



Construction Phase Flood Emergency Response Plan

for

16B Honeysuckle Drive, Newcastle

for Hansen Yuncken Pty Ltd

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		Date
Prepared by	RJ	02/06/2020
Checked by	LG	02/06/2020
Admin	HB	02/06/2020

1. Introduction

Northrop Consulting Engineers have been engaged by Hansen Yuncken Pty Ltd to prepare a Flood Emergency Response Sub-Plan (FERSP) for the construction phase of the proposed Building 1A at 16B Honeysuckle Drive, Newcastle (the subject site).

This report has been prepared to comply with Item B18 of the Development Consent SSD9510, dated 21/05/2020. The consent conditions require the following items to be addressed:

- Address the provisions of the *Floodplan Risk Management Guidelines* (EESG).
- Flood emergency responses for the construction phase of the development.
- Predicted Flood levels.
- Flood warning time and flood notification.
- Assembly points and evacuation routes.
- Evacuation and refuge protocols.
- Awareness training for employees and contractors.

1.1. Subject Site

The subject site is contained within Lot 1 in DP1163346 and is bounded on the east by existing lots, west by Worth Place, south by Wright Lane and north by Honeysuckle Drive. Building 1A forms the first stage of the University of Newcastle's Honeysuckle City Campus Development (HCCD). The subject site is located within an existing developed area consisting of a number of multi-story buildings used for residential and commercial purposes.

The subject site is located within the Cottage Creek catchment, which drains to the Throsby Basin in Newcastle Harbour via a concrete lined channel and a network of underground storm water pipes. A locality plan is presented below in **Figure 1**.

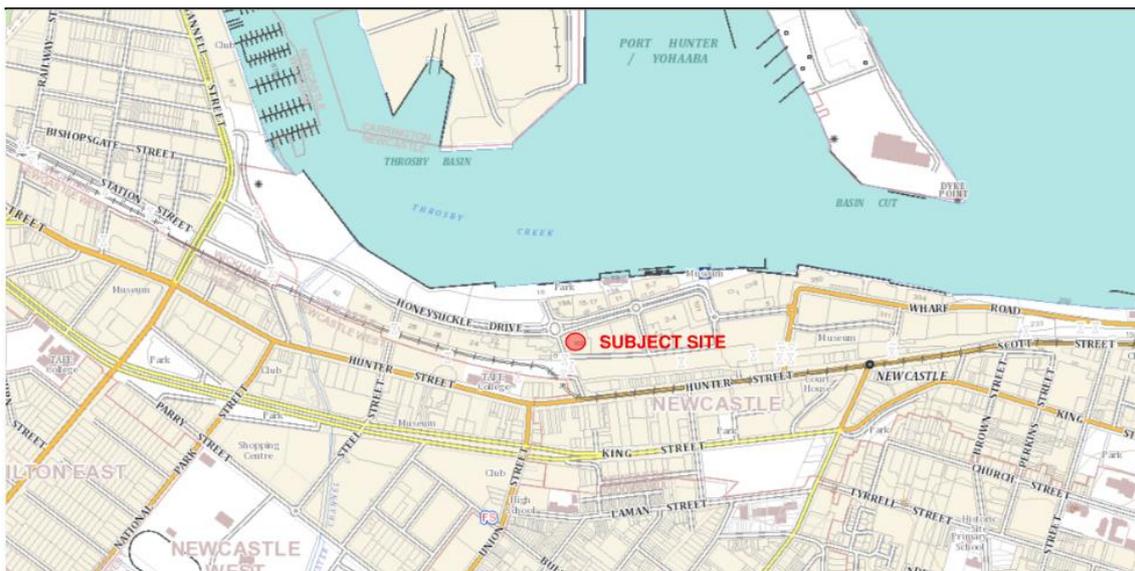


Figure 1 - Locality Plan (obtained from SIX Maps www.maps.six.nsw.gov.au)

Contained herein is a description of the methodology and data relied upon in the preparation of this plan, likely flood behaviour and recommended preparation and response measures.

2. Methodology and Available Data

This plan was developed based on flood information provided by The City of Newcastle on the 9th May 2018 in the form of Flood Information Certificate No. FL2018/00123, and extracts from the *Honeysuckle Redevelopment Area Flood Study (March 2018)*. These resources are included in Appendix B and likely flood behaviour is summarised in **Section 3**.

Flood warning time and a review of the Bureau of Meteorology (BoM) and State Emergency Service (SES) guidelines have been undertaken to report on the likely warning types described in **Section 4**.

Construction phase emergency responses are provided in Section 5.

Consideration has been given to the personnel most likely to be on-site and responsible for flood emergency response. This is outlined in **Section 6**.

Drawings showing the proposed development layout and floor levels have been provided by EJE Architecture. LIDAR survey captured by the NSW Government has also been reviewed to analyse proposed evacuation routes. Analysis of the site topography in combination with the likely flood behaviour has informed the assembly points, evacuation routes and on-site refuge points nominated in **Sections 7 and 8**.

Contact numbers for relevant emergency response agencies and the proposed local evacuation centre are noted in **Section 9**.

Finally, a review of the SES City of Newcastle DISPLAN, Flood Emergency Sub-Plan and Emergency Business Continuity Plan reference material has contributed to the recommend preparation and response actions outlined in **Sections 10 and 11**.

3. Flood Behaviour

3.1. Flood Source and Behaviour

Flooding of the subject site occurs from runoff from the upstream catchment. The catchment is presented below in **Figure 2**.

