I object to the Dendrobium Extension Project (SSD 8194)

​***Damage to Upland Swamps***

The upland swamps of the Woronora Plateau play an important role in the water catchment by capturing and holding water, filtering it and in times of drought releasing it slowly into the creeks and rivers that feed into the reservoirs.

**These swamps are also classified as Endangered Ecological Communities (EEC)** and are significant in terms of their biodiversity.

​The upland swamps provide a mosaic of permanently wet peaty soil within a dry sandstone  landscape. Each swamp is a unique island community containing rare plants and animals. The specialised flora and fauna of the EEC also carry individual protection at species level. Dewatering the swamps will result in local extinctions in breach of multiple layers of State and Federal legislative protection.

​There are 46 swamps in the mining area and 25 of these are expected to be cracked by the mining.  Water drains away from swamps into the mining void, the swamps dessicate, the flora and fauna die off, and dryland species take over.  The swamps lose their capacity to hold water in drier times.  They are more prone to erosion and more prone to bushfire.  Research shows that swamps that have been undermined are less able to recover after bushfire compared to swamps that were not undermined.

​Coastal upland swamps also provide carbon capture and storage ecoservices. [21] Neither South32 or DPIE have considered or estimated greenhouse gas emissions associated with expected swamp destruction, or loss of carbon uptake that the swamps currently perform.

​***Bushfire risk***

Dewatering of the forest, bushland and swamps above the mining will make the area more prone to bushfire.  **The water catchment was one of the few unburnt areas of bushland in the 2020 fires and it needs to be protected from mining induced degradation.**  It is also close to the highly populated residential areas of Wollongong that are located along the Illawarra Escarpment; making the catchment more fire prone makes the escarpment more fire prone.

​***Mining induced subsidence will damage the watercourses and swamps that feed our drinking water reservoirs***

The mining and associated subsidence will also cause cracking of the land on the surface – including rivers, creeks, smaller watercourses and swamps that feed our drinking water reservoirs – and subsequent water loss to the catchment.  No level of damage is acceptable to the Special Areas.

​The mining will come to within 300m of the Avon and Cordeaux Reservoirs.  It will result in water losses from Avon, which is the only source of water supply to over 310,000 residents and businesses in the Illawarra region, as well as Cordeaux Reservoir, which along with Cataract Reservoir is the main water supply for Camden, Campbelltown and Wollondilly council areas and even as far afield as Nepean Reservoir, which is the water supply for the nearby towns of Bargo, Thirlmere, Picton and The Oaks.

All three affected reservoirs, Avon, Cordeaux and Nepean also supply water to Sydney.

In dry years, the watercourses in the mined area that flow into Avon Reservoir are expected to totally dry up.

​***Government agencies outside Planning are concerned***

The NSW Government’s Independent Advisory Panel for Underground Mining has said,

“It is not possible, at this stage, to be comfortable that the worst-case losses from the surface water regime have been identified. Stream depletion can arise from combinations of reductions in overland and groundwater flow to the streams and increases in stream losses to the groundwater.”

​Water NSW has also questioned the **reliability** of the modelling stating that "previous iterations of the model had predicted surface water take at the existing Dendrobium Mine and that these predictions had increased 5-fold in the 5 years since 2014.

​WaterNSW has been clear that mining in the Special Areas causes loss of yield to the reservoirs and the swamps and water courses that charge them.

​***Damage to WaterNSW infrastructure***

The mining expansion risks damage to critical WaterNSW infrastructure, including the dam walls of Avon and Cordeaux Reservoirs, the Lower Cordeaux Dam Project and WaterNSW’s Deep Water Access Project.  It is even expected to cause ground movement at the dam walls.

​The mining is too close to the dam walls.  WaterNSW stated that the 1000m setback from the dam walls is not enough and the setback should be at least 1500m, adding that, “Should any impacts occur to these dams, there is the potential that the risks and consequences could be extreme.”

