

11 May 2018

Independent Pricing and Regulatory Tribunal PO Box K35, Haymarket Post Shop NSW 1240

Attention: Principal Analyst, Raju Mangalam

Dear Sir,

Subject: Invitation to make a submission on a licence variation Application made under the Water Industry Competition Act 2006 (NSW)

Catherine Hill Bay Water Utility Pty Ltd

In response to your request of 28 March 2018 seeking Council's comments on the above project, the following information is provided.

Background

The Catherine Hill Bay Water Utility Pty Ltd currently operates a sewage treatment plant and sewage reticulation network servicing the 'Beaches' residential subdivision at Catherine Hill Bay, NSW.

The sewage treatment plant produces excess recycled water from the effluent treatment process (Surplus to Demand Recycled Water or SDRW), which is currently disposed of by irrigation to land.

The land to which the irrigation occurs is now required for residential stages 6 and 7 of the Beaches subdivision, and an alternate to the land irrigation is sought.

The Modified Proposal

It is proposed to modify the current operations to enable discharge of the excess recycled water to the environment. The discharge is proposed via a watercourse adjacent to Stages 6 and 7 of the Beaches subdivision and via a coastal lagoon across the Catherine Hill Bay Beach, to the ocean.

A modification is required to the existing Water Industry Competition Act 2016 licence issued by IPART, in addition to a modified license under the Protection of the Environment Operations Act 1997, issued by the NSW Environment Protection Authority.

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Council Response

IPART requests if Council is aware of any unacceptable risks to the environment posed by the activities. The following comments are made in response.

Adequacy of Documentation and Ecosystem Impacts

The documentation identifies a number of relevant State Policies and Local Plans, however does not address the NSW Coastal Management Act 2016, State Environmental Planning Policy (Coastal Management) 2018 (Coastal SEPP) or the Lake Macquarie Coastal Zone Management Plan 2015.

Coastal SEPP

Clause 13 - Development on land within the coastal environment area

Clause 13 of the SEPP provides that development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014).

The proposal will increase flow by 38%, Total Nitrogen load by 25%, Total Phosphorous load by 40%, Total Suspended Solids load by 7% and Total Dissolved Solids load by 84% (at mixing point A). These significant increases in pollutant discharges appear to have the potential to cause an adverse impact on the water quality of the marine estate.

The documentation provided to support the proposal does not address water quality impacts on the Marine Estate.

Clause 15 - Development not to increase risk of coastal hazards

The Coastal Hydrology Impact Assessment indicates Changes to the catchment hydrology from the proposed development may have **an impact on the entrance conditions** when additional discharges of a moderate to high volume occur during periods of low catchment rainfall. The impact of such events would be greatest when the creek entrance condition is closed or heavily shoaled. Larger additional discharges in the absence of background catchment flows may cause a closed entrance to artificially breakout, where the creek level becomes raised above the crest of the entrance berm. Likewise, the larger additional discharges in the absence of natural catchment runoff and flows may cause a heavily shoaled entrance to become scoured more often.

Coastal lake or watercourse entrance instability is one of the 7 coastal hazards defined in the NSW Coastal Management Act 2016 and in this sense the proposal will result in an increased risk of coastal hazards (as discharges will change the stability of the watercourse entrance, and the entrance will become less stable).

This therefore raises issues with clause 15 of the SEPP, which provides that development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land.

The proposal is inconsistent with the Coastal Management Act 2016 and the SEPP, and any assessment under Part 5 of the Act would need to take this into account.

Lake Macquarie Local Environmental Plan(s) 2004 and 2014

The land is zoned E1 National Parks and Nature Reserves by both the Lake Macquarie Local Environmental Plan 2004 and 2014.

The objectives of these zones are:

- (a) to enable the management and appropriate use of land that is reserved under the National Parks and Wildlife Act 1974, <u>or that is acquired under Part 11 of that Act</u> (LMLEP 2014);
- (b) to enable uses authorised under the National Parks and Wildlife Act 1974,
- (c) to identify land that is to be reserved under the National Parks and Wildlife Act 1974 and to protect the environmental significance of that land.

The proponent states that the proposal is consistent with the management of the National Parks and Wildlife land as it is consistent with the Munmorah State Conservation Area Plan of Management. This is not agreed with as the proposal is not considered to be consistent with this Plan.