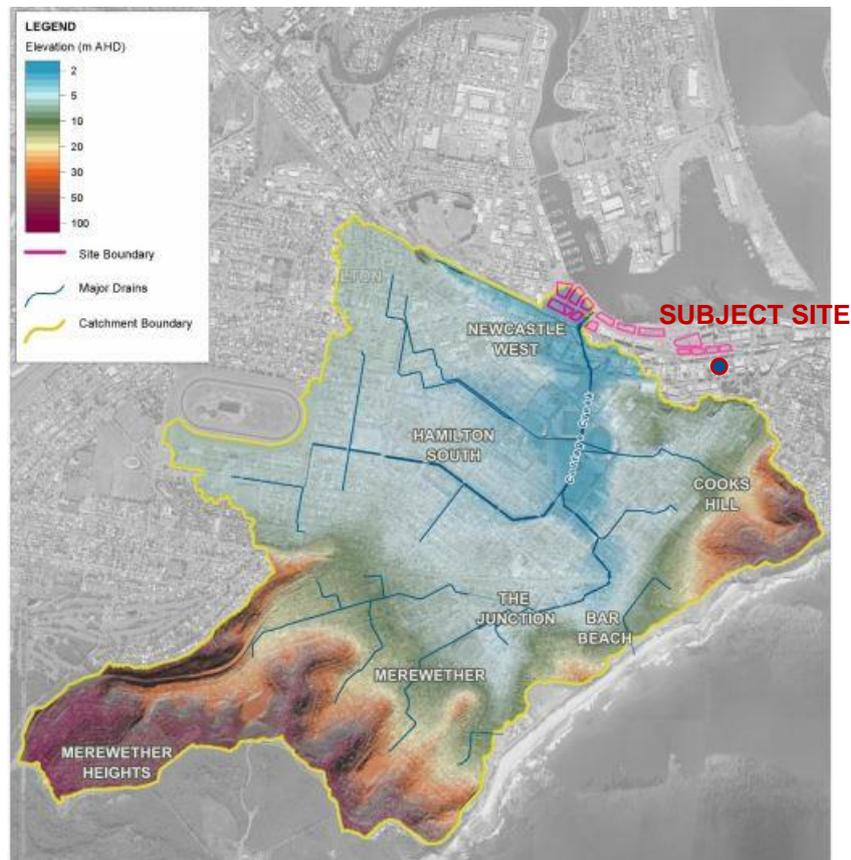


Figure 2 - Upstream catchments (Obtained from Honeysuckle Redevelopment area Flood Study (March 2018))

Floodwaters are conveyed past the subject site via Cottage Creek to the west, a floodway along Worth Place to the immediate west and an underground pipe network that all discharge into Newcastle Harbour. During 1% Annual Exceedance Probability (AEP, commonly referred to as the “100 year flood”) design events, the site area remains free of inundation with areas of floodway mostly restricted to Cottage Creek, Steel Street and Worth Place. The 1% AEP event flood depths and velocities are illustrated below in **Figure 3**. During the Probable Maximum Flood (PMF) event Worth Place will act as a major floodway to convey storm water, resulting in sections of the site being inundated, with the majority of this categorised as flood fringe. Effects of the PMF event with flood depths and velocities are illustrated below in **Figure 4**.

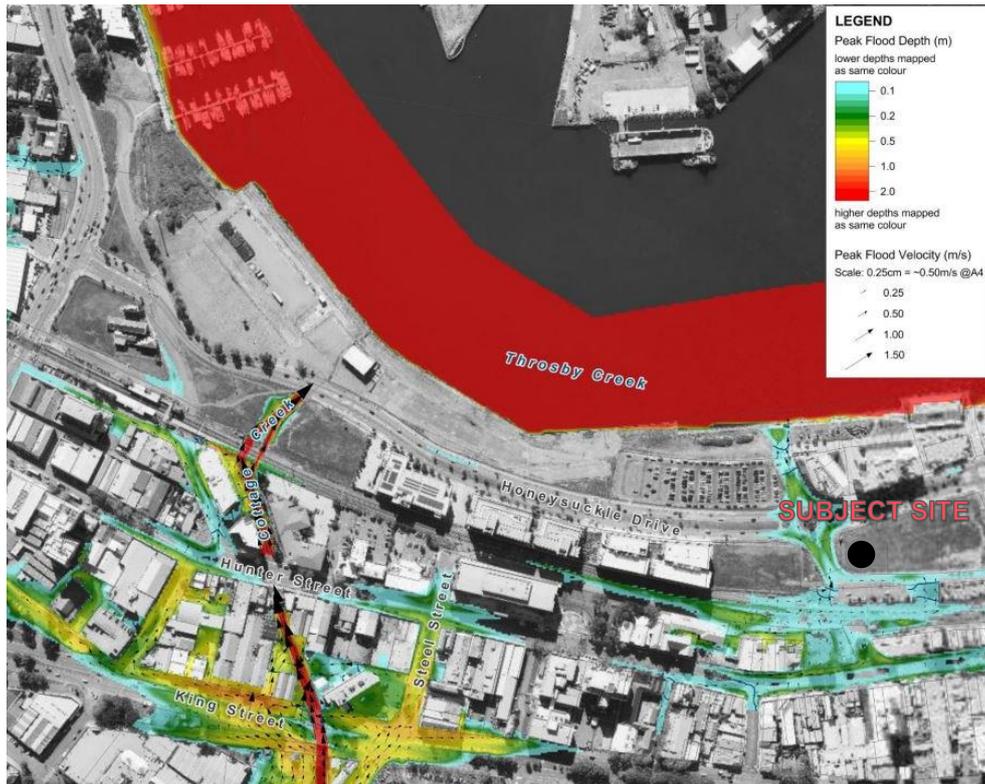


Figure 3 – 1% AEP Existing Flood Conditions.

