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14 November 2023

Darryl Anderson
DAC Planning Pty Ltd

Sent by email to: jenny@dacplanning.com.au

ATTENTION: Darryl Anderson

Dear Darryl,

Response to Item c) in the LEP amendment affecting land at 84-92 Chinderah Bay Drive, Chinderah.

Harvest Water Management Consultants Pty Ltd (Harvest) has been engaged by the Solo Group of Companies (Solo) to provide a response to Item c) on the Tweed Shire Council email to DAC Planning Pty Ltd dated 23/11/2022 in relation provision of historic site flooding information required to support the LEP amendment and Planning Proposal that is being prepared for the existing Solo site at 84-92 Chinderah Bay Dr Chinderah.

It is understood the Planning Proposal and LEP amendment is to permit development for the purposes of a "depot" to enable Council to approve future Development Applications to expand and intensify the existing "depot" which has operated on the site since the 1940s.

Items c) from the TSC email is reproduced below:

> *c. Advice from TSC regarding flooding: The change in land use table in itself does not change the flood behaviour or impact of the site and adjoining land, compared to the existing B4 mixed use zoning. Either zoning could be expected to permit applications for filling, large footprint buildings, hardstands, fencing and other flood impact considerations. Given the existing use, flood assessment will not be required as part of this planning proposal, however the planning proposal document should include a description of the existing development's flood vulnerability and damages in the 2017 and 2022 floods. This would be of interest, and may be necessary to convince Council and the community that the planning proposal should be supported, given the current focus on floodplain development in Chinderah and West Kingscliff. Any subsequent application on the site would be assessed on merit according to the LEP and DCP clauses.*

<u>Background</u>

Harvest was first engaged by Solo in 2012 as an environmental engineering consultant providing expertise to Solo Water in water, wastewater and recycled water. Harvest has been engaged since then from time to time, coincidentally during both the flood events of 2017 and 2022 and the author has knowledge of the Solo site and how it is impacted by flooding. This knowledge of the site has been complimented by interviews with key Solo personnel in preparing this report, including personnel that were present on site during the lead-up to and peak of these flood events.

The Solo site has been operating under its current land use by the current owners since the 1940s and during this time the impacts of riverine flooding have been managed satisfactorily. Given the nature of riverine flooding there is typically sufficient warning time for action to be taken to move vehicles and equipment to higher ground onsite, or off site, as required based on the predicted flood peak.

The office buildings on the site have never been impacted by flooding as these developments were approved and constructed above the expected peak flood levels for the Tweed River.

Some of the sheds and structures at the back of the site have been inundated to varying depths in previous floods, including in 2017 and 2022. Following each event the impacted buildings are simply cleaned out and returned to use as the structures have been designed to be flood resilient and the impacts of riverine flooding have therefore been manageable.

Summary of Flood Vulnerability and Damages in the 2017 and 2022 Floods

Given the site location adjacent to the Tweed River the site is susceptible to flooding. The site has been operating under its current land use since the 1940s and in this time it has been demonstrated that the impacts caused by riverine flooding of the Tweed River have been manageable. Given the nature of riverine flooding there is generally sufficient warning time to take action to move vehicles and equipment to higher ground onsite, or off site, as required.

The type of flooding that occurs at the site has low flow velocity and the floods that have occurred at the site have been a slow water level rise with minimal flow velocity and therefore does not pose a significant safety hazard to those using the site. Given the low flow velocity at the site there is minimal impacts from flood debris and following flood events there has been minimal evidence of debris build up in and around fences and structures nor have any fences or structures been damaged as a result of debris build up and flooding.

In the 2017 floods the flood water level peak at the site was around 2.5 m AHD and in 2022 was around 3 m AHD. There was sufficient notice in these events prior to the arrival of the riverine flood peak to take action to minimise damages caused by riverine flooding.

In both 2017 and 2022 some localised stormwater impacts occurred at the site prior to the arrival of the flood peak in the Tweed River. These impacts were localised to the site and were caused by stormwater inflows from the site and upstream stormwater catchment exceeding the capacity of the site's stormwater discharge pipe that discharges at the site's lawful point of discharge into the Council stormwater system on Chinderah Bay Drive. Part of the site upstream of this discharge pipe acts like a detention basin which provides some benefits to the local stormwater system on Chinderah Bay Dr by temporarily retaining stormwater within the site to reduce peak flows leaving the site.

Description of potential flood impacts from Future Development proposals

Any future development proposals for the site will generally be in line with the existing development of the site. Any future development of the site is only required to expand the site capacity and operations to service population growth in the Tweed Shire. There is no proposal to change land use or construct any significantly larger facilities over above that required for growth.

Any new proposed buildings or structures would be at approximately the same level as the existing development and minimal filling will be required, hence there will be no impact on floodplain storage or flood levels.

As is the case with the existing development the "shed" type buildings, any new building proposed will be designed to be inundated during riverine flooding events and the buildings are simply cleaned out to remove any sediment etc following the event.

Recommendations

The Solo site at Chinderah has been operating under its current land use by the current owners since the 1940s and during that time has managed the impacts of flooding satisfactorily. Given the site is located adjacent to the Tweed River the site is susceptible to flood inundation by riverine flooding of the Tweed River, however this has proven to be manageable over the life of the site.

Based on the information presented above and the authors knowledge of the Solo site at Chinderah, while the site is impacted by riverine flooding from time to time, the impacts have been and continue to be manageable and the site and land use does not pose a significant risk to safety or the environment.

It is recommended that the LEP amendment and Planning Proposal be approved to allow alignment of the existing site operations and land use with the LEP.

Should you have any queries or wish to discuss this matter further, please contact the undersigned by telephone on 0488 427 878 or by email at brad@harvestwmc.com.au.

Kind Regards,

Brad Irwin MIEAust CPEng NPER RPEQ (Environmental)

Environmental Engineer | Director

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