

H&H Consulting Engineers Pty Ltd (trading as Henry & Hymas)
ABN 77 091 243 355 ACN 091 243 355

Address
Level 5, 79 Victoria Avenue Chatswood New South Wales 2067

Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337

Email email@hhconsult.com.au
Web www.henryandhymas.com.au



henry&hymas



HYDROX NOMINEES PTY LTD

FLOOD IMPACT ASSESSMENT MASTERS HOME IMPROVEMENT DEVELOPMENT SCOTT ROAD, TAMWORTH, NSW

May 2013

**H & H CONSULTING ENGINEERS PTY LTD
LEVEL 5, 79 VICTORIA AVENUE
CHATSWOOD NSW 2067
Our Ref: 12469
Tel: (02) 9417 8400 Fax: (02) 9417 8337
E-mail: email@hhconsult.com.au**



TABLE OF CONTENTS

Page

1	INTRODUCTION	2
1.1	General	2
1.2	The Site and its context	2
2	CURRENT FLOOD EXTENTS AND LEVELS.....	3
3	SITE DEVELOPMENT EFFECT ON THE FLOOD EXTENTS/LEVELS.....	3
3.1	Flood Storage	4
3.2	Local Impact Level & Velocities.....	5
4	CONCLUSION	7
5	REFERENCES.....	8



2 CURRENT FLOOD EXTENTS AND LEVELS

The site lies on the western edge of a 2km wide floodplain. The horizontal extents of this flood plain span across Barnes Gully, Goonoo Goonoo Creek and the Peel River. The flood waters cover approximately half of the site in the 1 in 100 year flood event. From the previous flood study (conducted by Lyall & Associates – December 2006), the flood level in the proximity of the site is between RL 381.74 and RL 382.20. Figure 2 shows the extents of the flood in relation to the site.

