



**Reference:** 20210282-L02\_flood statement [B].docx

**Date:** September 15, 2021

Urbis  
Attention: Simon Wilkes  
123 Pitt Street  
Sydney NSW 2000

Dear Sir,

**RE: FLOOD STATEMENT  
14-16 BROOKHOLLOW AVENUE, NORWEST**

## INTRODUCTION

S&G Consultants Pty Ltd (SGC) have been retained by Urbis and their client IC Homes to prepare a flood statement to support a planning proposal for a proposed development at 14-16 Brookhollow Avenue, Norwest.

This document has been prepared based on review of the GHD (2000) 'Strangers Creek Report on Flooding, Trunk Drainage and Water Quality' (the GHD report), which is part of the 'Norwest Stormwater Drainage Master Plan' provided by the Hills Shire Council.

Reference is made to the appendices for site survey, the proposed site layout and the flood mapping.

## REFERENCE DOCUMENTS

The following documents have been referenced in this report:-

1. Site survey prepared by H. Ramsay & Co;
2. Planning Proposal by Urbis – Supplementary Information for The Hills Shire Council;
3. Architectural drawings prepared by PBD Architects
4. NSW Government "The Floodplain Development Manual – The management of Flood Liable Land" (2005);
5. Engineers Australia, Australian Rainfall & Runoff;
6. The Hills Shire Council DCP (2012) Part C Section 6; and
7. Strangers Creek Report on Flooding, Trunk Drainage and Water Quality, GHD 2000.

## NATURAL & BUILT ENVIRONMENT

The proposed site is fully developed with an existing commercial building and associated car parking facilities. The current building is occupied by a mix of commercial businesses and a childcare centre. The location is noted in the figure below.

The site has a steep natural gradient from East to West. Refer to survey plan in Appendix A1 for details.