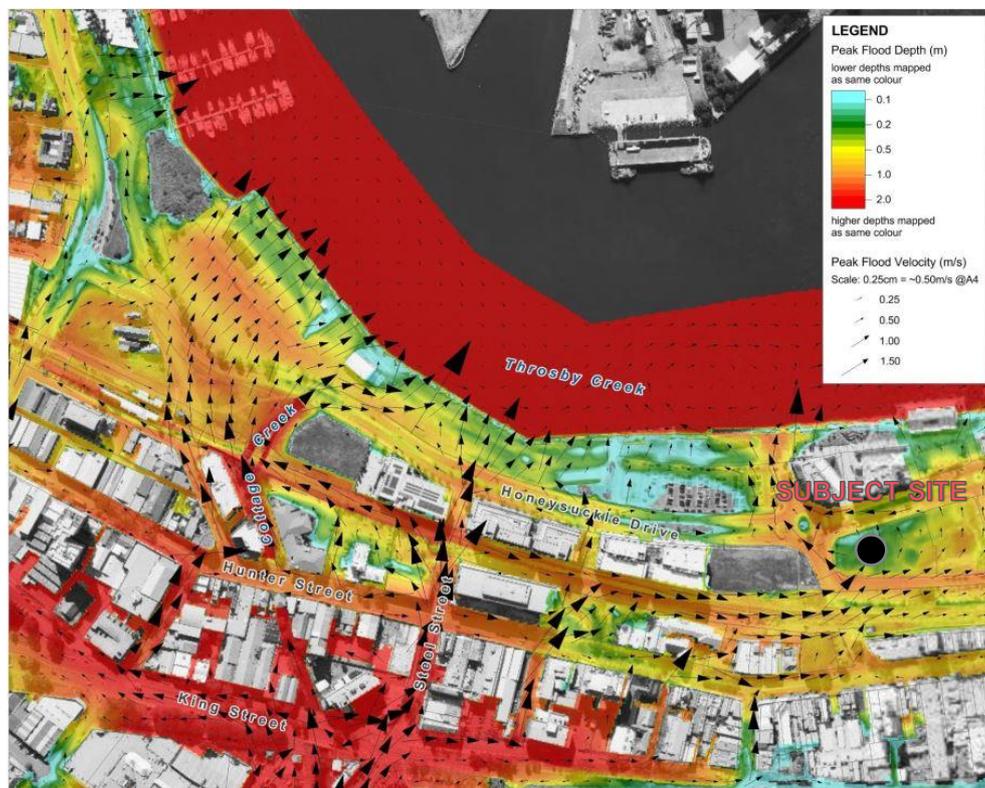


Figure 4 – PMF Existing Flood Conditions.

3.2. Predicted Flood Levels and Velocities

Peak flood levels and velocities provided in the Honeysuckle Redevelopment Area Flood Study (HRAFS) are summarised in Table 1 below. These are rare to extreme events which are not expected to occur every time it rains. The Flood Planning Level (FPL) is based upon the 1% AEP plus 0.4m freeboard resulting in a level of 2.8m AHD. Refer to **Figure 5** for FPL and PMF values proposed for the site.

Table 1 - Flood levels at Eastern End of Honeysuckle Drive, Newcastle

Event	Peak Flood Level (m AHD)	Velocity (m/s)
1% AEP	2.4	0.3
PMF	3.2	2.9

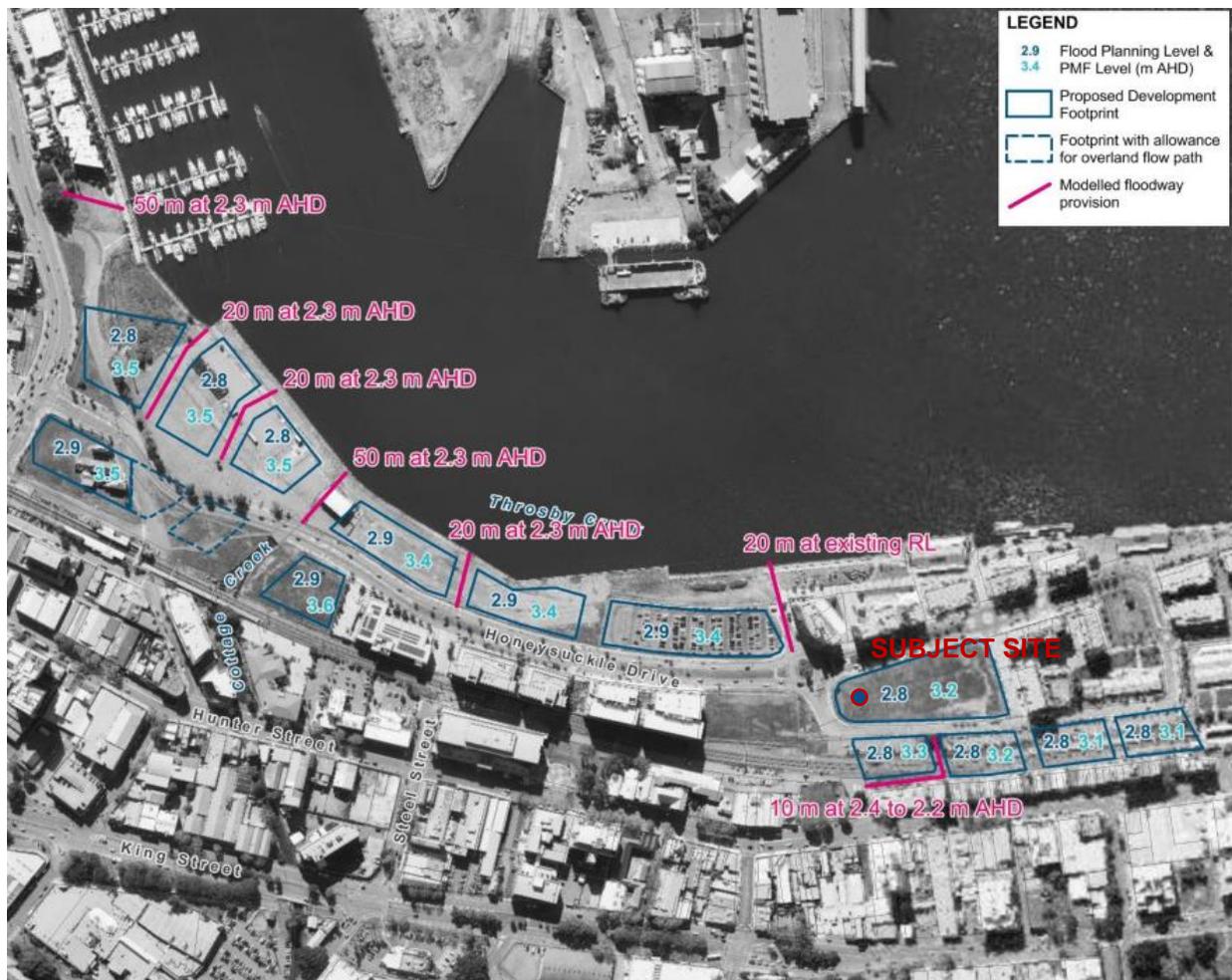


Figure 5 –Flood Planning Levels.

