

Our Ref: 59919014:DS
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Dear John,

WEST CULBURRA MIXED USE SUBDIVISION (SSD 3846) – STORMWATER QUALITY – RESPONSE TO UNSW WRL REVIEW

Cardno understands that UNSW Water Research Laboratory (WRL) was engaged by the Independent Planning Commission (IPC) to undertake an independent review of the water quality assessment for the West Culburra Concept Proposal SSD 3846 (The Proposal). Their findings are documented in a letter dated 11 September 2018 and this letter responds to a number of the key points they have raised.

Item 1: The proposal “cannot be properly assessed without a clear and detailed understanding of what the proponent is considering within the concept proposal area.”

Response: The level of detail provided in this proposal is sufficient, in our opinion, to assess potential stormwater quality impacts. Stormwater quality modelling, using the industry standard software MUSIC, is often undertaken independently of fine development details by using catchments that are ‘lumped’ by landuse (eg; residential, commercial, industrial etc) and/or surface type (eg; roofs, landscaped etc). Estimates of key parameters, such as the level of imperviousness, can be readily derived for these landuses/surface types using guidelines such as the NSW MUSIC Modelling Guidelines. Including additional development detail within the model would not be expected to significantly change the modelling results.

It is also noted that the concept proposal documentation includes water quality modelling of one particular treatment train. There are a range of best management practices including gross pollutant traps, proprietary filters, bioretention systems, rainwater/stormwater harvesting and/or constructed wetlands that can be incorporated into a ‘treatment train’ to suit the proposed development as further detail is established. Shoalhaven City Council would be well placed to review the proposed development designs and stormwater treatment measures as they evolve to ensure that any development is capable of meeting the stormwater quality objectives.

Item 2: Water Quality Modelling Approach and Performance

Response: UNSW WRL raised the issue that the models have not been field calibrated. We note that, similar to issues identified in our previous review regarding availability of data on the performance of stormwater quality treatment devices, there is rarely sufficient data to ‘field calibrate’ stormwater quality models. Local data, such as soils information and rainfall, is typically used to inform the selection of appropriate parameters from industry standard guidelines such as the NSW MUSIC Modelling Guidelines. It is considered unreasonable to expect detailed field calibration to be undertaken in this instance.

The comments by UNSW WRL also include a statement suggesting that Cardno’s peer review (10 August 2018) found that the water quality modelling by Martens was unable to achieve the NorBE objective. However, our review goes further to state that “we are satisfied that the NorBE water quality target is able to be met.”

Item 3: Construction Water Quality

The UNSW WRL comments include a concern that the construction will be staged over a 20 year period and this results in a high risk of release of Total Suspended Solids (TSS) into the receiving waterways. However, the proposed staging of development is actually expected to reduce the risk of sediment loads and is in accordance with erosion and sediment control best management practices. The proposed staging minimises the areas of exposed soil at any one time and therefore minimises the potential TSS load should a high intensity rainfall event occur. If the development was to be constructed all at once, the risk of release of a significant TSS load would be much greater.

Item 4: Comments on the Water Quality Treatment Solution

UNSW WRL identified the proposed filter devices may require additional monitoring and maintenance relative to the field test site. We note that all devices require monitoring and maintenance and this is a key consideration when selecting the ultimate treatment train. We agree that an Operation and Maintenance Plan should be developed in consultation with Shoalhaven City Council. This should be undertaken as the proposed stormwater quality treatment systems is further refined during subsequent design development phases.

Conclusion

In summary, the reasons for UNSW WRL not currently supporting the planning proposal appear to largely relate to uncertainty regarding the potential impacts of the proposed development. However, in relation to stormwater quality, the potential pollutant generation and treatment processes are generally well understood and have been assessed using industry standard approaches and tools. Where there is some degree of uncertainty (eg; the performance of proprietary devices), these issues are expected to be further investigated and designs refined as further details of the overall development are established.

Should you require any further clarification please do not hesitate to contact David Stone on the details below.

Yours sincerely,



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