The land is also zoned E2 Environmental Conservation by LMLEP 2014 east of Flowers Drive and encompassing the Catherine Hill Bay beach.

The objectives of this zone are:

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To conserve, enhance and manage corridors to facilitate species movement, dispersal and interchange of genetic material.
- To encourage activities that meet conservation objectives.
- To enhance and manage areas affected by coastal processes.

The proponent states that although the water discharge is not 'work', the proposal is consistent with the objectives as it is unlikely the flows will detract from the values sought to be protected by the zoning.

The statement is not agreed with. The proposal has probable significant adverse impacts upon ecological, scientific, cultural and aesthetic values.

If the proposal was in the form of a development application under Part 4 of the Act, development consent would not be granted on this basis.

Lake Macquarie Development Control Plan 2014 (2.10 Natural Water Systems) (DCP)

A response to each of the relevant objectives and controls of the DCP is provided below.

Objectives:

a. To protect and maintain the water regime of natural water systems

The proposal does not meet this objective. The proposed discharges will significantly alter the water regimes of the watercourse.

b. To ensure that development does not adversely affect aquatic fauna

The proposal does not meet this objective as aquatic fauna are likely to be adversely impacted by the proposal.

c. To ensure that development does not adversely affect water quality or availability, including ground water

The proposal does not meet this objective. Discharges to the watercourses (mixing point a) will increase Total Nitrogen load by 25%, Total Phosphorous load by 40%, Total Suspended Solids load by 7% and Total Dissolved Solids load by 84%.

e. To ensure that natural water systems and associated vegetation and landforms are protected to improve the ecological processes and ensure that land is adequately buffered from development.

The significant nutrient discharges to the watercourse (increase Total Nitrogen load by 25%, Total Phosphorous load by 40%) result in detrimental impacts on ecological processes.

f. To ensure that the pre-development water quality of receiving waters is maintained or improved

The proposal does not meet this objective. Discharges to the watercourses (mixing point a) will increase Total Nitrogen load by 25%, Total Phosphorous load by 40%, Total Suspended Solids load by 7% and Total Dissolved Solids load by 84%.

Controls:

- 1. Natural water systems must be maintained in a natural state, including the maintenance of riparian vegetation and habitat such as fallen debris;
- 4. Stormwater must be managed to minimise nutrient and sediment run-off entering constructed drainage lines, natural watercourses, or waterways; and
- 5. Development within a Vegetated Riparian Zone (VRZ), as shown in Figure 1 Vegetated Riparian Zones, should be avoided where possible to retain its ecological processes. Where development is unavoidable within the VRZ, it must be demonstrated that potential impacts on water quality, aquatic habitat, and riparian vegetation will be negligible

The proposal does not meet these controls. Discharges to the watercourses (mixing point a) will increase Total Nitrogen load by 25%, Total Phosphorous load by 40%, Total Suspended Solids load by 7% and Total Dissolved Solids load by 84% as well as resulting in significant alterations to natural flow regimes and impacts on aquatic habitats.

The above indicates that the project does not meet the objectives or controls contained in section 2.10 (Natural Water Systems) of the DCP. If the proposal was in the form of a development application under Part 4 of the Act, development consent would not be granted on this basis.

NSW Water Quality and Flow Objectives for Lake Macquarie and Tuggerah Lakes

The proposal does not meet the water quality and flow objectives identified in the *NSW Water Quality and Flow Objectives for Lake Macquarie and Tuggerah Lakes.* A comparison against the submitted documentation is as follows:

Water Quality and Flow Objectives	Applicant's Comments	Council Response
Maintaining or improving water quality for activities such as boating and wading, where there is a low probability of water being swallowed	Wading may occur in the beach lagoon and is unlikely to be affected by the SDRW as it is suitable for most domestic uses other than drinking and bathing.	Council does not agree with these comments. The beach lagoon is regularly used for recreation including wading and swimming (especially by young children).
Maintaining or improving water quality for activities such as swimming in which there is a high probability of water being swallowed	Swimming is unlikely due to the shallow and narrow waters. The beach lagoon is generally too shallow for swimming and there are superior swimming opportunities available in the adjoining ocean.	Council does not agree with these comments. The beach lagoon is regularly used for recreation including wading and swimming (especially by young children).
Protect natural water levels in pools of creeks and rivers and wetlands during periods of no flows	Release of SDRW is to be carefully managed avoid providing flows to the creek in periods of low flow. Additional storage has been provided so release can be limited to periods of flow in the catchment. "Dry" period releases will be below the natural creek system and be direct be to the permanent water of the beach lagoon if shoaled or across the beach if not shoaled	Council does not agree with these comments. The dry weather releases will alter natural water levels in the watercourses, and is contrary to the water flow objectives. This impact will mainly be observed in the pool of the watercourse (as described in the flow objectives). The 10% increase in flows due to the proposal are contrary to the objective.
Protect natural low flows	SDRW "wet" releases will only be made during periods of natural flow in the catchment.	Council does not agree with this comment. The dry weather releases will alter natural water levels in the watercourses, and is contrary to

		the water flow objectives.
Maintain or restore the natural inundation patterns and distribution of floodwaters supporting natural wetland and floodplain ecosystems	Flows in the catchment will increase by some 10% because of SDRW release. Only during natural flow periods will wet releases of SDRW be made and then within the flow characteristics of the natural catchment. The releases may extend the duration and volume of	Council does not agree with these comments. The dry and wet weather releases will alter natural inundation patterns in the watercourses, and is contrary to the water flow objectives.
	flow events but will not create new events for the creeks or wetlands.	
Mimic the natural frequency, duration and seasonal nature of drying periods in naturally temporary waterways	The proposed system of dry release to the lagoon will ensure that those upper sections of the receiving waters not receive additional wetting.	Council does not agree with these comments.
		The dry weather releases will alter the duration and seasonal nature of drying periods, and is contrary to the water flow objectives.
Maintain or mimic natural flow variability in all streams	The natural flow pattern of streams will be maintained by releasing SDRW with stormwater.	Council does not agree with these comments.
		The dry and wet weather releases will alter natural flow variability, and are contrary to the water flow objectives.

The proposal does not meet the coastal hazard and water quality related controls and objectives of the Coastal Management Act 2016, the SEPP, LMLEP 2004 and LMLEP 2014, DCP and the NSW Water Quality and Flow Objectives for Lake Macquarie and Tuggerah Lakes.

Biodiversity

The proposal acknowledges that discharge of the excess recycled water has the potential to result in adverse impacts on the receiving environment.

The receiving environments include watercourses, lagoons and riparian habitat within Munmorah State Conservation Area, which provides habitat for threatened species and communities.

Swamp Sclerophyll Forest EEC

Native vegetation at and downstream of the watercourse is identified as MU 37 swamp mahogany forest, which is characteristic of swamp sclerophyll forest, an Endangered Ecological Community (EEC) listed under the Biodiversity Conservation Act 2016 (BC Act).

Swamp sclerophyll forest provides critically important habitat (such as winter-flowering swamp mahogany) for threatened species listed under the BC Act and/or Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). These species include the swift parrot, squirrel glider, regent honeyeater and wallum froglet, all of which have been recorded in the local area.

Impacts to swift parrot and regent honeyeater habitat have the potential to be a 'serious and irreversible impact' under the BC Act.

The composition and structure of swamp sclerophyll forest EEC is influenced by hydrology and salinity (NSW Scientific Committee Swamp Sclerophyll Forest Final Determination, 2004). Of particular concern are hydrology or salinity changes within the EEC that would decrease its distribution and abundance.

For example, the proposed increase in flows into the EEC could change its composition associated with the watercourse from a community containing swamp mahogany trees to a wetland formation.

Impacts to riparian habitat and threatened species have not been addressed in the submitted documentation.

Physical Changes

Increase in Flows

Any increase in flows would result in physical changes within the watercourse that would alter aquatic microhabitats available for threatened species, including Adam's Emerald Dragonfly which has specific microhabitat requirements (riffle habitat) at risk due to increased flows.

An increase in flows into the coastal lagoon would alter the hydrological process and increase the frequency and duration that the entrance berm is open to the ocean.

Increase in nutrient loads

The proposed increase to nutrient loads into the watercourse would lead to eutrophication and create conditions ideal for opportunistic noxious weeds and weeds of national significance such as lantana to invade threatened species habitat along the watercourse, leading to a decrease in diversity and foraging habitat within the vegetation community.