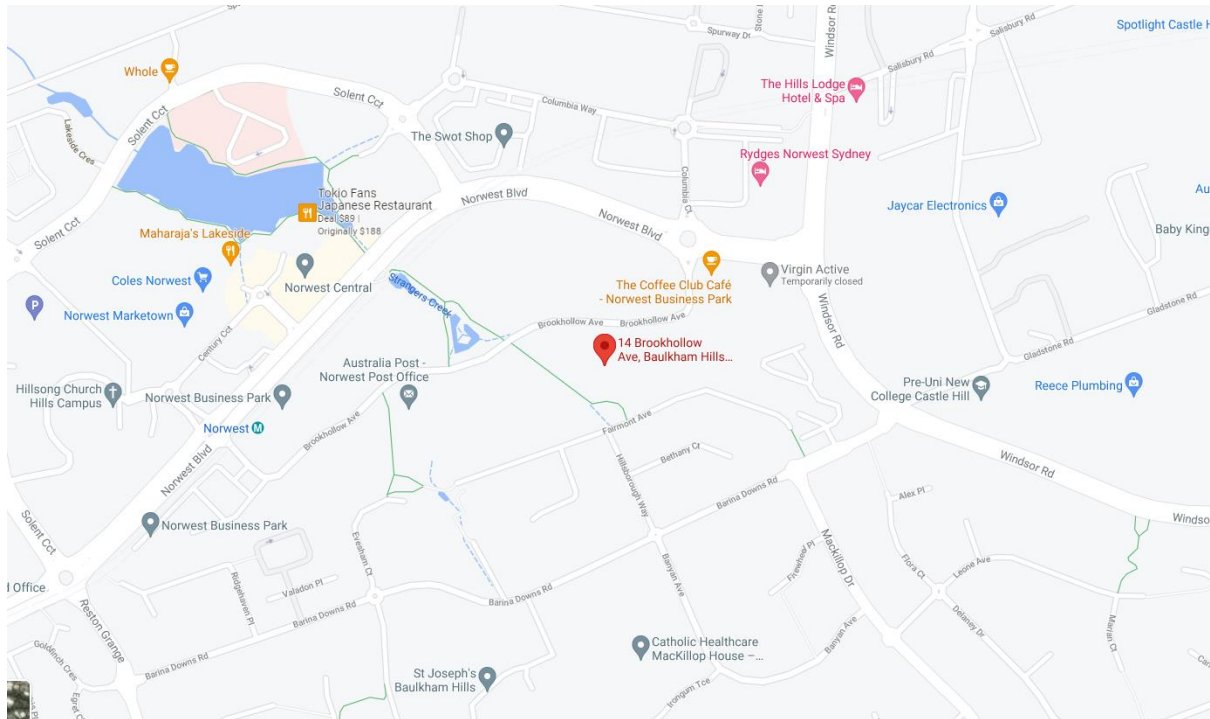
**Phone:** 02 8883 4239

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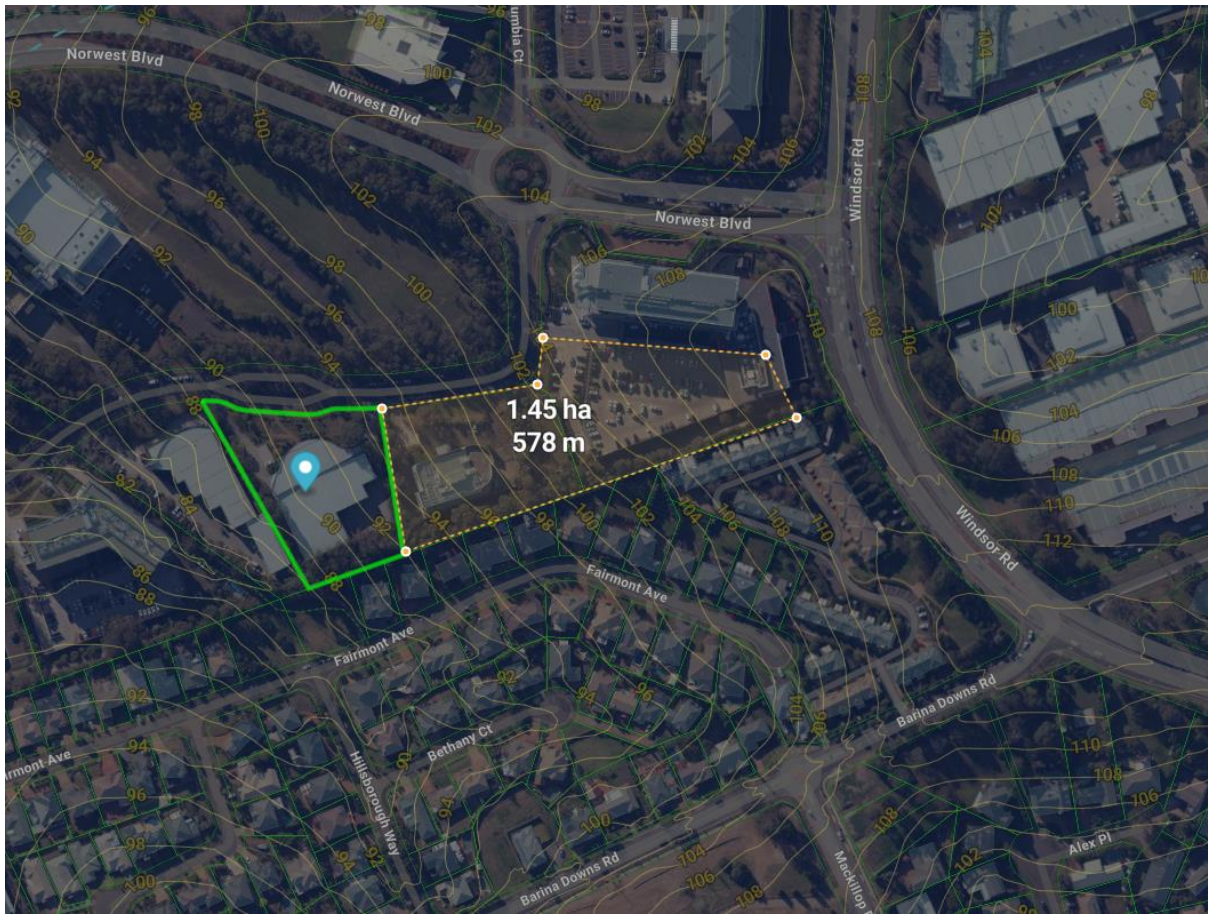
The site is marked as affected by a minor overland flooding by the Hills Shire Council (HSC). The rear of the site has a swale that allows for the conveyance of overland flows through the site.