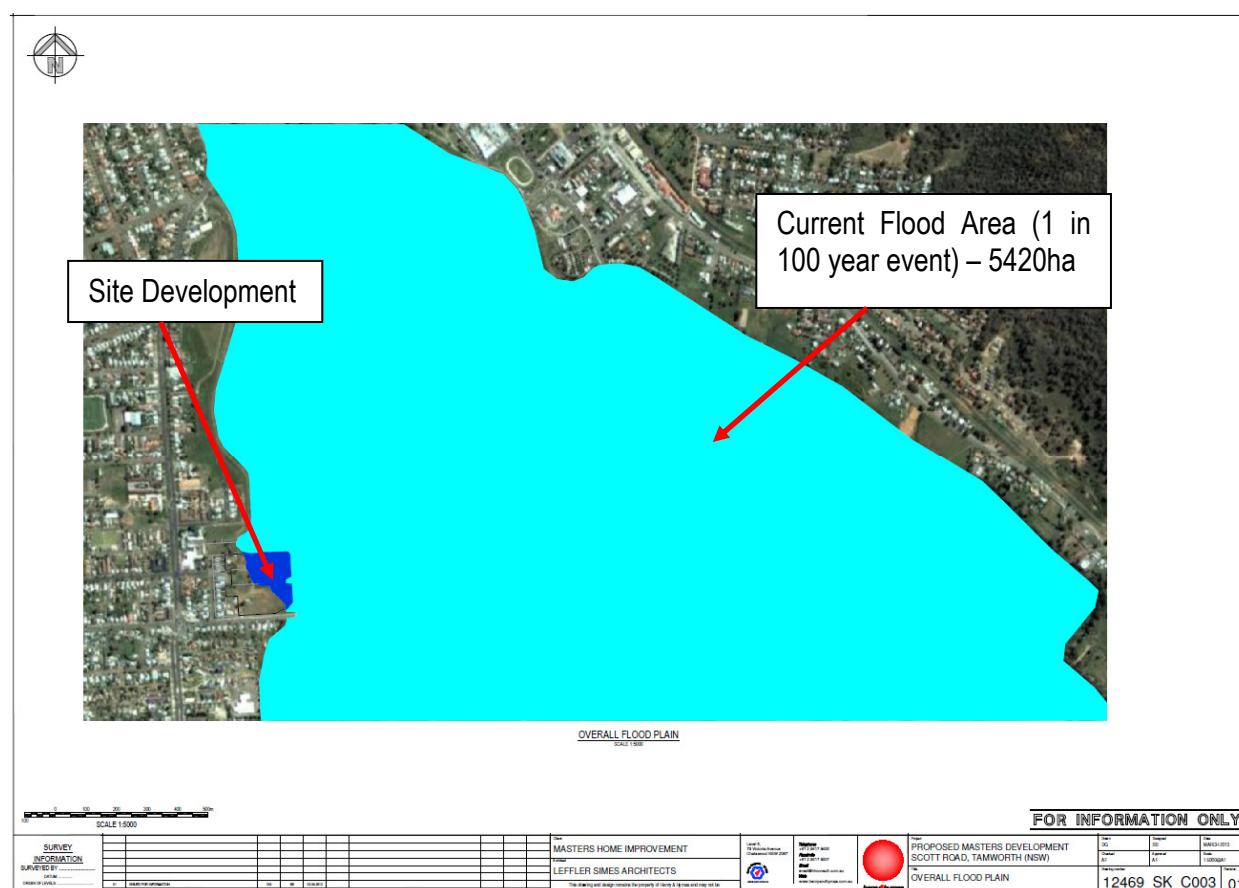


Figure 2: Site and Current Flood Extents

3 SITE DEVELOPMENT EFFECT ON THE FLOOD EXTENTS/LEVELS

The development of the land will encompass the following:

1. The site will be filled so that the floor level is at RL 382.70 which is at least 500mm above the 1 in 100 year flood level calculated by Lyall & Associates.
2. Barnes Gully will be diverted to the east within the site. Figure 3, below shows this minor creek diversion in detail.

The dark blue hatch on both Figure 1 and Figure 2 indicates the extent of area that is currently inundated by flood waters and will be removed from the flood plain through the development of the site.



