

Torrent Consulting Pty Ltd 86 Blanch Street Shortland NSW 2307

ABN 11 636 418 089

www.torrentconsulting.com.au

Our Ref: DJW: L.T2216.004.docx

30 March 2022 Charles David Pty Ltd c/o Perception Planning PO Box 107 Clarence Town NSW 2321 Attention: Erin Daniel

Dear Erin

RE: FLOOD IMPACT ASSESSMENT FOR PEPPERTREE ESTATE, GUNDY ROAD, SCONE NSW

Torrent Consulting has prepared a Flood Impact Assessment (L.T2216.003, dated 3 March 2022) to assist in the approval process for the proposed subdivision of 150 Gundy Road, Scone for the creation of Peppertree Estate (the Site). A review of the Stormwater Management Plan prepared for the proposed development (DA163/2017) was undertaken for Upper Hunter Shire Council (UHSC) by Northrop, dated 19 January 2022. This review found the previous flood assessment for the Site to be of insufficient detail and a flood study including 2D modelling was requested to address this.

A response to the recommendations of the review in relation to stormwater management issues was issued by ACOR (NSW202732, dated 18 February 2022). This response referred requirements relating to floodplain risk management to the Torrent Consulting Flood Impact Assessment. This letter directly addresses those responses and should be read in conjunction with the Flood Impact Assessment (L.T2216.003, dated 3 March 2022).

Model hydrology should be updated to consider the use of the latest NSW Specific Rainfall Losses and Hierarchy Approach recommended by NSW OEH and the ARR 2019 EIA/ ICIA split.

The hydrological modelling undertaken by Torrent Consulting has adopted the NSW-specific rainfall losses, as per paragraph 1 of the Design Flood Hydrology section on page 3.

Definition of riparian extents should be prepared and placement of Water Quality devices in accordance with NRAR Controlled Activities on Waterfront Land guidelines should be reviewed.

This has been addressed within the ACOR response.

The design for the creek culvert crossing should be reviewed with respect to blockage and climate change and the difference in sizing with previously completed studies for the area should be discussed.

This has been undertaken and is detailed in paragraph 3 of the Post-development Modelling section on page 6 and within the Flood Risk Assessment section in paragraph 10 on page 10.

The proposed evacuation access track and/ or culvert crossing should be reviewed with respect to risk to life and evacuation.

The track is not required, with requirements now met through the access road and cross-drainage culvert provision, as detailed in paragraph 3 of the Post-development Modelling section on page 6 and within the Flood Risk Assessment section in paragraph 10 on page 10.

The difference between peak flows observed in the Stormwater Management Plan (ACOR, 2021) and other similar studies in the area should be discussed.

This is due to the different methodologies adopted and is discussed at the end of the Design Flood Hydrology section in the first 4 paragraphs on page 4.

A detailed two-dimensional flood assessment and report be prepared in accordance with the UHSC DCP Part 10a to analyse (as a minimum):

• The existing case flood behaviour including hydraulic categories (i.e. floodway, flood storage and flood fringe).

This has been undertaken, as detailed throughout the Flood Impact Assessment. The existing case flood behaviour is detailed in the Baseline Design Flood Conditions and is supported by flood mapping outputs, including the flood function (or hydraulic categories) in Figure 11 and Figure 22.

• The developed case flood behaviour, including a review of the sizing of the proposed creek culvert crossing.

The developed case flood behaviour is detailed in the Flood Impact Assessment and is supported by flood impact mapping in Figure 12 to Figure 17 and post-development mapping in Figure 18 to Figure 22. The creek crossing culvert sizing is detailed in paragraph 3 of the Post-development Modelling section on page 6 and within the Flood Risk Assessment section in paragraph 10 on page 10.

• The flood impact of the proposed development for the full range of storm events up to and including the PMF.

The developed case flood behaviour is detailed in the Flood Impact Assessment and is supported by flood impact mapping in Figure 12 to Figure 17 and post-development mapping in Figure 18 to Figure 22.

• Define the Flood Planning Area (FPA) for the proposed development.

This is provided in Figure 19 of the Flood Impact Assessment.

• Ensure all proposed lots, roads and infrastructure are positioned in accordance with Council's LEP/ DCP and the NSW Floodplain Policy.

This has been undertaken and is detailed in paragraphs 3 and 4 of the Flood Risk Assessment section on page 9, supported by the FPA mapping in Figure 19.

• Define tailwater levels for the proposed local stormwater network.

Design flood mapping has been produced that can be used to reference the appropriate tailwater levels at any proposed local stormwater network outlets. Additional detailed information is available from the TUFLOW model outputs to assist the stormwater network design as and when required.

• Review the impact of climate change.

This has been addressed in paragraph 3 of the Flood Risk Assessment section on page 9.

• Measures to manage the risk to life and property including a review of the sizing of the proposed creek culvert crossing and / or the proposed evacuation access track.

The management of risk to life and property is has been assessed in line with Council's DCP and is detailed in the Flood Risk Assessment section. The track is not required, with requirements now met through the

access road and cross-drainage culvert provision, as detailed in paragraph 3 of the Post-development Modelling section on page 6 and within the Flood Risk Assessment section in paragraph 10 on page 10.

• Review Gundy Road overland flow capacity to confirm whether the proposed lots fronting Gundy Road are flood prone.

This mechanism does not pose a significant flood risk to the proposed lots fronting Gundy Road and is detailed in paragraph 2 of the Baseline Design Flood Conditions on page 4.

• Review development compliance with the necessary flooding related LEP/ DCP requirements and the NSW Floodplain Policy.

The management of risk to life and property is has been assessed in line with Council's DCP and is detailed in the Flood Risk Assessment section. This is also in accordance with the requirements of the LEP and the general principles of floodplain risk management of the NSW FDM.

• Review the findings with respect to stormwater detention presented in the Stormwater Management Plan (ACOR, 2021).

This has been addressed within the ACOR response.

 Review necessary stormwater management measures for the south-western corner to ensure stormwater discharge does not adversely impact both water quality and quantity at the site discharge point and within downstream waterways. NL213311 / 19 January 2022 / Revision A Page 21 of 21

This has been addressed within the ACOR response.

• The existing Dam, to be maintained post development, should be reviewed from a dam safety perspective to determine whether it is required to be declared for the purposes of the Dam Safety Act 2015

This has been addressed within the ACOR response. Recommendations regarding potential improvements to the control of spills from the dam has been made within the Flood Impact Assessment at the end of the Post-development Modelling section, within paragraphs 2 and 3 of page 7 and Chart 2.

We trust that this letter assists in the assessment of the response to the Northrop review. For further information or clarification please contact the undersigned.

Yours faithfully

Torrent Consulting

Daniel Willim

Dan Williams Director