

Our ref: DOC21/430812
Senders ref: SSD 19618251

David Schwebel
Energy Resource Assessments
Planning and Assessment Group
Department of Planning, Industry and Environment
4 Parramatta Square, 12 Darcy Street
Parramatta NSW 2150

Dear Mr Schwebel

Subject: Request for SEARs for Elizabeth Enterprise Precinct - Stage 1 (SSD-19618251)

Thank you for your e-mail received on 18 May 2021, requesting input from Environment, Energy and Science Group (EES) in the Department of Planning, Industry and Environment (DPIE) on the SEARs for Elizabeth Enterprise Precinct - Stage 1 1669-1723 Elizabeth Drive, Badgerys Creek which is located within the Western Sydney Aerotropolis.

EES has reviewed the scoping report prepared by Ethos Urban dated 17 May 2021 and provides the following comments regarding waterway health and recommendations for the major project at Attachment A.

Waterway Health

As set out in the Section 7 Water and Soils in Attachment A, EES recommends that:

The EIS must describe background conditions for any water resource likely to be affected by the development, including:

- *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions* <http://www.environment.nsw.gov.au/research-and-publications/publications-search/risk-based-framework-for-considering-waterway-health-outcomes-in-strategic-land-use-planning>.

In accordance with the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions*, EES has developed water quality (Table 1) and flow objectives (Table 2) for the Wianamatta-South Creek catchment to achieve the vision for Western Sydney Parkland City. EES is also developing technical guidance to demonstrate how development can demonstrate compliance.

The water quality and flow objectives are specified as requirements in the exhibited Draft Aerotropolis Precinct Plan and are therefore relevant to the subject SSD.

Table 1 Ambient water quality of waterways and waterbodies in the Western Sydney Aerotropolis

Water Quality Objectives	
*Total Nitrogen (TN, mg/L)	1.72
Dissolved Inorganic Nitrogen (DIN, mg/L)	0.74
Ammonia (NH ₃ -N, mg/L)	0.08
Oxidised Nitrogen (NO _x , mg/L)	0.66
*Total Phosphorus (TP, mg/L)	0.14
Dissolved Inorganic Phosphorus (DIP, mg/L)	0.04
Turbidity (NTU)	50
Total Suspended Solids (TSS, mg/L)	37
Conductivity (µS/cm)	1103
pH	6.20 - 7.60
Dissolved Oxygen (DO, %SAT)	43 - 75
Dissolved Oxygen (DO, mg/L)	8

Table 2 Ambient stream flows and requirements of waterways and water dependent ecosystems in the Western Sydney Aerotropolis

Flow Objectives		
	1-2 Order Streams	3 rd Order Streams or greater
Median Daily Flow Volume (L/ha)	71.8 ± 22.0	1095.0 ± 157.3
Mean Daily Flow Volume (L/ha)	2351.1 ± 604.6	5542.2 ± 320.9
High Spell (L/ha) ≥ 90 th Percentile Daily Flow Volume	2048.4 ± 739.2	10091.7 ± 769.7
High Spell - Frequency (number/y)	6.9 ± 0.4	19.2 ± 1.0
High Spell - Average Duration (days/y)	6.1 ± 0.4	2.2 ± 0.2
Freshes (L/ha) ≥ 75 th and ≤ 90 th Percentile Daily Flow Volume	327.1 to 2048.4	2642.9 to 10091.7
Freshes - Frequency (number/y)	4.0 ± 0.9	24.6 ± 0.7
Freshes - Average Duration (days/y)	38.2 ± 5.8	2.5 ± 0.1
Cease to Flow (proportion of time/y)	0.34 ± 0.04	0.03 ± 0.007
Cease to Flow – Duration (days/y)	36.8 ± 6	6 ± 1.1

Should you have any queries regarding this matter, please contact Marnie Stewart, Senior Project Officer - Planning on 9995 6868 or Marnie.stewart@environment.nsw.gov.au

Yours sincerely

A handwritten signature in black ink that reads "S. Harrison". The script is cursive and fluid.

31/05/21

Susan Harrison
Senior Team Leader Planning
Greater Sydney Branch
Biodiversity and Conservation

Attachment A – EES Environmental Assessment Requirements

Biodiversity
<p>1. Biodiversity impacts related to the proposed development are to be assessed in accordance with Section 7.9 of the Biodiversity Conservation Act 2017 the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the Biodiversity Conservation Act 2016 (s6.12), Biodiversity Conservation Regulation 2017 (s6.8) and Biodiversity Assessment Method, including an assessment of the impacts of the proposal (including an assessment of impacts prescribed by the regulations).</p> <p>2. The BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method 2020.</p> <p>3. The BDAR must include details of the measures proposed to address the offset obligation as follows:</p> <ul style="list-style-type: none">• The total number and classes of biodiversity credits required to be retired for the development/project;• The number and classes of like-for-like biodiversity credits proposed to be retired;• The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules;• Any proposal to fund a biodiversity conservation action;• Any proposal to conduct ecological rehabilitation (if a mining project);• Any proposal to make a payment to the Biodiversity Conservation Fund. <p>If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.</p> <p>4. The BDAR must be submitted with all spatial data associated with the survey and assessment as per Appendix 11 of the BAM.</p> <p>5. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the Biodiversity Conservation Act 2016.</p>

Water and soils

6. The EIS must map the following features relevant to water and soils including:
 - a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).
 - b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method).
 - c. Wetlands as described in s4.2 of the Biodiversity Assessment Method.
 - d. Groundwater.
 - e. Groundwater dependent ecosystems
 - f. Proposed intake and discharge locations
7. The EIS must describe background conditions for any water resource likely to be affected by the development, including:
 - a. Existing surface and groundwater.
 - b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.
 - c. Water Quality Objectives (as endorsed by the NSW Government <http://www.environment.nsw.gov.au/ieo/index.htm>) including groundwater as appropriate that represent the community's uses and values for the receiving waters.
 - d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the [ANZECC \(2000\) Guidelines for Fresh and Marine Water Quality](#) and/or local objectives, criteria or targets endorsed by the NSW Government.
 - e. Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions <http://www.environment.nsw.gov.au/research-and-publications/publications-search/risk-based-framework-for-considering-waterway-health-outcomes-in-strategic-land-use-planning>

<p>8. The EIS must assess the impact of the development on hydrology, including:</p> <ul style="list-style-type: none"> a. Water balance including quantity, quality and source. b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas. c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems. d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches). e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water. f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options. g. Identification of proposed monitoring of hydrological attributes.
<p>Flooding and coastal hazards</p>
<p>9. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:</p> <ul style="list-style-type: none"> a. Flood prone land. b. Flood planning area, the area below the flood planning level. c. Hydraulic categorisation (floodways and flood storage areas) d. Flood Hazard. <p>10. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event.</p> <p>11. The EIS must model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:</p> <ul style="list-style-type: none"> a. Current flood behaviour for a range of design events as identified above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change. <p>12. Modelling in the EIS must consider and document:</p> <ul style="list-style-type: none"> a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies.

- b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood.
 - c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories
 - d. Relevant provisions of the NSW Floodplain Development Manual 2005.
13. The EIS must assess the impacts on the proposed development on flood behaviour, including:
- a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure.
 - b. Consistency with Council floodplain risk management plans.
 - c. Consistency with any Rural Floodplain Management Plans.
 - d. Compatibility with the flood hazard of the land.
 - e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
 - f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
 - g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses.
 - h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council.
 - i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council.
 - j. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES.
 - k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

(END OF SUBMISSION)