

6th November 2025

Sealark Pty Ltd
c/o Allen Price
Attn: Rebecca Lockart

Dear Rebecca,

RE: WEST CULBURRA MOD1 RFI

Martens and Associates (**MA**) have prepared this letter in response to a request for information from Shoalhaven City Council (reference D25/429779 dated 1 October, 2025) regarding the Mod 1 application for the West Culburra mixed use development, approved under SSD 3846, at Lot 1, DP 1305809 in West Culburra (the **Site**).

1 Shoalhaven City Council response of October 1, 2024.

Comments provided under the heading Floodplain Management Section / Water Quality Comments / Requirements are provided as follows:

1.1 General Comments 1st dot point – MUSIC model

A copy of the assessment MUSIC model is provided.

1.2 2nd dot point – Addendum IWCMP

A copy of the Addendum IWCMS as referred to in the SSD approval is provided.

1.3 3rd dot point – Treatment devices included as source and sink

Inclusion of the treatment devices as source nodes is done so that the pre and post total land area included in the MUSIC models remains consistent. If treatment device areas are not included as a source node the hydrology of the MUSIC model shall not reflect the rainfall incident on those areas.

The model can be adjusted to exclude the source nodes if required by Council. This will result in a reduction in the pollutant generation rates in the developed condition model and shall 'improve' the modelled water quality outcome.

1.4 4th dot point – Predevelopment 'agricultural' node

Condition B4(b) of SSD 3846's approval requires the use of a

pre-development case that considers current land cover (model PD-LC1 on Map 14 of IWCMS).

Review of Map 14 of the Integrated Water Cycle Management Strategy approved by the SSD approval (**SSD IWCMS**) includes an agriculture node of 1.710 ha. The predevelopment catchments presented in the Mod 1 Supplementary Integrated Water Cycle Management Strategy (**Mod 1 IWCMS**) similarly includes a 1.710 ha agriculture node.

As the Mod 1 MUSIC model is consistent with the SSD application model and considering that reliance on the application model is a requirement of the SSD approval, we consider the inclusion of the agriculture node in the predevelopment model to be appropriate.

1.5 5th dot points – flow splitters

Flow splitters have been correctly included in the MUSIC model used for the assessment. Low flow bypasses of 20, 10 and 10 l/s have been included for Ponds 1, 2 and 3 respectively. It is acknowledged that the table in Appendix D incorrectly reports the low flow bypasses for the ponds as 0m³/s. The error is a documentation one not an assessment model one.

1.6 6th and 7th dot points

To be addressed by Allen Price (**AP**).

1.7 8th dot point – Grassed swales in MUSIC model

Swales included in the developed conditions model for Mod 1 are consistent with those provide in the SSD IWCMS MUSIC model. The inclusion of these structures in the engineering design plans is considered a matter for detailed design which shall be addressed by the site designers at a later stage.

To assess the significance of the swales the assessment model [P2209097MUS04V32] was rerun without the swales. The effect on pollutant loads to the Crookhaven River were minor, with very small increases in TSS, TP and TN. Results with or without the swale still achieves NorBE in accordance with the SSD IWCMS (Table 1).

Table 1: MUSIC results for analysis of swale performance.

Parameters	Developed with swale	Developed without swale	Predevelopment
Flow (ML/yr)	109	109	92
Peak Flow (m ³ /s)	7.86	7.94	10.7
Total Suspended Solids (kg/yr)	1,300	1,330	6,220
Total Phosphorus (kg/yr)	9.25	9.28	11
Total Nitrogen (kg/yr)	84.7	84.8	91.3
Gross Pollutants (kg/yr)	16.3	16.3	42.5

1.8 9th dot point – Emergency egress road

To be addressed by AP.

1.9 Consent Condition B1 1st dot point – NorBE Assessment

NorBE is defined in the SSD approval as being:

Neutral or Beneficial Effect as defined in the Neutral or Beneficial Effect on Water Quality Assessment Guideline 2015 prepared by the former Sydney Catchment Authority

Condition B1 then requires that the Concept approval complies with NorBE 'by implementation of the IWCMS', where reference to IWCMS is a reference to the SSD IWCMS.

The IWCMS provides the definition of NorBE from the NorBE Guideline at section 2.4. It is noted that the definition of NorBE, as documented in the NorBE Guidelines and as adopted in the approved SSD IWCMS, does not include the performance criteria (i.e. pollutant concentration) as described in the Council RFI.

The assessment of NorBE for the purposes of the Mod 1 IWCMS uses the same criteria as the approved SSD IWCMS. The methodology used in the SSD IWCMS was accepted by way of the SSD approval. Condition B1 of the approval requires the implementation of the SSD IWCMS as the means of compliance with NorBE. For these reasons it is clear that compliance with NorBE as documented in the SSD IWCMS is the requirement of the approval, not the compliance with the WaterNSW, 2023 interpretation cited by Council. The completed assessment of NorBE in the Mod 1 IWCMS is therefore appropriate and sufficient.

1.10 Consent Condition B2(d) 1st dot point – HumeGuard GPTs

The GPTs proposed are consistent with the approved SSD IWCMS which, at section 4.2.2, specifically included HumeGuard as an acceptable GPT solution. Inclusion of this GPT in the Mod 1 IWCMS design is entirely consistent with the SSD approval.

1.11 Consent Condition B2(d) 2nd, 3rd and 4th dot points – detailed design

AP to provide additional detail at detailed design phase.

1.12 Consent Condition B2(d) 5th dot points – EDD on biobasins

The extended detention depth (**EDD**) proposed in the Mod1 IWCMS is consistent with the approved SSD IWCMS. 0.7 m EDD are specified in the SSD IWCMS at Table G1, this design is retained in the MOD1 IWCMS design and is appropriate.

1.13 Consent Condition B2(d) 6th and 7th dot points – detailed design

AP to provide additional detail at detailed design phase.

1.14 Consent Condition B5(a) – rainwater tanks

Rainwater tanks are modelled in the Mod 1 IWCMS in a manner consistent with the approved SSD IWCMS and are therefore appropriate.

There is no technical reason why a modern dwelling cannot be designed with 100 % of the roof area draining to the rainwater tank. The requirement for this should be included in the local DCP or other design control document.

It is unclear why Council proposed that 80% of the actual tank size be used in the model. Where a DCP or other design control is developed the required operating capacity of the rainwater tanks is to be specified so that allowance for tank head space (over the invert of the outlet) and dead volume (below the invert of the low flow outlet) is not included. Such a requirement would likely address the underlying concern leading to Council's proposed model setup.

1.15 Consent Condition B5(a) 1st dot point – rainwater tanks

Rainwater tanks are modelled in the Mod 1 IWCMS in a manner consistent with the approved SSD IWCMS and are therefore appropriate.

1.16 Consent Condition B5(a) 2nd dot point – infiltrated water secondary link

The inclusion of a secondary link to 'resurface' infiltrated water in the downstream node is hydrologically incorrect and unnecessary on the Site. The 'fate' of infiltrated water is assessed through the detailed stormwater pollutant plume modelling (section 5.6.5.2 of SSD IWCMS) which demonstrated the appropriateness of this stormwater infiltration.

If you require any further information, please do not hesitate to contact our offices.

For and on behalf of

Martens & Associates Pty Ltd

A handwritten signature in blue ink, appearing to read 'A. Norris'.

Andrew Norris

Director, Principal Engineer