3.3. Flood Hazard Category

Flood hazard across the subject site has been assessed based on the latest Australian Rainfall and Runoff guidelines as presented in the below **Figure 6**. The hydraulic hazard category in the 1% AEP is H1, with velocity less than 1m/s. In the PMF, the hydraulic hazard category is H5 with the velocity predicted to be 2.9 m/s.

Do not Drive or Walk through Floodwater.
Remember, If It's Flooded, Forget It!

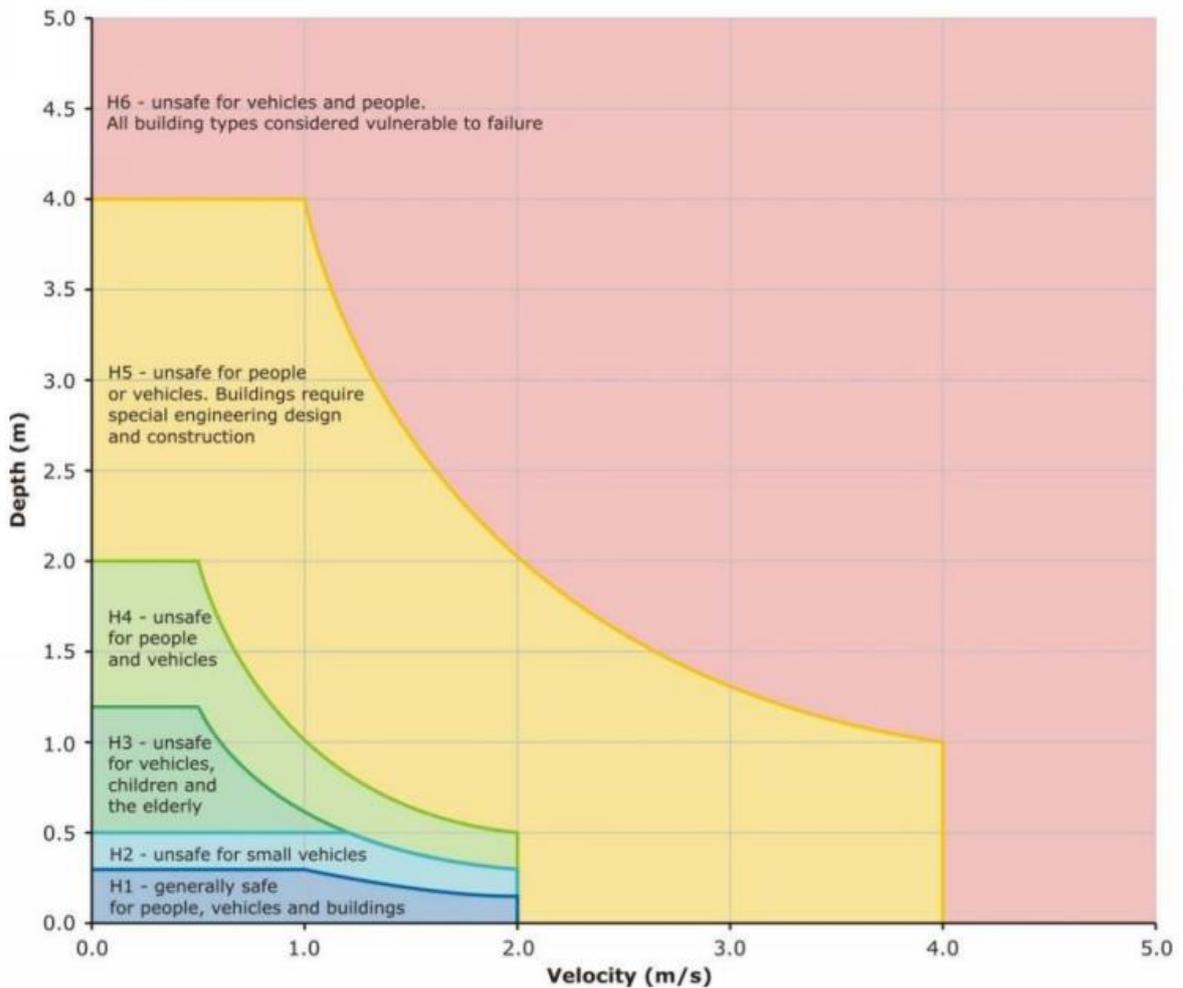


Figure 6 –Hydraulic Hazard as a Function of Depth and Velocity.

4. Flood Warning Time and Flood Notifications

4.1. Warning Time

The catchment area is largely developed, with limited storage capacity and as such the response time to extreme rainfall is expected to be short. Response times in the order of 3 hours from start of rainfall to peak flood level are expected in these events. The short response time will not allow for a coordinated response from SES and emergency services or evacuation once rainfall has commenced.

4.2. Flood Notifications and Evacuation Warnings

A network of rainfall gauge stations is maintained throughout the greater Newcastle, Hunter and Sydney regions. These provide information to the Bureau of Meteorology as one source of information informing their flood warning system.

The Bureau should issue one of five types of warnings through local radio, television and through their website <http://www.bom.gov.au>. In addition, the SES may issue a flood bulletin, evacuation warning or evacuation order.

The warning types are as follows:

4.3. Severe Weather Warning

Severe weather warnings are issued by the Bureau for potentially dangerous weather conditions. A description of the threat will be included in the warning along with the time for next issue. It is noted that a severe weather warning does not imply that flooding will eventuate. Warnings are generally updated every six hours, or as the event dictates.

This type of warning should be accompanied with predicted extreme rainfall depth as discussed in Section 10, as well as observed values from around the state.

4.4. Severe Thunderstorm Warning

A severe thunderstorm warning will be issued if there is strong evidence that a severe thunderstorm will develop, or if a severe thunderstorm is reported. Flash flooding may occur during severe thunderstorms. Warnings are generally updated every three hours or shorter as required.