henry&hymas

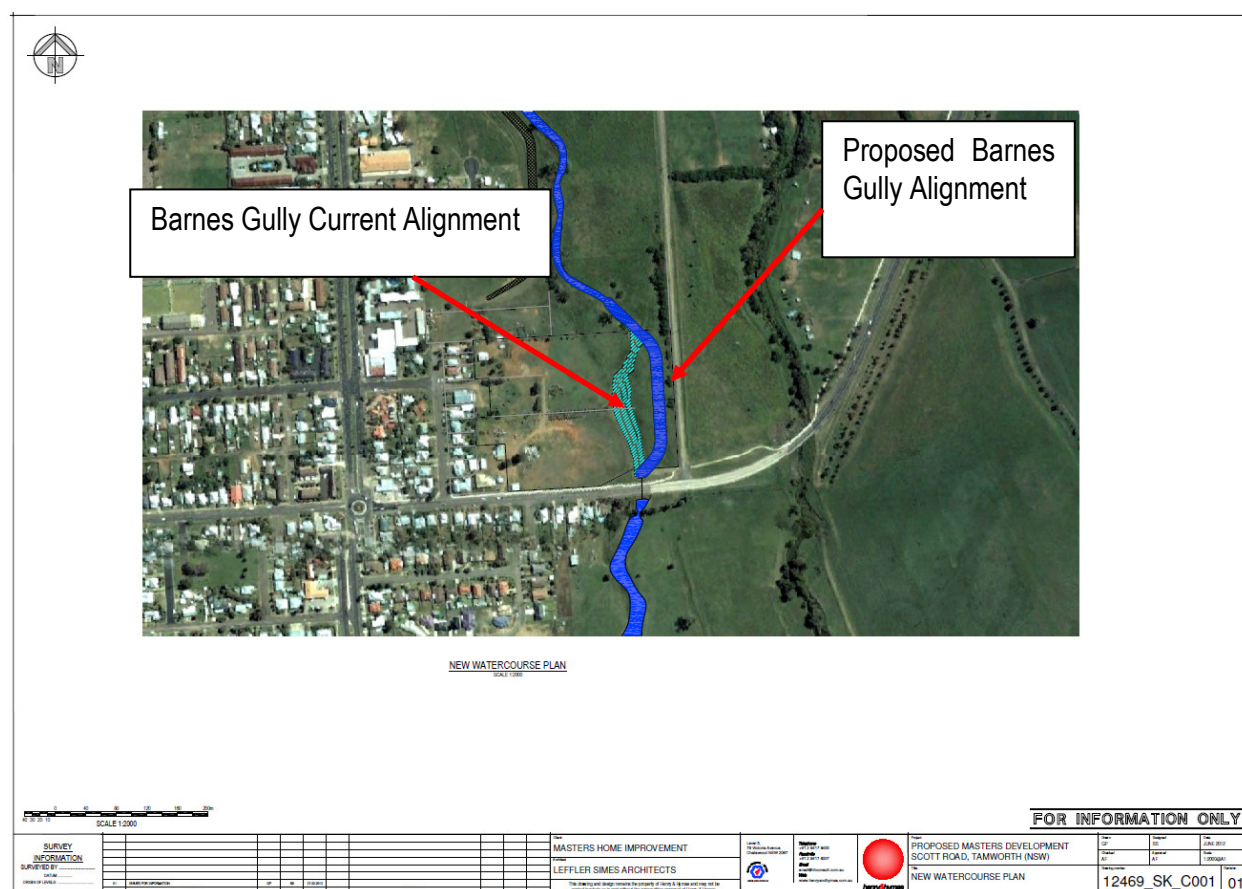


Figure 3: Creek Diversion through site.

The following analysis has been undertaken.

3.1 Flood Storage

The filling of the site will result in a change to the floodplain topography. The current floodplain of 5420ha holds an estimated 162,600,000 Kilotres of flood water storage. The development of the site will result in a loss of floodplain water storage related to the area and volume of the site filled below the 1 in 100 year flood plain level (refer Figure 1).

The floodplain storage loss represents a storage volume loss of less than 0.03% in a 1 in 100 year event. This represents a potential change in flood water levels of less than 1mm. Due to the location of the site on the edge of the floodplain (2km wide) and the size of the floodplain, the loss of the floodplain storage related to the development of the site is considered minimal and will not present a noticeable impact to the community during a 1 in 100 year flood event.