​***Water quality***

As water courses fracture due to mining induced subsidence, metals will be dissolved and leach into the water.  This will lead to an increase in metals in the water courses and reservoirs.  Furthermore, this increase will worsen in the 100 – 200 year period of groundwater recovery.

WaterNSW in particular expressed concern about the levels of metal contamination, stating,

“WaterNSW is concerned that any increase in arsenic (or other heavy metals) may have a negative effect on water quality and aquatic ecology.”

​***A legacy of water loss and contamination for future generations***

It will take 100 years for groundwater levels to stabilise in Area 5 and 200 years for Area 6.[22]  Thus the drawdown/dewatering impacts of the mining will remain long after we are gone.

​***Damage to valuable Aboriginal Cultural Heritage***

A legacy of mining induced damage to Aboriginal Heritage sites at Dendrobium was recently revealed in the media.

The Aboriginal Cultural Heritage Assessment records and physical survey of only 6.91 % of the affected area, identified 58 Aboriginal heritage sites, including six new sites, in the area likely to be affected by longwall mining in Area 5 and Area 6. These were mostly rock shelters with/without art and deposits, and axe grinding groove sites located in creeks.

​In a statement that was justifiably and understandably described as offensive by the Illawarra Local Aboriginal Land Council, the Department said:

*"The five remaining sites are all located centrally above longwall panels. Given the limited risks of impacts, the Department does not consider that the scientific or cultural benefit of avoiding the risk of impacts is warranted.”*

​Monitoring of Indigenous cultural sites is required but there is no requirement to preserve or avoid these sites, and no penalties to South32 when it destroys them.  It is reprehensible for mining interests to desecrate Aboriginal Cultural Heritage whilst the area remains out-of-bounds for the Aboriginal community.

***Locking in 28 years of Greenhouse Gas Emissions, instead of decarbonising***

The IPCC 2018 Special Report warned that to limit global warming to 1.5°C then, globally, by 2030, primary energy from coal needs to have reduced by a minimum of 59 %. In this context, this coal mining extension proposal spanning 28 years (to 2048) should not even be considered.

​The proposal is estimated to create up to 23.7 million tonnes of CO2e in the production stage and 237 million tonnes in the transport and consumption of the metallurgical coal produced. This brings the total emissions to between 256 million and 260.7 million tonnes of CO2e for the life of the project.

​Approval of this mine would lock in emissions over the 28-year life of the project equivalent to 48% of the 2018 annual emissions for all of Australia.  This is comparable to 1.73% of Australia’s current annual emissions.

​Australia is a major greenhouse gas polluter: in 2016 Australia had higher emissions than 90 % of all countries; had the seventh highest emissions per capita; and even worse as an exporter of GHG emissions, ranked third after Russia & Saudi Arabia for exports of fossil fuel CO2e potential. Coal makes up more than 80 % of this export.

***NSW Government locking in 28 years of destructive coal mining is irresponsible economic planning***

We need to rapidly reduce greenhouse gas emissions to address global warming.  One of the obvious - and appropriately ambitious, given the climate emergency - ways to decarbonise industry is to start with steel.

 ***No alternative is provided to this shockingly destructive expansion which will cause permanent damage to our water catchment***

There should be no mining in the Special Areas of Greater Sydney Water Catchment; this is the stated position of WaterNSW and the legislated purpose of Special Area protection.

It is outrageous that DPIE not only support this destructive mining expansion, but the Department also required **no alternative mine design options to reduce the damage** should an expansion proceed.  Having failed to explore any alternatives, the DPIE is claiming **without evidence** that narrower longwalls would still cause significant damage and “would come at an unsustainable economic cost” for the mining company.

​The NSW government requires South32 to consider alternatives, including mining in domains for which they have existing approvals and modifying the design to “avoid key sensitive surface features, including swamps and water storage infrastructure”. South32 have failed to address these imperatives and yet the Department has supported the proposal rather than uphold standards of responsible planning.

​In conclusion, this expansion project is not in the public interest and it should be rejected.