The documentation states that the treated effluent is suitable for all domestic use except drinking and bathing, however ecotoxicology impacts to fauna (particularly aquatic fauna) within the receiving environment have not been addressed.

Munmorah State Conservation Area

A specific objective of the Munmorah State Conservation Area is to conserve biodiversity, with an emphasis on protection and restoration of the habitat of threatened species, populations and ecological communities. The proposal would result in impacts to threatened species and their habitat within land dedicated to conservation.

Assessments of Significance

Assessments of significance for threatened species and communities listed under the BC Act, Fisheries Management Act 1994 and EPBC Act have not been undertaken. Pending the outcome of these assessments, biodiversity offsets may be required to compensate for the impacts of development.

Engineering and Operations

The proposed discharge to the watercourse will have an impact on the long term stability of the watercourse. Watercourses adapt to natural flows and form a stable profile and cross-section. If the natural flows are changed, the watercourse will change to adapt to the varied flow regime.

As the discharge will increase flows in the watercourse, it is likely that erosion and bank stability issues will develop as the watercourse adapts to the increased flows.

As the mechanical facility will not have permanent staff on site, there is potential for breakdowns or malfunctions resulting in higher than anticipated pollution.

Aboriginal and European Heritage

The proposal affects land within the Catherine Hill Bay South subdivision and land within the Catherine Hill Bay Cultural Precinct (State Heritage Register) and Heritage Conservation Area (LEP2004 and LEP2014).

The proposal includes a discharge outlet on the boundary of the existing subdivision and a release location at Lindsley Street, with a pipeline proposed via Hale Street, within the Heritage Conservation Area.

The new pipeline will require excavation and ground disturbance, which is relevant within Catherine Hill Bay for both Aboriginal and European heritage impacts and any proposal within the Catherine Hill Bay Cultural Precinct requires the assessment of archaeological potential.

Additionally, the significance of Catherine Hill Bay derives from its setting and landscape, as well as the built form. Introducing a new discharge point in this location could contribute to changes to the existing landscape due to the additional water flow and potential overflow of exiting channels and lagoon.

With regard to Aboriginal heritage, creek lines are sensitive cultural landscapes and could potentially contain aboriginal sites.

The documentation does not address Aboriginal and European Heritage in sufficient detail to enable an assessment of impacts to be undertaken.

Public Health and Perception

The recycled water discharge is proposed to occur via open stormwater drainage channels in Catherine Hill Bay to which local children will have unimpeded access. The proposed discharge point leads to the ocean directly behind the flags at a patrolled swimming beach and the lagoon formed by the creek is commonly utilised for primary recreational contact by the public, particularly vulnerable members such as families with small children seeking calm waters to paddle in.

The proposal is not supported from a public health perspective due to the access available to vulnerable members of the community including children.

Catherine Hill Bay beach is a popular beach that draws locals and visitors to the area. There could be a significant economic impact to the locality if visitor numbers decrease due to the actual or perceived public health implications of recycled water / treated effluent discharging to the flagged and patrolled Catherine Hill Bay beach.

Previous Council concerns

The original application and supporting documentation excluded the consideration of the method of excess recycled water disposal from Stages 6 and 7 of the residential subdivision.

Previous advice from Council to IPART of 13 March 2015 raised this issue and identified that the proponent was unable to demonstrate that the utility can effectively function in the longer term. Council's concern was that the water balances for Stages 6 and 7 will result in a surplus treated effluent with no available mechanism for disposal.

Conclusion

The need for the servicing of the Beaches residential subdivision with an on-site sewage treatment and water recycling facility is recognised, particularly for new lot releases in Stages 6 and 7 of the subdivision.

However from the information currently available the proposal has probable significant impacts to the health, safety and amenity of the public, and has probable significant environmental impacts to water quality, threatened species, endangered ecological communities and coastal processes.

These concerns are heightened by the sensitivity of the area, being the popular swimming beach and sensitive coastal environmental location.

A precautionary approach to the proposal is recommended and in the absence of detailed environmental investigations and therefore unknown risks and impacts, the proposal is not supported at this stage.

Alternatives to the discharge of excess recycled water directly to the environment in the manner proposed should be further investigated.

Should you require further information, please contact the undersigned on or by e-mail on .

Yours faithfully



Chris Dwyer Principal Development Planner Development Assessment and Compliance