OUT21/16113

James McDonough
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NSW Department of Planning, Industry and Environment

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Dear Mr McDonough

Tweed Sand Plant Expansion (SSD-10398)
Response to Submissions (RTS)

I refer to your email of 1 November 2021 to the Department of Planning, Industry and Environment (DPIE) Water and the Natural Resources Access Regulator (NRAR) about the above matter.

Hanson Construction Materials Pty Ltd is seeking to expand the existing Hanson Tweed Sand Plant (HTSP) to access a sand resource of 30-35 million tonnes and provide production and transport of a maximum 950,000 tonnes of sand per annum.

The proponent has not adequately addressed all of DPIE Water and NRAR's concerns raised in the EIS submission. The proponent still needs to:

- correctly quantify the volumes of surface water and groundwater take and the ability to acquire sufficient entitlement, noting that a net water balance does not meet the legislative requirements as there is no capacity to recredit water that is returned to a water source.
- assess the likelihood and risks due to elevated iron in groundwater migrating off-site.

Further detail can be found in **Attachment A.**

Any further referrals to DPIE Water and NRAR can be sent by email to water.assessments@dpie.nsw.gov.au or to the following coordinating officer within DPIE Water:

Alistair Drew – Project Officer
E: Alistair.drew@dpie.nsw.gov.au

Yours sincerely

Mitchell Isaacs
Chief Knowledge Officer
Department of Planning, Industry and Environment: Water
10 December 2021

Attachment A

Detailed advice to DPIE Planning & Assessment regarding the Tweed Sand Plant Expansion (SSD-10398) RTS

1.0 Water Take and Licensing

1.1 Explanation

Insufficient information has been provided to determine the surface water take and groundwater take for the project to meet the requirements of water legislation and policy. The additional information provided in the RTS relies predominantly on a net water balance to determine the groundwater and surface water take. This approach is inappropriate as it requires the total actual water take from each water source to be quantified. The proponent needs to be aware that there is no ability to reduce the water take volume based on water being put back into the water source either directly, via recharge or from another source.

Based on the water management system established by the lakes and associated bunding and channels, the surface water take by the project is the volume of surface water captured in the lakes during each runoff event. This equates to the storage volume between the lake level and the weir outlet level or the maximum height that the lake level reaches during each inflow event. The maximum annual volume captured needs to be quantified and the entitlement requirements confirmed based on consideration of Harvestable Rights.

Groundwater take needs to be quantified based on total annual groundwater inflows into the north lake and the south lake and total annual groundwater extraction associated with excavation of material from the lakes. This needs to be provided during the project life and post closure until an equilibrium is reached. Groundwater inflows may be caused by flow gradients between the lake and the adjacent groundwater source, direct pumping which lowers the water level and induces groundwater inflows, or the lake level being lower than the groundwater level due to losses from the lake such as evaporation or recharge. There is no ability to utilise a net water balance such as by comparing recharge and inflows to determine groundwater take. If water extracted from the lake as part of the dredging process induces groundwater inflows this would constitute groundwater take.

1.2 Recommendations

<u>Prior to project determination</u>

The proponent should:

- quantify the maximum annual volume of surface water take due to runoff from external catchments (catchment runoff or flood flows) for a range of climatic scenarios during the project life and post closure. This needs to be based on the volume of surface water captured and held in the lakes during each runoff event. The maximum annual runoff less the Harvestable Rights for the property will determine the water entitlement requirements. The ability to acquire sufficient entitlement will need to be demonstrated.

- quantify the maximum annual groundwater take due to the project for a range of climatic scenarios during the project life and post closure until equilibrium is reached. This needs to be based on total groundwater inflows and groundwater extraction from the groundwater source. The ability to acquire sufficient entitlement will need to be demonstrated.

<u>Post Approval</u>

- The ability to accurately meter and monitor water take from surface and groundwater sources will need to be developed with ongoing review of actual versus modelled predictions. This will be a key component to confirm impact predictions, the adequacy of mitigating measures and compliance for water take.

- The Soil and Water Management Plan should be updated to reflect monitoring, metering and management measures to report on groundwater and surface water take and potential impacts to water sources due to the activity.
- The proponent must report on water take at the site each year (direct and indirect) in the Annual Review. This is to include water take where a water licence is required and where an exemption applies. Where a water licence is required the water take needs to be reviewed against existing water licences.
- The proponent must ensure sufficient water entitlement is held in a water access licence/s to account for the maximum predicted take for each water source prior to take occurring.
- The proponent must ensure that relevant nomination of work dealing applications for Water Access Licences proposed to account for water take by the project have been completed prior to the water take occurring.
- The proponent should be aware of the rules of the relevant water sharing plans.

2.0 Groundwater Quality Impacts

2.1 Explanation

Overall, the mechanism that drives the elevated iron associated with deep dredging remains poorly understood. Elevated iron concentrations are being observed in the monitoring bores along the boundary of the existing dredge lake. In addition, statistically there is a long-term increasing trend in all bores on the lake boundary. The proponent's RTS describes that as the quarry expands, any poor-quality water is encapsulated into the lake and assimilated without detriment to lake ecophysiology.

Based on existing conditions as the quarry reaches closure, an elevated iron plume enveloping the outer boundary of the quarry is similarly likely to exist. As there is no relationship between iron with pH then lime dosing as a potential management response is not effective and other available management options not discussed. The potential for elevated iron to migrate offsite given the highly permeable nature of the aquifer is considered a significant risk.

DPIE Water's objective is to maintain the aquifer to its current highest beneficial use. The evidence to date is that deep dredging results in elevated iron concentrations in groundwater around the perimeter of the excavation. Noting that there is an identified water quality risk without a demonstrated mitigation option, DPIE Water seeks an improved understanding of the consequence and likelihood of elevated iron in groundwater migrating off-site and impacting on nearby registered water users and/or Tweed River Water Quality.

As part of assessment the proponent should consider:

- Existing mean and range of iron concentration at locations around the current pit lake
- Existing mean and range of iron concentration at locations around the proposed outer extent of the quarry
- Tweed River Water Quality Objectives and ANZECC Guidelines
- Existing uses of groundwater from neighbouring registered works
- Establishing thresholds on par with background levels at the property perimeter and defining the level of impact change that would initiate a commensurate response spanning from increased monitoring through to 'make good' provisions. The issue of 'make good' is raised here as the proponent has not at this stage acknowledged potential to be held accountable for water quality impacts. Prescriptive groundwater quality parameter thresholds that initiate remediation and/or 'make good' can be refined at the Water Management Plan stage.

This information will inform the proponent and Government on the likelihood that remedial work and/or compensation will eventuate.

2.2 Recommendation – Prior to Determination

- The proponent further investigates the likelihood and consequence of risks due to elevated iron in groundwater migrating off-site potentially impacting on registered groundwater users and the Tweed River Water Quality Objectives. The proponent should make transparent their commitment of accountability to mitigate water quality impacts.

3.0 Security bond

3.1 Explanation

Consistent with DPIE Water's submission on the EIS, a bond is recommended as security for any occurrence where the proponent's groundwater restorative actions do not achieve effective remediation of the State's asset.

3.2 Recommendation – Post Approval

- A security bond be set for where groundwater restorative actions do not achieve effective remediation of the State's asset.

End Attachment A