

Ms Lisa Bradley  
Department of Environment, Parks and Water Security  
PO Box 3675  
Parap NT 0801

*Lisa*  
Dear Ms Bradley

**Re: Supplement to the draft EIS - TNG Limited - Darwin Processing Facility**

The Department of Environment, Parks and Water Security has assessed the information contained in the above EIS supplement and provides the following comments:

**Flora and Fauna Division**

The adequacy of the proponent's responses in the Supplement to the department's comments on issues in the EIS relating to biodiversity values are outlined in the following table.

Comment ID #	Comment
Proposal Description #7 Volume of wastewater for controlled discharge	The Flora and Fauna Division are satisfied that the removal of waste water discharge into Darwin Harbour adequately addresses this comment.
Environmental Management plan #12 - Land Clearing	The Division is satisfied that this comment has been adequately addressed in the Supplement. The amount of vegetation proposed to be cleared in the disturbance area has been provided.
Terrestrial Flora and Fauna - #15 - Shorebirds	<p>The Division is satisfied that this comment has been adequately addressed.</p> <p>Section 2.3.3 describes two different ponds proposed for the site. A raw water pond, holding water sourced from the Darwin water supply, the waste water recycling plant and the stormwater system, and a separate rainwater pond, to hold water captured from rainwater run-off on buildings.</p> <p>Both ponds will be within the fenced area of the processing facility, which should reduce their accessibility to non-flying fauna. The ponds will be planned to incorporate measures to reduce suitability and attractiveness to shorebirds, such as steep slopes. However, the final design of the ponds is not yet available.</p>

	<p>The Supplement states that the water quality of the ponds will not pose a risk to fauna or migratory shorebirds because the water will be of sufficiently high quality to reduce risk. The stormwater in the raw water pond is filtered through bio-retention basins to remove nutrients and sediment. No further information is provided on the chemical composition of the water in the ponds. However, it is assumed that it needs to be of sufficiently high quality to be used in processing and therefore is likely to be of low toxicity to fauna.</p>
Terrestrial Flora and Fauna #16 Matters of National Environmental Significance	<p>The requested information has been provided in the Supplement. The Flora and Fauna Division agree with the assessment of species presence or likely presence and with the context and importance of local populations.</p> <p>The alteration of habitat by the proposal has been described, although some of the conclusions, such as improvements to habitat through restricted human access, are considered to be unlikely or insignificant. The importance of the removal of tree hollows is possibly a little understated, without any regional context of hollow availability.</p>
Terrestrial Flora and Fauna #18 Impacts to listed migratory species.	<p>The requested information has been provided in several different places. The Flora and Fauna Division support the assessment undertaken by TNG of the nationally significant aggregations of waterbirds. The identification of roosting habitat (Figure 3-10) was done particularly well.</p>
Terrestrial Flora and Fauna #19 Mitigation and Monitoring Programs	<p>The requested information has been partially provided.</p> <p>The Biodiversity Management Plan proposes monitoring terrestrial fauna in the rehabilitation habitats, using camera traps with a three camera array. The purpose of this monitoring is presumably to determine the success of the rehabilitation activities in retaining native fauna. The proposed duration (annually during construction and once during operations) is not likely to reflect the pace of the rehabilitation. Explicit success criteria for the rehabilitation program in relation to fauna use of the site should be developed. The sampling frequency and duration of the monitoring should then reflect the timeframes for success.</p> <p>The three camera array proposed is used by the Flora and Fauna Division in the Darwin region to survey for a particular suite of threatened species. This method may not be sufficient to detect feral cats with confidence. A five camera array is used for biodiversity monitoring and is recommended for feral cats and surveying a broader suite of species.</p> <p>No monitoring of shorebirds is proposed or discussed.</p>
Inland Water Environmental Quality #21 Stormwater Management Plan	<p>The requested information is mostly provided in the Supplement and in Appendix C. However the details on where treated water will be released is not clear at this stage of the design.</p> <p>Changes to the water supply for the project incorporating the use of treated stormwater has the potential to impact mangrove</p>

	<p>and fringing Melaleuca hinterland habitat (sensitive and significant vegetation) should all seasonal fresh water flows be removed.</p> <p>Figures provided show that overland peak flows will be retained, but states that harvesting stormwater will reduce post-development peak flows and volumes. No detail is provided on how much stormwater is proposed to be harvested. Water balance modelling that will be undertaken to determine the optimised stormwater harvesting design for the site should include allowances for environmental flow requirements. If a large volume (high proportion) of stormwater is to be harvested then potential impacts to downstream mangrove and melaleuca wetland habitats should be monitored.</p>
Site Access 2.3.12.1	<p>The EIS (Appendix X – Figure 3) proposed that the site would be accessed via Channel Island Road immediately south west of the project area. Figure 2-33 of the Supplement proposes a new alternative arrangement with site access through an extension of the proposed 'Kittyhawk access road'.</p> <p>The 'Kittyhawk access road' was previously identified in a subdivision application for Stage 1 of the Kittyhawk Estate. As part of that application, an interim no-clearing zone was established around 'Lot 4' which is located along the south eastern boundary of Kittyhawk Estate. The intent of the no-clearing zone was to provide a 'wildlife corridor' to allow passage of the Black-footed Tree-rat (Eco 2019<sup>1</sup>).</p> <p>The proposed change to the access arrangements in the Supplement would result in the extension of the 'Kittyhawk access road' through vegetation that is contiguous with the retained wildlife corridor. This would further fragment the proposed corridor and potentially reduce the effectiveness for maintaining regional connectivity for the Black-footed Tree-rat.</p>
Marine Environmental Quality #27, 28, 29, 30, 31, 32	The Flora and Fauna Division is satisfied that the removal of waste water discharge into Darwin Harbour adequately addresses these comments.
Benthic Habitat and Communities #33, 34,	The Division is satisfied that the removal of waste water discharge into Darwin Harbour adequately addresses these comments.
Marine Flora and Fauna #35, 36, 37, 38, 39	The Division is satisfied that the removal of waste water discharge into Darwin Harbour adequately addresses these comments.