**Figure 1**                      **Locality Plan**

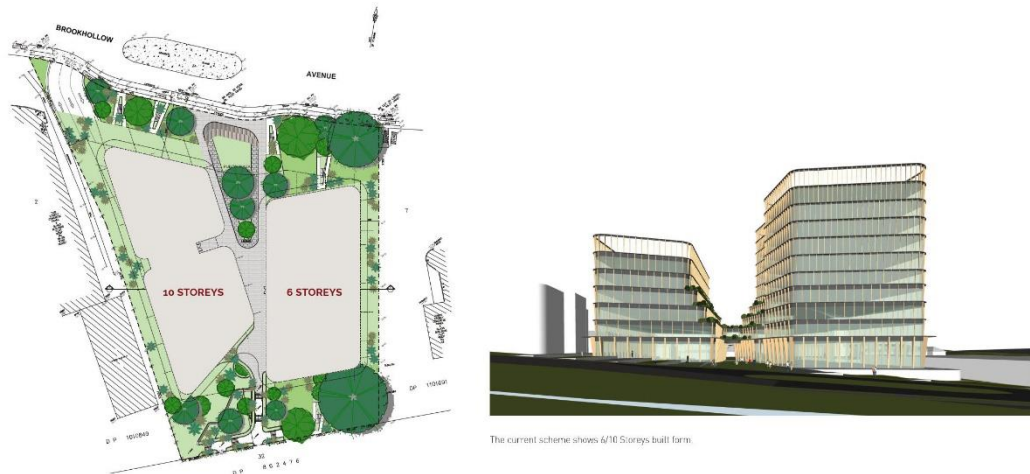
We note the following with respect to the location of the site within the local catchment:

1. The low lying gully of Strangers Creek that conveys flows from the upstream catchment is located between the adjoining property 18-20 Brookhollow Ave and 22 Brookhollow Ave;
2. The site is located within the Strangers Creek catchment;
3. The upstream catchment that potentially generates flows through the swale at the rear of the site is predominantly commercial and extends to 2-8 Brookhollow Ave. Refer figure below;
4. The Strangers Creek Report by GHD (2000) does not extend upstream of Norwest Boulevard and does not provide any flood information in the vicinity of the site; and
5. Council does not have any flood levels for the site from the localised upstream catchment.



**Figure 2 Upstream Catchment into Rear Swale**

The proposal includes the demolition of the existing building structures and the construction of two (2) new office buildings as depicted in the figure below.



**Figure 3 Proposed Site Plan (Source PBD)**

### FLOOD CHARACTERISTICS

We note the following regarding the existing site conditions:

1. The site is much higher than the Strangers Creek gully that runs between 18-20 & 22 Brookhollow Ave and is unlikely to be affected by flooding from that system; and
2. There is the potential for a minor overland flow from the local upstream catchment through the rear of the site. An upstream catchment of 1.45ha is identified. The catchment will generate a maximum flow of 0.9cums in 1% AEP storm event based on our preliminary calculations which can be accommodated in the rear setback proposed in the architectural plans by PBD Architects.

The proposed development is an office premises and is categorised as a 'Commercial & Industrial' land use based on 'Schedule A – Land Use Categories' of The Hills Shire Council DCP (2012) Part C Section 6 (the DCP).