4.5. Flood Alert/ Watch/ Advice

A flood alert/watch/advice will be issued if flood producing rain is expected. This provides an early warning that flooding may occur.

4.6. Generalised Flood Warning

A generalised flood warning is to be issued when flooding is expected to occur in a given area. Three hours warning time is expected from issue of warning to peak flood level as per the “Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.13” (Bureau of Meteorology, 2013).

This is the most likely warning type for the subject site should evacuation need to occur.

4.7. Minor/ Moderate/ Severe Flood Warning

A more detailed flood warning may be issued based on any additional information available. Three hours warning time is expected from issue of warning to peak flood level.

All warnings will be issued through the website, radio and television. Radio frequencies include ABC Newcastle (1233AM), 2HD (1143AM) Triple J (102.1FM), 2NUR (103.7FM), Hit106.9 (106.9FM), New FM (105.3FM).

All public and commercial television stations should broadcast warnings.

4.8. SES Flood Bulletins

The SES may issue a flood bulletin providing information of the likely flood consequences and recommended actions.

4.9. Evacuation Warning

The SES may issue an evacuation warning which allows time to prepare for evacuation.

4.10. Evacuation Order

The SES will issue an Evacuation Order if evacuation is required. If this occurs evacuation must be undertaken. Broadcast will be via radio/ TV, door knock, automated telephone message or SMS.

5. Construction Phase Emergency Response

Given the predicted short time frame to peak flood level from the start of a rainfall event, flood response protocols are to be maintained at all times and regularly reviewed during the construction phase of the development.

The limited refuge points available during the initial stages of the construction phase requires that an early warning system, site preparation for flood waters and evacuation of the site are the primary forms of response during a PMF event.

A chief flood warden is to be nominated onsite as to manage a flood response during the construction phase. Main responsibilities can be seen in Table 2, Section 6 of this report. Additional responsibilities and recommended tasks during the construction phase include:

- Construction activities should be cancelled in the event where flash flooding is predicted.
- Construction equipment is to be either stored above the PMF level (3.2m AHD), removed from site, or securely anchored in the event of predicted flash flooding to reduce likelihood of debris damage in the area.
- Construction equipment is to be removed from the flood zone at the end of each day in the event of flash flooding overnight.
- All stored chemicals on site are to be safely stored and/or removed from site in the event where flash flooding is predicted.

6. Flood Response Personnel

Summarised below in Table 2 are the site personnel, their location and responsibilities in managing flood response.

Table 2 – Flood Response Personnel

	Location	Responsibilities
Chief Flood Warden (Site Manager)	On-site	<ul style="list-style-type: none"> • Coordinate flood evacuation drills. • Monitor weather at 4pm daily for upcoming extreme rainfall events. • Decide when Evacuations are required and convey this to employees and contractors. • Liaison with SES or Emergency Services personnel if they attend site.
First Aid Officer	On-site	<ul style="list-style-type: none"> • Prepare and maintain Flood Emergency Kit. • Coordinate assistance for employees and contractors with mobility difficulties.
Deputy Flood Warden (nominated by Site Manager)	On-site	<ul style="list-style-type: none"> • Undertake Chief Flood Warden duties when Chief Warden unavailable.
Flood Wardens	On-site	<ul style="list-style-type: none"> • Assist Chief and Deputy Chief Flood Warden with evacuations.
Employees	On-site	<ul style="list-style-type: none"> • Maintain calm and direct contractors and visitors through evacuation or refuge process.

It is anticipated that the in-house site manager will be nominated as the role of Chief Flood Warden and First Aid Officer. It is expected there will also be a nominated Flood Warden and First Aid Officer to assist the Chief Flood Warden in emergency events.

7. Assembly Point and Evacuation Routes

7.1. Emergency Assembly Point

The Emergency Assembly Point for Flooding is the main contractors site office prior to evacuation or refuge within the structure above the ground floor.

7.2. Evacuation Refuge and Routes

The nominated point prior to the event beginning is Wests City located on the corner of King St and Union St, Newcastle. The evacuation route is shown below in Figure 7. Evacuation of the subject site should occur prior to the commencement of rainfall.

