



Flood Risk Assessment Report, 7 Worrobyl St, North Balgowlah.

16 February 2014

Prepared by Anne McCusker, DA Angels, Phone 0412 360 350

1 Introduction

This Flood Risk Assessment report relates to a Development Application seeking Council's consent to build a secondary dwelling at 7 Worrobyl St, North Balgowlah.

This Statement:

- describes the site and its surrounding area,
- describes the nature of the proposed development, and
- Reports on the compliance with Clause 6.3 of the Warringah Local Environmental Plan 2011 and Section E11 of the Warringah Development Control Plan 2011.

This conclusion reached is that the proposal is acceptable with regard to all relevant planning control issues.

2 Compliance with Warringah Local Environmental Plan 2011 (LEP)

Clause 6.3 of Warringah LEP 2011 states...

(1) The objectives of this clause are as follows:

- (a) to minimise the flood risk to life and property associated with the use of land,*
- (b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,*
- (c) to avoid significant adverse impacts on flood behaviour and the environment.*

(2) This clause applies to land at or below the flood planning level.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:

- (a) is compatible with the flood hazard of the land, and*
- (b) is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and*
- (c) incorporates appropriate measures to manage risk to life from flood, and*
- (d) is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and*
- (e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.*

(4) A word or expression used in this clause has the same meaning as it has in the Floodplain Development Manual (ISBN: 0 7347 5476 0), published in 2005 by the NSW Government, unless it is otherwise defined in this clause.



(5) In this clause flood planning level means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.

The Flood Planning Level for this land, as confirmed with Warringah Council Floodplains Management Officer is 42.7 m AHD at the rear of the property. See Attachment (A).

The secondary dwelling has a Finished Floor Level of 45.7 m AHD, which is 3 meters above the Flood Planning Level. The secondary dwelling is 13.5 meters from the rear boundary, which is approximately 11 meters from any flood overland flow, as shown on the attached excerpt from the Warringah Council, Medium Risk Flood Planning Precinct map for this location. The site analysis plan is attached as Attachment (B).

This complies with the requirements of Warringah Local Environmental Plan 2011

3 Compliance with Section E11 of the Warringah Development Control Plan 2011

The objectives of clause E11 of the Warringah Development Control Plan 2011 are as follows...

- To ensure the development is compatible with the flow regime of the waterway.*
- To ensure that existing development is not adversely affected through increased flood damage and / or flood hazard as a result of new development.*
- To provide for the safety of people and property.*
- To provide a mechanism to control development on flood prone land.*
- To ensure a sustainable and holistic catchment wide approach is taken to development on flood prone land*

Section E11 of the Warringah Development Control Plan 2011, Flood Prone Land, sets up a Matrix Table of Requirements. The subject development application is for a secondary dwelling, so is considered under the matrix requirements for New Residential Accommodation.

Requirements

- 1. Proposed development must comply with the relevant requirements in the following Matrix Table and the Matrix Table Requirements.*
- 2. There shall be sufficient openings in any proposed fence to allow the movement of floodwaters through the fence. A report prepared by a suitably qualified person is required to be submitted with the application certifying that the opening sizes in the proposed fence(s) for the specific property will not impede the anticipated flows.*



	<i>Land Use</i>		<i>New Residential Accommodation</i>
	<i>Matrix</i>		<i>Clauses to be answered</i>
<i>A</i>	<i>Floor Levels</i>		<i>1, 4, 7</i>
<i>B</i>	<i>Building Components</i>		<i>1</i>
<i>C</i>	<i>Structural Soundness</i>		<i>1</i>
<i>D</i>	<i>Impact of Development</i>		<i>1</i>
<i>E</i>	<i>Evacuation</i>		<i>1, 3</i>
<i>F</i>	<i>Management & Design</i>		<i>2</i>
<i>G</i>	<i>Car Storage</i>		<i>1, 3, 4, 5</i>

These requirements are answered as follows.....

Matrix Table Requirements

A - Floor Levels

- 1. Floor levels are to be equal to or higher than the Flood Planning Level*
- 4. Floor levels of balconies are to be set at a minimum of the FPL.*
- 7. No net loss of flood storage is to occur. Compensation works may be permitted.*

The Flood Planning Level is 42.7 m AHD, and the Finished Floor Level of the proposed secondary Dwelling is 45.7m AHD, 3 meters above the Flood Planning Level. The position of the secondary dwelling is 11 m distance from the possible flood path.

B - Building Components and Method

All structures to have flood compatible building components and/or withstand the hydraulic forces of 100 year velocities, up to the FPL.