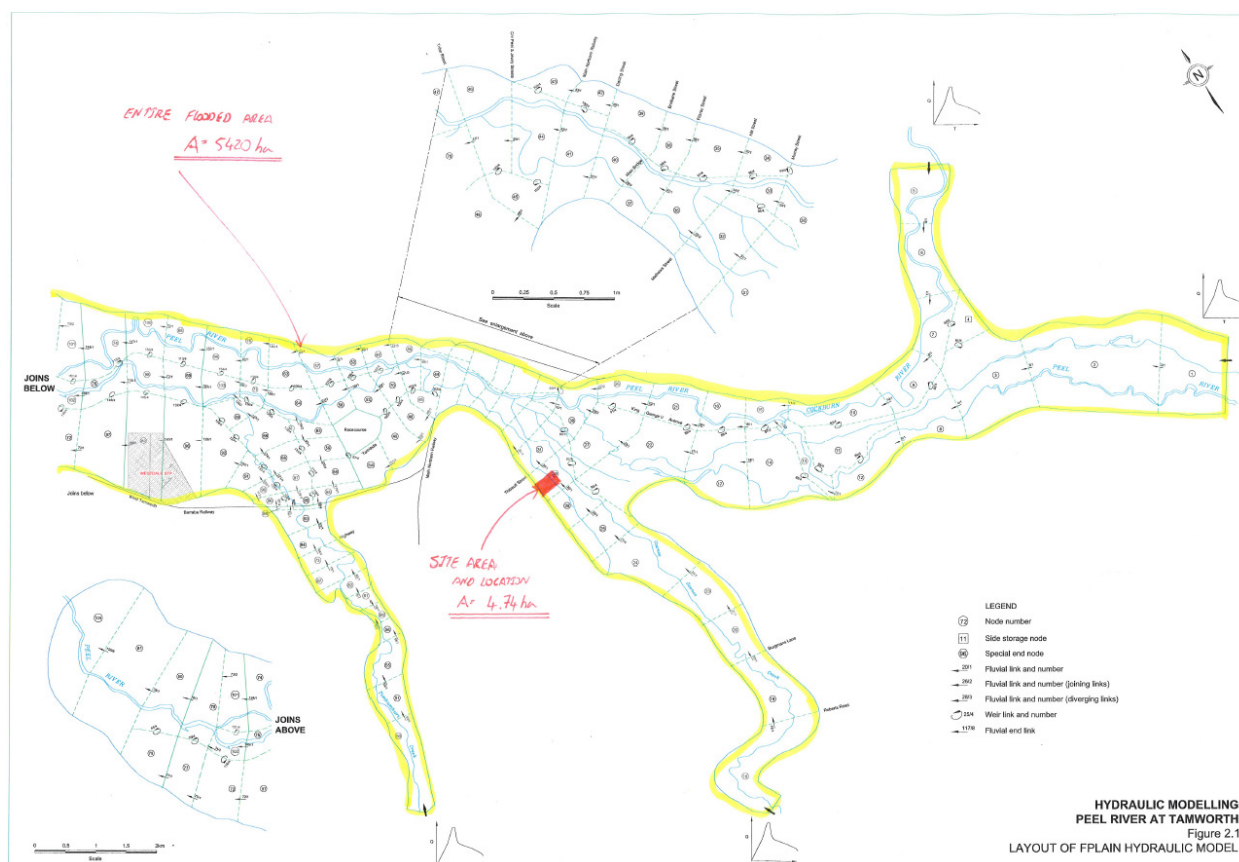


Figure 4: Site area in relation to overall flood area

3.2 Local Impact Level & Velocities

Basic flood plain/channel calculations were undertaken along the length of the development site to assess the impact of the proposed development on two important indicators. These being the velocity at which the flood water flows and also the level of the flood waters. Both these indicators were assessed along the length of the development site. The calculations showed that the velocity of water adjacent to the site increased by a minor amount (no more than 5%), and the flood levels increased by no more than 10mm locally. Based on these indicators, the localised impacts on surrounding properties both upstream and downstream of the site is negligible and would cause no detrimental impact.

Immediately downstream of the site is an existing levee. This levee is set well above the current flood level for the 1 in 100 year event. Hence, the calculated minor increase of 10mm locally will not impact on this levee and consequently, properties behind will continue to be protected.

Immediately upstream of the site is Scott Road. The levels of this road cause it to be an upstream boundary condition and essentially act as a weir. Flood waters “jump” at this location as a result of the weir effect. As agreed with Council, this Road will act as the defining water level for flood water upstream of it. From the modelling carried out, the flood waters downstream (adjacent) to the development site do not rise enough (10mm maximum) to have any impact on flood level upstream of Scott Road.

To highlight the minimal impact, figure 5 and table 1 below show how these key modelled flood indicators along the site have negligible difference from the existing state to the proposed, developed state.