Specific flooding controls are provided in Section 2.6 of the DCP. A compliance assessment for the proposed planning proposal based on these controls is summarised in Table 2 below, which demonstrates how all applicable flood planning requirements will be addressed, and hence compliance with the Hills Shire Council DCP would be achieved.



**Table 1 Compliance with applicable Hills Shire Council DCP Requirements**

The Hills Shire Council DCP Requirement	Compliance Assessment
(a) No development is to occur in or over a floodway area, a flowpath or a high hazard area (as defined in the FDM) generated by flooding up to FPL2, unless justified by a site specific assessment.	As the site is well above the low lying gully of Strangers Creek, it is not anticipated that the site is affected by a floodway or a high hydraulic hazard.
(b) Habitable floor levels are to be at FPL3 or higher.	This will be applied to the development once the flood levels in the gully and the swale at the rear of the site are determined.
(c) Non-habitable floor levels to be equal to or greater than FPL3 where possible, or otherwise no lower than FPL1 unless justified by a site specific assessment.	This will be applied to the development once the flood levels in the gully and the swale at the rear of the site are determined.
(d) All structures to have flood compatible building components below FPL3.	This will be confirmed during detailed design stage and certified by a structural engineer.
(e) Applicant to demonstrate that the structure can withstand the forces of floodwater, debris and buoyancy up to and including FPL3, or FPL4 if required to satisfy evacuation criteria (i.e. use as a refuge area). An engineer's report may be required.	This will be confirmed during detailed design stage and certified by a structural engineer.
(f) The flood impact of the development to be considered to ensure that the development will not increase flood effects elsewhere, having regard to: <ul style="list-style-type: none"> <li>• loss of flood storage;</li> <li>• changes in flood levels and velocities caused by alterations to the flood conveyance, including the effects of fencing styles; and</li> <li>• the cumulative impact of multiple potential developments in the floodplain.</li> </ul> An engineer's report may be required.	It is not anticipated that the development will have any adverse impacts on flooding elsewhere in the floodplain. The proposed site plan shows the rear of the site as landscaped with no proposed building or structure in a similar fashion to what is currently on site.
(g) The minimum surface level of open car parking spaces or carports shall be as high as practical, and not below FPL1.	Not applicable

The Hills Shire Council DCP Requirement	Compliance Assessment
<p>(h) Garages or enclosed car parking must be protected from inundation by flood waters up to FPL2. Where 20 or more vehicles are potentially at risk, protection shall be provided to FPL3.</p>	<p>This requirement will be achieved as the site entry is from Brookhollow Ave which is much higher and flood free.</p>
<p>(i) Where the level of the driveway providing access between the road and parking space is lower than 0.3m below FPL2, the following condition must be satisfied - when the flood levels reach FPL2, the depth of inundation on the driveway shall not exceed:</p> <ul style="list-style-type: none"> <li>• the depth at the road; or</li> <li>• the depth at the car parking space.</li> </ul>	<p>Not applicable</p>
<p>(j) All service conduits located below FPL3 are to be made fully flood compatible and suitable for continuous underwater immersion. Conduits are to be self-draining if subject to flooding.</p>	<p>This requirement will be addressed at detailed design stage.</p>
<p>(k) Applicant to demonstrate that area is available to store goods above FPL3.</p>	<p>This requirement will be addressed at detailed design stage.</p>
<p>(l) No external storage of materials below FPL3 which may cause pollution or be potentially hazardous during any flood.</p>	<p>Not applicable.</p>
<p>(m) A Site Flood Emergency Response Plan is required when elements of the development, including vehicular and pedestrian access are below FPL3.</p> <p>The Site Flood Emergency Response Plan should relate to the landuse and site conditions in conjunction with flood behaviour up to FPL2 expected to be experienced at the site. The plan should consider the following specific actions:</p> <ul style="list-style-type: none"> <li>• Preparing for a flood;</li> <li>• Responding when a flood is likely;</li> <li>• Responding during a flood; and</li> <li>• Recovery after a flood.</li> </ul>	<p>A site specific flood risk management and emergency response plan will be prepared at detailed design stage.</p>

### CONSISTENCY WITH MINISTERIAL DIRECTION 4.3

The proposed development has been assessed against the requirements of Ministerial Direction 4.3 'Flood Prone Land' (2007) as summarised in Table 3. This demonstrates that all applicable flood

controls for the proposed development are addressed, and hence compliance with Ministerial Direction 4.3 is achieved.