The position of the secondary dwelling is approximately 11 m distance from the flood path.

C -Structural Soundness

- 1.A Flood Risk Assessment from a suitably qualified person is required to certify that any structure can withstand the forces of floodwater, debris and buoyancy up to the FPL*



The Flood Planning Level is 42.7 m AHD, and the Finished Floor Level of the proposed secondary Dwelling is 45.7m AHD, 3 meters above the Flood Planning Level. The position of the secondary dwelling is approximately 11 m distance from the possible flood path.

D - Impact of Development

A Flood Risk Assessment from a suitably qualified person is required to certify that the development will not increase flooding or negatively impact on the velocities of the flood waters upstream or downstream in a 100 year flood event.

The Flood Planning Level is 42.7 m AHD, and the Finished Floor Level of the proposed secondary Dwelling is 45.7m AHD, which is 3 meters above the Flood Planning Level. The position of the secondary dwelling is approximately 11 m distance from the possible flood path.

E -Evacuation

- 1. All new dwellings should contain an appropriate area to shelter in place above the PMF. Flood compatible materials should be used in the building materials up to the PMF.*
- 3. Existing and proposed developments shall be required to produce and maintain a Flood Emergency and Evacuation Plan that demonstrates that any occupants will be able to safely shelter in place in a PMF or have reliable access for pedestrians to evacuate safely above the PMF.*

The position of the secondary dwelling is approximately 11 m distance from the possible flood path. All construction materials are above the 42.7 m Flood Planning Level. There is easy pedestrian access to Worrobil St.

F - Management and Design

- 2. The applicant must demonstrate that area is available to store goods (goods that may cause pollution or are potentially hazardous) above the FPL.*

The Flood Planning Level is 42.7 m AHD, and the Finished Floor Level of the proposed secondary Dwelling is 45.7m AHD, 3 meters above the Flood Planning Level. The position of the secondary dwelling is approximately 11 m distance from the possible flood path. There is ample area to store goods above the Flood Plain Level.

G - Car Storage

- 1. Car park floor levels (including stand alone garages, multi-storey and under building open areas) to be set at the 100 year flood level. The installation of movement devices may be required for protection against the movement of vehicles.*
- 3. Where the garage is connected to the house, the garage floor level must be set at or above the 100 year flood level. The entrance from the garage into the dwelling must be set at the FPL. The height of the garage ceiling is to allow room for potential future raising of the floor level to the FPL.*
- 4. The basement car park area must have a ramp set with a crest at the FPL to prevent floodwaters entering the car park. All potential water entry points are to be set at or above the FPL.*



No car parking provisions are included in this development application.

The DDCP also has a requirement that...

2. There shall be sufficient openings in any proposed fence to allow the movement of floodwaters through the fence. A report prepared by a suitably qualified person is required to be submitted with the application certifying that the opening sizes in the proposed fence(s) for the specific property will not impede the anticipated flows.

No new fencing is proposed.

4 Compliance with Warringah Council's Protection of Waterway and Riparian Lands Policy

As discussed with Warringah Council Officers, please find attached a map showing 7 Worrobyl St and the location of the Waterways and Riparian lands layer. See Attachment (C).

Council's Protection of Waterway and Riparian Lands Policy states

"Where development is proposed within waterways and riparian land, a Waterway Impact Statement (WIS) shall be submitted with the development application to enable Council to assess how the application meets the policy objectives, and identify potential impacts."

From attachment (C), it appears that the proposed development of a granny flat 13.5m from the southern boundary is outside of waterway and riparian land as shown by the attached map, and a WIS will not be required.

5 Conclusion

The proposal seeks Council's consent to a Development Application seeking Council's consent to build a secondary dwelling at 7 Worrobyl St, North Balgowlah.

The proposal satisfies the relevant heads objectives and controls in the Warringah LEP 2011, the Warringah DCP 2011 and the Warringah Council's Protection of Waterway and Riparian Lands Policy.

Accordingly, the Application should be recommended for approval.

Anne McCusker B.E. (Civil), BL 29490
DA Angels

Attachments.

- (A) Flood Planning Level map and level as supplied by Warringah Council.
- (B) Site analysis drawing of proposed secondary dwelling with contours.
- (C) Extent of Riparian Zone as supplied by Warringah Council.