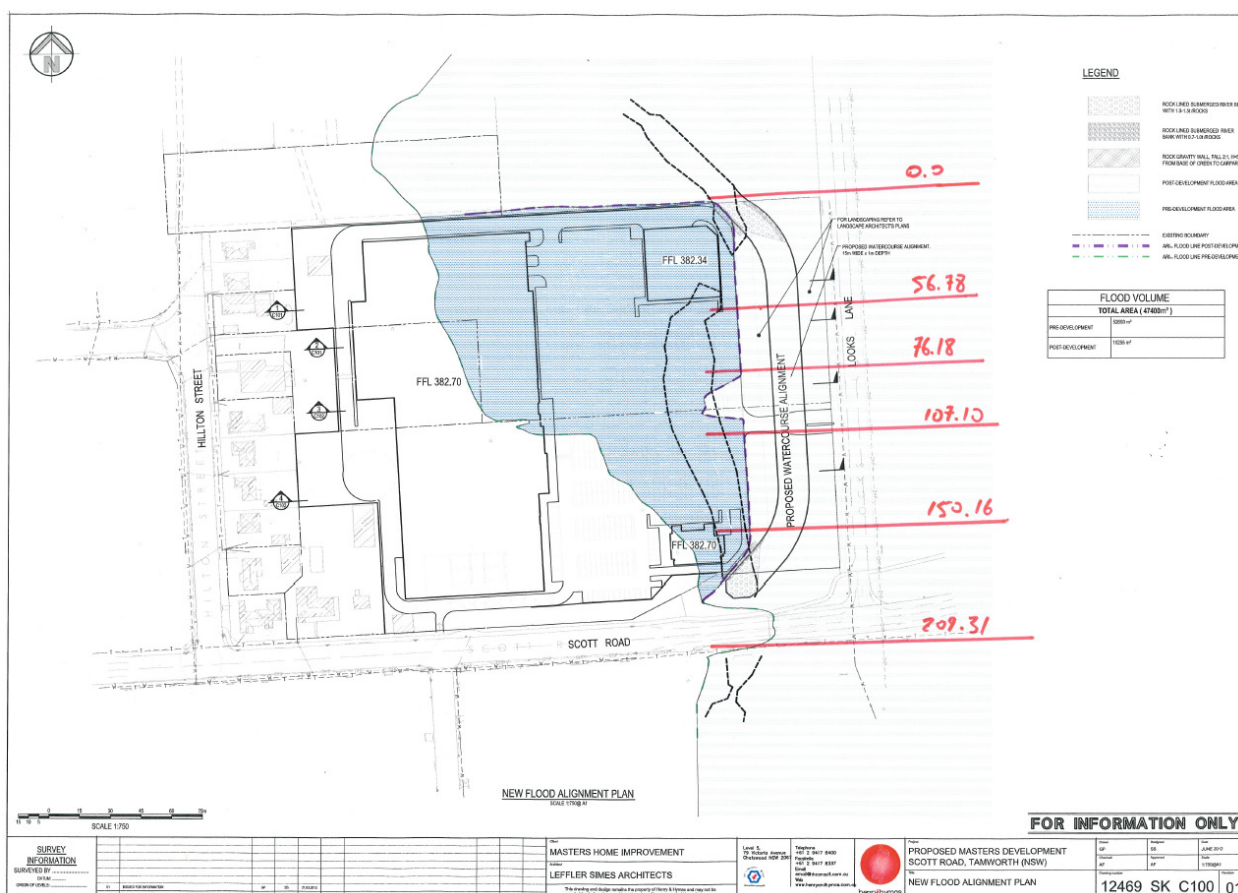


Figure 5: Flood modelling sections through the site

Comparison of Existing and Developed State Flood Characteristics				
Section	Existing Velocity(m/s)	Developed state Velocity (m/s)	Existing Flood Level (RL)	Developed State Flood Level (RL)
0.0	0.20	0.20	381.74	381.74
56.78	0.21	0.22	381.74	381.74
76.18	0.22	0.22	381.74	381.74
107.10	0.22	0.23	381.74	381.74
150.16	0.24	0.25	381.74	381.74
209.31	0.27	0.26	381.74	381.74

Table 1: Flood Characteristics Comparison



4 CONCLUSION

The analysis of the impacts of the development of the site is summarised as follows:

- There will be a loss of flood storage related to the area of the site removed from the floodplain, however due to the extent of the floodplain over some 5420ha and approximately 162,600,000m³ of storage, the flood impact will be insignificant.
- Flood levels and velocities along the site will minimally increase by less than 10mm and 5% respectively. The impact of these increases will have an insignificant impact to both the local upstream and downstream areas around the site

The impact of the development on the flood both from the wider floodplain and immediate surrounds is insignificant and would cause no noticeable effect or impact to any surrounding properties.



henry&hymas

5 REFERENCES

- Hydraulic Modelling at Peel River Tamworth – Report prepared by Lyall & Associates (December 2006)
- INSTITUTION OF ENGINEERS, AUSTRALIA - "Australian Rainfall and Runoff", 1987, 3rd Edition
- Tamworth Regional Development Control Plan (2010) – Tamworth Regional Council