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Dear Ms Sommer

**Belmont Drought Response Desalination Plant (SSI 8896)**

**RtS and Amendment Report**

I refer to your email of 8 September 2020 to the Department of Planning, Industry and Environment (DPIE) Water and the Natural Resources Access Regulator (NRAR) about the above matter.

The following recommendations are provided by DPIE Water and NRAR.

Prior to approval

**Groundwater Flow Management**

- Inform DPIE-Water of the maximum volume of groundwater inflow predicted for the final design construction method selected.
- Detail the method of estimation of the maximum volume of groundwater inflow predicted for the final design construction method selected.
- Should the proponent commit to re-injection of the fresh groundwater back into the coastal sand aquifer further detail outlining this approach is to be submitted to DPIE-Water prior to commencement of these activities.
- Outline how a Water Access Licence (WAL) will be acquired to account for the maximum volume of groundwater inflow predicted for the final design construction method selected.

Note: these four recommendations may be submitted as parts of a dewatering management plan for the final design construction method selected.

**Acid Sulphate Soil Management Plan**

- Prepare and submit an acid sulphate soil management plan to DPIE Water.

Refer to **Attachment A** for more detailed advice on the above recommendations.

Post Approval

- Any WAL required must be obtained from NRAR to account for groundwater inflows and/or take from the Groundwater Source prior to any take of water occurring.

Yours sincerely

Simon Francis  
Senior Project Officer  
**DPIE Water – Strategic Relations**  
9 October 2020

**ATTACHMENT A**

**Belmont Drought Response Desalination Plant (SSI 8896)  
RtS and Amendment Report**

The proponent has redesigned the proposed sub-surface seawater intake system for the project in the EIS to a direct ocean intake. Which will include an onshore sea water pumping station, intake pipeline and offshore intake structure. The potential impacts of a sealed direct ocean intake system differ considerably from that of the original EIS proposal. Largely reducing the impact upon the Hawkesbury to Hunter Coastal Sands Groundwater Source and negating the need for further extensive groundwater modelling and independent peer review.

Department of Planning, Industry and Environment – Water (DPIE-Water) understand the proponent is considering two alternative options for the direct ocean intake system:

1. A 20 m deep, of approximate 9 m to 11 m diameter, concrete lined excavation ('wet well'); connected via a horizontal directional drilled large diameter bore hole developed as the 1000 m long pipeline (Figure 1) to an intake valve structure on the seafloor at approximately 23m below mean sea level.
2. An approximately 20 m deep x 10 m to 10 m width and length, concrete lined excavation from which a large diameter pipe jacking micro-tunnelling method of construction of the 1000 m long pipeline will occur. Connecting to the intake valve structure at the seafloor level.

Without sheet piling both of the construction method options will involve take of groundwater resulting from dewatering of the initial excavation. For a proposed construction period of 180 days, the proponent estimates that a total of 911 ML of groundwater will be extracted by construction method 1 above. Whilst, for the same construction period, a total of 3,047 ML of groundwater will be extracted by construction method 2.

The proponent acknowledges that "All construction methods will require a Water Access Licence to cover the take of groundwater from excavations." Initially the excavation, in both newly proposed construction methods, will be metal sheet pile lined to reduce groundwater inflow and provide a suitable safe working environment before being concrete lined.

The proponent has proposed that "Fresh groundwater extracted from the excavations during construction may be disposed by infiltration back to groundwater at a distance from the construction area." DPIE-Water notes the brief outline of the re-injection proposed in the report. Further detail of the postulated re-injection of the fresh groundwater back into the coastal sand aquifer would be required should the proponent commit to this activity.

The proponent makes the points that the fresh groundwater within the unconfined sand aquifer lenses to the east (coast) and extends to a depth of approximately 10 m at the proposed excavation sites. As determined by electrical conductivity profiling studies on site. Groundwater quality monitoring will need to be a key activity to reduce the risk of cross contamination of the fresh groundwater aquifer. The proponent proposes that saline groundwater extracted below 10 m depth will be discharged, after treatment, to the ocean via the existing wastewater ocean outfall.

Once construction is completed dewatering activities will cease from the onshore sea water pumping station, intake pipeline and offshore intake structure. As a result of the redesigned direct intake system negligible potential impacts to groundwater interference and groundwater dependent ecosystems from the operation of the seawater desalination plant are expected.

**END ATTACHMENT A**