
 - Disposal basins (Evaporation).
 - Billabongs.
 - Marshes.
 - Ground water systems.
 - Sports fields.

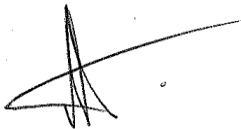
A search of the Australian Soil Resource Information System (ASRIS) National Acid Sulphate Soils (ASS) Risk Map was carried out for the study area. The results of this search revealed the site to be located largely within a Low Probability Area with Confidence Unknown.

An acid sulphate soil Investigation was undertaken on site by Coffey Partners International in 1995 and provided as part of previous development applications to Richmond River Shire Council. The report stated that there was no acid sulphate or acid generating potential for the samples tested.

Given the existing infrastructure already constructed on site it is expected that there would not be any earthworks on site that would be required deeper than one (1) metre below existing surface level and it is highly unlikely that the lowering of ground water would be required. A review of the Richmond Valley Local Environmental Plan 2012 6.1 Acid Sulfate Soils Mapping categorises the development site as Class 3 (Works more than 1 metre below the natural ground surface. Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface) and Class 5 (Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land).

In summary field investigations undertaken by Coffey and Partners in 1995 determined that there was no acid sulphate or acid generating potential on site. Also the balance of earthworks proposed on site will be less than one metre and unlikely to depress ground water levels.

Yours sincerely

A handwritten signature in black ink, appearing to be "Simon Groth", with a long horizontal stroke extending to the right.

Simon Groth
Principal Environment Scientist
07 55034843