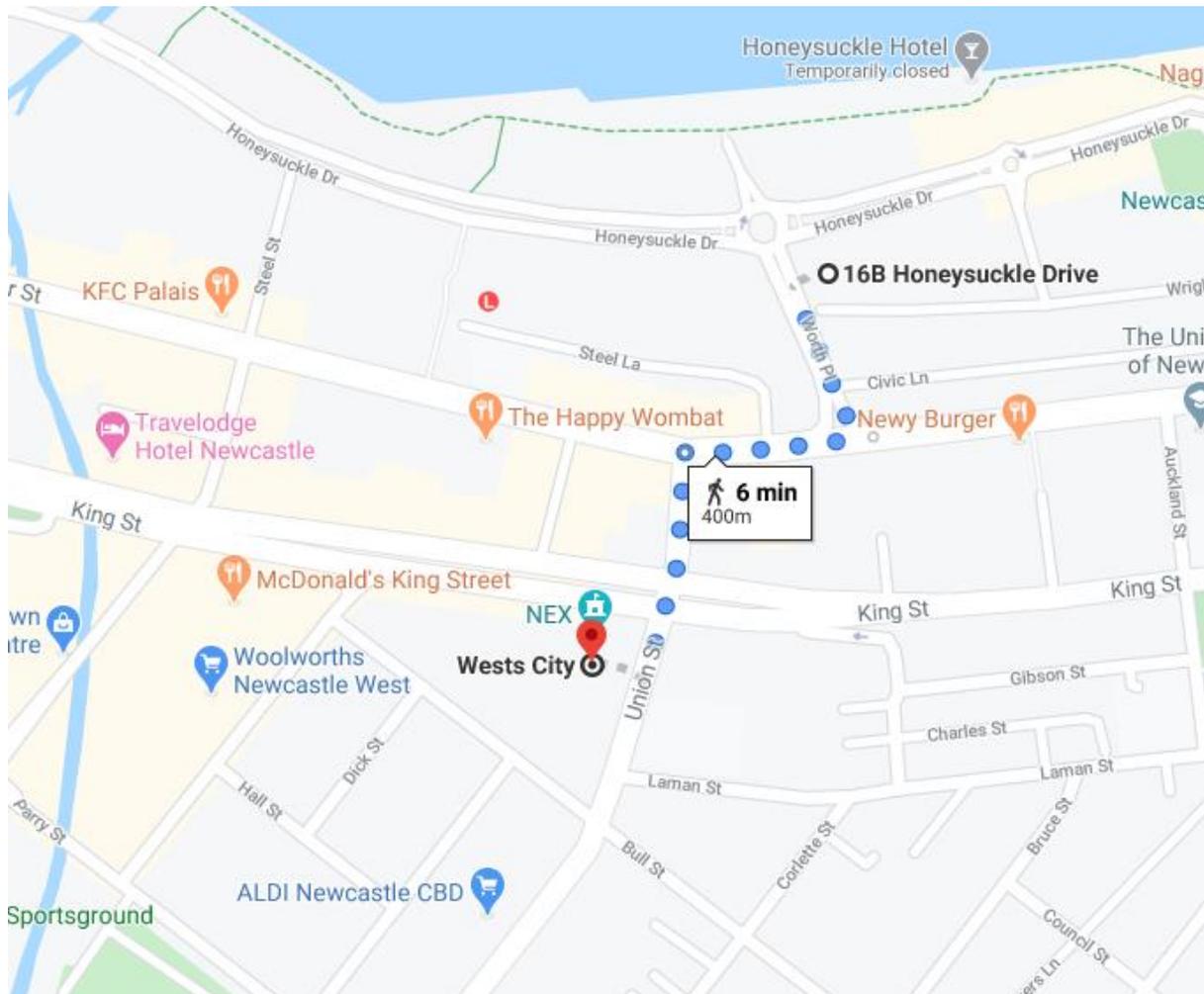


Figure 7 - Flood Emergency Evacuation Route.

In the event that rainfall has begun then contractors should evacuate to levels 1-3 if available and safe to do so. These locations have Floor levels which are above the PMF level and will provide a safe refuge until the PMF event has subsided.

8. Floor Levels and On-site Refuge

8.1. Construction staging

On-site refuge may be sought following the completion of level 1 if evacuation is not available, if safe to do so and if a structural engineer has certified the building will withstand flood forces. Prior to this floor being complete site evacuation should be undertaken as shown in Figure 7, or alternatively refuge sought in the surrounding completed buildings above the PMF event level.

8.2. Floor Levels

The floor level of the ground floor is **2.80m AHD** which is at the **Flood Planning Level** of **2.80m AHD**.

Level one and above is at **8.00m AHD** which is 4.80m above PMF level of **3.20m AHD**.

8.3. On-site Refuge

On-site refuge on Levels 1-3 is acceptable due to floor levels are above the PMF event. In the most extreme events up to the PMF, up to 400mm of water may enter the ground level. With an evacuation notice given levels 1-3 will accommodate the employees and contractors comfortably.

Should water levels rise above the floor levels at 2.80m AHD, occupants should use stairs to level 1 and above.

Safe refuge is available above the PMF. Structural certification is to be provided the building can withstand hydrostatic and flood impact loading.

Cancellation of services and evacuation to Wests City well before rainfall has commenced is the preferred option as it eliminates the risk and should be undertaken where possible.

9. Emergency Contact

For emergency assistance during flood events, please call the **SES** on **132 500**.

If you are in a life-threatening situation please call **Police, Fire or Ambulance** on **000**.

Once the decision has been made to evacuate call **Wests City** on **(02) 4926 6200** to ensure they are ready to accept the subject site population.

10. Flood Response Awareness Training

It is the responsibility of the employees that they prepare for a flood event. This will be achieved through; induction training, nomination of flood wardens, education of flood risks and behaviour, and the preparation and maintenance of a Floodsafe Emergency Kit.

The information presented above is a summary of the flood behaviour and considered key to understanding the risks associated with flooding. This should be displayed in conjunction with other emergency information (such as fire, etc.) throughout the site.

10.1. Evacuation Drills and Lessons

Evacuation drills are designed to increase flood awareness within the site. These drills are to be undertaken once per year to familiarise employees and contractors responding to a flood event.

This may also be an opportunity to educate employees and contractors on flood risk. Resources are available at <https://www.ses.nsw.gov.au/floodsafe/learn-more-about-floods/know-your-risk/>.

10.2. Flood Emergency Kit

Potential items for a flood emergency kit are outlined at: <https://www.ses.nsw.gov.au/floodsafe/prepare-your-home/emergency-kit/>, and reproduced below:

- A copy of the site emergency management plan.
- Portable radios with spare batteries.
- A torch with spare batteries.
- A first aid kit.
- Candles and waterproof matches.
- Waterproof bag for valuables.
- A copy of emergency numbers.

When leaving or evacuating add the following items:

- Sign in book for visitors and contractors.
- Drinking water, medicines and non-perishable food items.

The kit shall be the responsibility of the Chief Flood Warden and is to be kept in their possession. The Site Manager should also keep a kit containing a chemical register, air horn and hand-held loudspeaker in addition to the above listed items.

TRIGGER FOR REVIEW AND EDUCATION; Fortnightly checking of the emergency kit during construction, three monthly checking during operations to ensure all items are in suitable working order. Monthly evacuation drill and reminder of the flood risks during construction and six monthly for operation.

BY WHO; Chief Flood Warden and First Aid Officer

10.3. Monitoring of Weather Situation

It is the responsibility of the Chief Flood Warden to monitor the weather situation of be aware if a warning has been issued. This will be achieved through checking of local radio station and the Bureau of Meteorology website.