**Table 2 Compliance with Ministerial Direction 4.3 ‘Flood Prone Land’ (2007) Controls**

	<b>Ministerial Direction 4.3 ‘Flood Prone Land’ (2007) Controls</b>	<b>Compliance Assessment</b>
4	A draft LEP shall include provisions that give effect to and are consistent with the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas).	The proposed development complies with the principles of the Flood Development Manual 2005 and meets this requirement.
5	A draft LEP shall not rezone land within the flood planning areas from Special Use, Special Purpose, Recreation, Rural or Environmental Protection Zones to a Residential, Business, Industrial, Special Use or Special Purpose Zone.	The proposal does not involve a rezoning application. This requirement is not applicable.
6	A draft LEP shall not contain provisions that apply to the flood planning areas which:	
6(a)	permit development in floodway areas,	This requirement is not applicable because the site is outside the floodplain associated with Strangers Creek.
6(b)	permit development that will result in significant flood impacts to other properties,	As previously stated in the report, the proposed development is unlikely to cause any adverse impacts because the site levels are above the Strangers Creek gully and away from the rear swale.
6(c)	permit a significant increase in the development of that land,	This requirement is not applicable.
6(d)	are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or	This requirement is not applicable.
6(e)	permit development to be carried out without development consent except for the purposes of agriculture (not including dams, drainage canals, levees, buildings or structures in floodways or high hazard areas), roads or exempt development.	This requirement is not applicable
7	A draft LEP must not impose flood related development controls above the residential flood	This requirement is not applicable because the proposal is for a

	Ministerial Direction 4.3 'Flood Prone Land' (2007) Controls	Compliance Assessment
	planning level for residential development on land, unless a council provides adequate justification for those controls to the satisfaction of the Director-General (or an officer of the Department nominated by the Director-General).	commercial development and not residential.
8	For the purposes of a draft LEP, a council must not determine a flood planning level that is inconsistent with the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas) unless a council provides adequate justification for the proposed departure from that Manual to the satisfaction of the Director-General (or an officer of the Department nominated by the Director-General).	The proposed development will be consistent with the requirements of the Floodplain Development Manual in terms of adopting the 1% AEP flood level, 0.5m freeboard, and other requirements that would be applicable.

## CONCLUSION & RECOMMENDATIONS

This flood statement has reviewed the site flood conditions and determined the following:

1. The proposed development is away from the low-lying gully of Strangers Creek that conveys flows from the upstream catchment;
2. A localised upstream catchment could potentially generate flows through the swale at the rear of the site;
3. Council does not have any flood levels for the site from the localised upstream catchment;
4. It is unlikely that the proposal will not adversely impact the local flood characteristics up to and including the 1% AEP flood event; and
5. The proposal is consistent with Council's DCP requirements and Ministerial Direction 4.3 'Flood Prone Land' controls.

The following is recommended to be prepared at DA stage:

1. A flood model for the localised overland flow from the local upstream catchment into the swale at the rear of the site; and
2. A draft flood risk management and emergency response plan that addresses evacuation from the site in extreme events such as the PMF event.

Should you require any further information, please do not hesitate to contact us.





Yours faithfully

**For & On Behalf of S&G Consultants Pty Ltd**

A handwritten signature in blue ink, appearing to read 'S. Haddad', is positioned above the printed name.

**Sam Haddad**

Director – Civil



## A1 Appendix 1

### *Site Survey*





## A2 Appendix 2

### *Proposed Site Layout Plan*



Figure 5

Site Layout Plan – Source PBD Architects