### Recommendation

It is recommended that:

- The water quality of the raw water pond is either sufficiently high to not pose a threat to any bird species, or that additional measures are considered to prevent access by birds.
- The purpose of the terrestrial fauna monitoring is clarified, so that the monitoring program can be designed appropriately. If detection of feral cats is an objective a suitable sampling protocol should be used.

<sup>1</sup> EcOz (2019) Environmental Impact and Risk Assessment – Stage 1 Kittyhawk Estate – Land Development Corporation, EcOz Pty Ltd, Darwin, Northern Territory.



- Water balance modelling for optimised stormwater harvesting design for the site should include allowances for environmental flows. If a large volume of stormwater is to be harvested then potential impacts to downstream mangrove and melaleuca wetland habitats should be considered and may require monitoring.

## **Water Resources Division**

### **Groundwater**

The main topics of concern raised in previous submissions include inland water quality and water balance requirements for processing. The proponent has addressed these primary concerns regarding impacts to underlying groundwater resources resulting from construction of site infrastructure and future operations. Additionally, further technical studies have been completed to improve understanding of the groundwater resources underlying the development site. Mitigation and monitoring proposed in the draft EIS has been reviewed and supplementary measures have been proposed where necessary, and have been included in the Supplement to the Environmental Impact Statement Darwin Processing Facility (the Supplement), provided by the proponent.

Proposed mitigation strategies as stated in the Supplement include the following:

- Reduced water demand by 65% (lowering requirement from 11GL/year to 3.85GL/year).
- Removed need for discharge to Darwin Harbour.
- Proposed installation of a Water Recycling Plant (WRP).

The proposed water sources for the project include the Darwin water supply, recycled water from the WRP and stormwater harvesting. The proponent has indicated that groundwater will not be utilised for site processing or other industrial / domestic use. Therefore, primary impacts to groundwater resources underlying the site include potential contamination of groundwater from erosion and sedimentation as well as Contaminants of Interest (COIs) from runoff, seepage and/or spillage. The proponent has presented a number of mitigation strategies to reduce potential impacts to groundwater systems, including the following:

- Infrastructure to be installed for the purposes of diverting potential COIs into a managed water circuit that feeds into the WRP.
- Low permeability bases are to be installed in areas where COIs are stored. Similarly, ponds are to be lined with impermeable liners and placed above the wet season water table.
- The site is underlain by 19m of clay, which serves as a natural barrier to groundwater flow and separates deep groundwater systems from the site.
- In addition to the clay barrier, stockpiles will be lined and located on hardstand and kept well away from waterways and drainage systems.

The additional mitigation strategies proposed by the proponent are deemed sufficient to minimise risk to underlying groundwater systems. However, adaptive management strategies should be implemented to ensure these systems are protected throughout the course of the construction and operational phases of the proposed processing facility. Continued monitoring of groundwater quality and water levels in the underlying Burrell Creek Formation are imperative to ensure groundwater resources are maintained.

### **Mining and Petroleum**

It is proposed to source water from the Darwin Water and it is presumed that the proponent means Power and Water Corporation. If this is the case there is no requirement to obtain a water extraction licence.

The subject land is within the Darwin Rural Water Control District and all bore work must be undertaken in accordance with a bore work permit. If the proponent has any bores on-site which are not registered on NR Maps they must email the final statement of bores to [water.regulation@nt.gov.au](mailto:water.regulation@nt.gov.au).

## Water Licensing and Regulation

There are no apparent waterways within the development footprint (refer NR Maps - surface water layers, drainage lines and bodies and stream order). Onsite stormwater management is not subject to licensing or permitting requirements under the *Water Act 1992*.

## Rangelands Division

### Land Management Unit

A conceptual erosion and sediment control plan (ESCP) has been provided in the documentation, however it has not been assessed by DEPWS. It was noted the R factor utilised is an R-Factor of 13,738 which the application identifies as 'the current recommendation from the Darwin Harbour Advisory Committee (NT Department of Environment, Parks and Water Security 2020, personal communication 12 November)'.

DEPWS has developed an unpublished annual R factor (for Darwin Airport) of 15,724. It is recommended the ESCP developer utilise this R-Factor in the final ESCP. The DEPWS Rangelands Division can be contacted on (08) 8999 4446 for further information in relation to this R-Factor.

Should the proposal require assessment under the *Planning Act 1999*, then due to the size, type and location of the proposed development the DEPWS would recommend a Development Permit Condition that requires a Type 3 Erosion and Sediment Control Plan (ESCP) to be developed in accordance with the Department of Environment, Parks and Water Security Erosion and Sediment Control Plan (ESCP) procedures available at <https://depws.nt.gov.au/rangelands/technical-notes-and-fact-sheets/land-management-technical-notes-and-fact-sheets>. The ESCP would need to be developed by a Certified Professional in Erosion and Sediment Control (CPESC), and be reviewed and approved by an independent CPSEC auditor. Onsite implementation of the approved Type 3 Erosion and Sediment Control Plan (ESCP) would also be regularly monitored and reported on by an independent CPESC auditor in accordance with the audit schedule in the ESCP to the satisfaction of the consent authority.

Should you have any further queries regarding these comments, please contact Maria Wauchope by email [maria.wauchope@nt.gov.au](mailto:maria.wauchope@nt.gov.au) or phone (08) 8999 3692.

Yours sincerely



Luis Da Rocha  
Executive Director, Rangelands

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