TRIGGER FOR MONITORING; Continuous, 4pm daily

BY WHO; Chief Flood Warden

11. Flood Response Actions

11.1. Evacuation Well in Advance of Rainfall

In order to minimise the risk to life of employees, visitors and contractors, it is recommended evacuation be taken any day there is a **Generalised Flood Warning** or **Severe Weather Warning** with nominated rainfall per **Table 3** below:

Table 3 - Rainfall triggers for cancellation

Rainfall Depth (mm)	Timescale
130mm	Over three hours
90mm	Over one hour
70mm	Over half an hour

In the event that 130mm is predicted over 3-hour period 24 hours prior, daily construction operations are advised to not commence.

The Chief Flood Warden is responsible reviewing the weather forecasts daily and notifying staff of the decision.

When a warning is received, and if time permits, consideration should also be given to:

- Blocking floor wastes and toilets.
- Securing objects that are likely to float and cause damage.
- Turning off mains power, water and gas.
- Relocating chemicals above the predicted water level.

Evacuation procedure generally as follows:

- Sound internal warning system.
- Chief Flood Warden to the Emergency Assembly Points.
- Employees to direct all visitors and contractors to the Emergency Assembly Points.
- Flood wardens clear all buildings.
- Make Sure refuge point is ready to accept evacuees, if not already done so.
- Leave signage undercover and notify Police/ SES that evacuation has occurred, to where, and any person remaining on site.
- Control evacuation from 16 Honeysuckle Drive to Wests City.
- Wait it out at the designated evacuation point.

TRIGGERS FOR EVACUATION;

- Generalised Flood Warning;
- Severe Weather Warning with forecast of **130mm or more** of rain over **3hours**, **90mm** of rain over **one hour**, or **70mm** of rain over **half an hour**.

RESPONSIBLE FOR THE DECISION; Chief Flood Warden

11.2. Refuge On-Site

No refuge during construction unless the structure has been signed off by a structural engineer to be able to withstand the flood forces. If it is safe to seek refuge on-site, then once rainfall has commenced refuge should be sought on Levels 1 and above.

- **Notify** site personnel over loudspeaker.
- **Direct** employees, contractors and visitors to seek refuge within the building.
- **Explain** that refuge is being sought on-site on Levels 1-3. Measures are in place to make this safe and to maintain calm;
- **Seek Refuge** and **Wait it Out**.

TRIGGERS FOR REFUGE ONSITE

- **Commencement of rainfall** in event when a **Severe Weather Warning** or **Generalised Flood Warning** is current.

RESPONSIBLE FOR THE DECISION; Chief Flood Warden

**Do not Drive or Walk through Floodwater.
Remember, If It's Flooded, Forget It!**

11.3. Emergency Services Attending Site

There is a possibility that emergency services such as Police, Fire, Ambulance or SES may attend site and assume control from the Chief Flood Warden. Once this has occurred, they are in control of the site and any response operations.

11.4. After a Flood

TRIGGERS FOR EMERGENCY SERVICES TAKE CONTROL;

- Police, Fire, Ambulance or SES attending site.

RESPONSIBLE FOR THE DECISION; Chief Flood Warden

Once a Final Flood Warning or SES “All Clear” has been received:

- A thorough check of services such as electricity, sewer, water and gas should be undertaken by qualified persons.
- Advice should be sought from a suitably qualified engineer as to the structural integrity of buildings prior to their use.
- Personal protective equipment should be worn during the clean-up and disinfectant used.

TRIGGER FOR RETURN; All clear given by SES or emergency services and building inspected by representatives appointed by the body corporate.

BY WHO; SES, Emergency services, Flood wardens

12. Revision of the Flood Emergency Management Plan

This plan should be revised if the flood study for Honeysuckle Drive or Cottage Creek is reviewed and prior to occupation of the building.

Revisions should be undertaken by a suitably qualified flood emergency response consultant.

13. Conclusion

The subject site is affected by flooding from the Cottage Creek catchment and ocean flooding. A review of the proposed development has been undertaken in conjunction with the expected flood behaviour and it was concluded that:

- Nominated flood wardens will provide adequate direction in flood emergencies.
- Cancellation of operations and/ or evacuation of site is preferable prior to extreme events to eliminate exposure to flood hazards.
- If rainfall has commenced for a predicted extreme event, refuge should be sought on-site if available. The building has a Ground level at the FPL and will be suitable for most events. In events up to the PMF, refuge should be sought on level 1 to 3 which is a minimum 3.80m above the PMF level.
- Through adoption of this plan, the proposed construction phase of the development adequately minimises the flood risks. The recommendations contained herein assist in managing the risk to life of the employees, contactors and visitors to the subject site.

14. References

SES	(2020)	<i>Flood Disaster Website</i> accessed from https://www.ses.nsw.gov.au/disaster-tabs-header/flood/ 29 May 2020
SES	(2020)	Emergency Business Continuity Plan accessed from http://www.sesemergencyplan.com.au/business/index.php 29 May 2020
Bureau of Meteorology	(2013)	Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.13 accessed from http://www.bom.gov.au/nsw/NSW_SLS_Current.pdf 29 May 2020
City of Newcastle/ SES	(2013)	City of Newcastle Local Flood Plan accessed from https://www.ses.nsw.gov.au/media/1714/plan-city-of-newcastle-fesp-june-2013-endorsed.pdf 29 May 2020
City of Newcastle	(2018)	Flood Certificate FL2018/00123
City of Newcastle	(2020)	Honeysuckle Redevelopment Area Flood Study March 2018 accessed from https://www.newcastle.nsw.gov.au/Newcastle/media/Documents/environment/Flooding/Honeysuckle-Redevelopment-Area-Flood-Study_March-2018.pdf 29 May 2020

Appendix A – Flood Response Study

Flood Response Study

When	What	By who
Prior to Flooding	Assemble Emergency Kit	Chief Flood Warden
	Check Kit every six months	First Aid Officer
	Coordinate Evacuation Drills yearly	Chief Flood Warden
	Monitor weather situation at 4pm every afternoon	Chief Flood Warden
Evacuation	Rainfall predicted to be greater than; 130mm or greater in a 3 hour period. 90mm in an hour. 70mm in half an hour.	Chief Flood Warden
	Make decision to Evacuate and Notify Police / SES	Chief Flood Warden
	Call ahead to West's City (02 49266200) to ensure evacuees can be facilitated.	Chief Flood Warden
	Notify site personnel Over Intercom and Chief Warden to Emergency Assembly Point	Chief Flood Warden
	Direct employees, contractors and visitors to Emergency Assembly Point	
	Staff Leave signage notifying any responders attending site that evacuation has been undertaken	Chief Flood Warden
	Evacuate on foot to West's City	Chief Flood Warden
On-site Refuge	Notify site personnel over loudspeaker and Chief Warden to Emergency Assembly Point	Chief Flood Warden
	Direct staff, contractors and visitors to Refuge Point.	Staff
	Wait it out at refuge point	All
	Maintain regular communication with contractors, staff and visitors.	Chief Flood Warden
Once Risk has Passed / After a Flood	Do not attempt to drive or walk through floodwaters.	All
	Check all services and structural stability of buildings.	Qualified persons
	Return to operation.	Chief warden

Key Personnel

Person	Organisation	Name	Number
Chief Flood Warden			
Deputy Flood Warden			
Flood Warden			
First Aid Officer			
SES		-	132 500
Police / Fire / Ambulance		-	000

Evacuation Routes



Appendix B – Flood Information

Flood Information Certificate

REQUEST FOR INFORMATION REGARDING COMPLYING DEVELOPMENT CRITERIA

09 May 2018

Northrop Consulting Engineers
Suite 4, Level 1, 2115 Pacific Highway
CHARLESTOWN NSW 2290



PO Box 489, Newcastle
NSW 2300 Australia
Phone: 4974 2000
Fax: 4974 2222
Email: mail@ncc.nsw.gov.au
www.newcastle.nsw.gov.au

Dear Sir/Madam

Flood Information Certificate No: FL2018/00123

Land: Lot 4 DP 1111305, Lot 1 DP 1163346
Lot 2 DP 1163346, Lot 3 DP 1163346
Lot 21 DP 1165985, Lot 2 DP 1226145

Property Address: 16B Honeysuckle Drive Newcastle NSW 2300
16A Honeysuckle Drive Newcastle NSW 2300
16 Honeysuckle Drive Newcastle NSW 2300
20B Wright Lane Newcastle NSW 2300
20A Wright Lane Newcastle NSW 2300

Thank you for your recent enquiry regarding flood behaviour at the above property. This letter confirms the property is located in a flood prone area.

The flood information comes from the Honeysuckle Redevelopment Area Flood Study prepared by BMT (Revision 8 dated 8/03/18). A copy of this flood study is available on Council's website. The flood information provided is generally for the proposed sites noted as Sites 11-15 on Figure 6-6 of the report (Honeysuckle Central & Sites 1 - 4) and based on the Context Plan submitted with your application

http://www.newcastle.nsw.gov.au/Newcastle/media/Documents/environment/Flooding/Honeysuckle-Redevelopment-Area-Flood-Study_March-2018.pdf

The pertinent features of the flood behaviour are estimated as follows:

Ocean Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "Defined Flood Level" in the Building Code of Australia)	2.3m AHD
Estimated Maximum Flow Velocity of floodwaters (in the "Defined Flood Event" as per the Building Code of Australia)	0.1m/s
Highest Property Hazard Category	P1
Estimated Probable Maximum Flood Level	3.4m AHD

Highest Life Hazard Category	L1
------------------------------	----

The above ocean flood level estimates include a sea level rise relative to 1990 mean sea levels of 90cm by 2100, as used in the Newcastle City-wide Floodplain Risk Management Study and Plan (June 2012).

Local Catchment Flooding

Is any part of the site affected by a floodway?	Yes (See Figure D-9) - Wright Lane is A Floodway
Is any part of the site affected by a flood storage area?	Yes (See Figure D-9)
Estimated 1% Annual Exceedance Probability event level: (equivalent to the “ <i>Defined Flood Level</i> ” in the Building Code of Australia)	2.43m AHD (Site 2)
Estimated Maximum Flow Velocity of floodwaters (in the “ <i>Defined Flood Event</i> ” as per the Building Code of Australia)	0.3m/s
Highest Property Hazard Category	P2
Estimated Probable Maximum Flood Level	3.31m AHD (Site 1)
Highest Life Hazard Category	L5 (at Honeysuckle Central)

Note: Flood data taken from Table 6-7 in the BMT *Honeysuckle Redevelopment Area Flood Study (Rev. 8 dated 8/03/18.)* Indicated Local Catchment Flooding Data is for the maximum for the overall site. For Individual sites, See Table 6-7.

The Newcastle Development Control Plan 2012 addresses the issues of flood management for new development. You can view the development control plan at www.newcastle.nsw.gov.au. In summary, the following requirements apply for all future development applications on the site.

Development in a floodway is not generally allowable due to likely redistribution of flood water.	Applicable ¹
Filling of a flood storage area by more than 20% is not generally allowable due to redistribution of flood water.	Applicable ¹
Minimum floor level for occupiable rooms in a new development on this site is: (equivalent to the “ <i>Flood Hazard Level</i> ” in the Building Code of Australia)	2.8m AHD
Is onsite flood refuge required?	Yes

¹ Note: Wright Lane is floodway and part storage - See Figure D-9.

Council holds no information concerning floor levels of existing structures on the site. Site levels and floor levels should be verified by survey based on the Australian Height Datum.

Complying Development Criteria

1.	Is the land identified as a Flood Control Lot?	Yes
2.	Is any part of the land identified as being:	
	a) a flood storage area, or	Yes
	b) a floodway area, or	Yes
	c) a flow path, or	Yes
	d) a high hazard area, or	Yes
	e) a high risk area	Yes

Based on the information contained within the above table the lot does not meet the "development standards for flood control lots", as specified within *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Please note that the information contained in this certificate may alter in the future. The applicant should at all times ensure the currency of this information.

Should you require any further clarification please contact Rajnesh Prakash on 4974 2137.

Yours faithfully

Rajnesh Prakash
SENIOR DEVELOPMENT OFFICER