Legend

2m Contours

Flood Planning Level

Riparian Zone 2004



Image © 2014 Sinclair Knight Merz

Scale 1:400

Date Printed 16/06/2014

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to
me

Hi Mal,

The property at 7 Worrobil St, North Balgowlah is subject to flood related development controls, as detailed in Clause 6.3 of the Warringah Local Environmental Plan 2011 (LEP) and Section E11 of the Warringah Development Control Plan (DCP). Both of the plans are available to view on the Warringah Council website. A Flood Risk Assessment report would be required as part of any Development Application (DA) for this property, and it should address all conditions for the Medium Risk Flood Planning category as per Section E11 of the DCP.

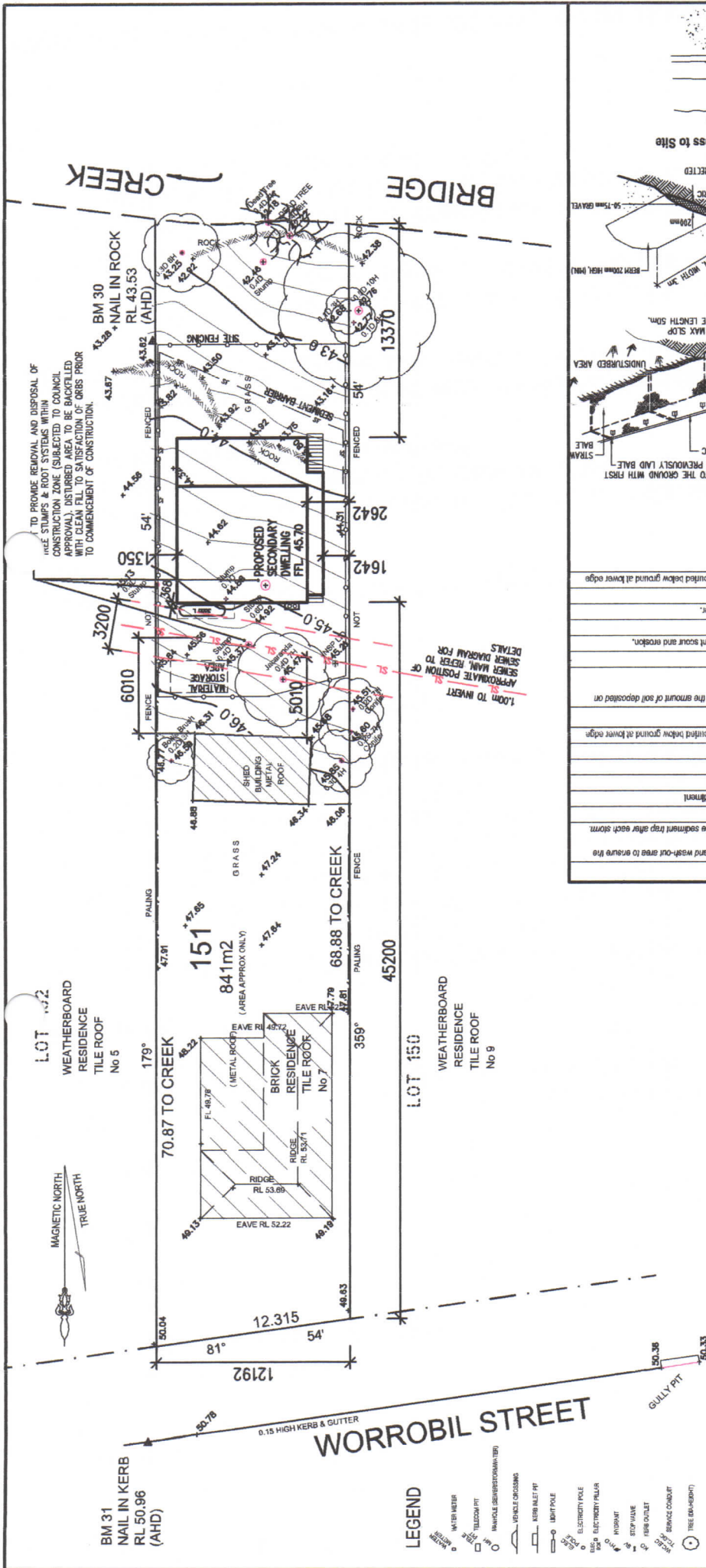
The Flood Planning Level (FPL) at 7 Worrobil St, North Balgowlah is 42.7m AHD, and affects the rear of the property. This is the minimum level allowed for floor levels in new habitable rooms.

Please feel free to contact me if you have any further queries on flooding, or the planning counter on 9942 2111 for general planning enquiries.

Kind Regards,
Valerie

Valerie Tulk | Floodplain Management Officer | Warringah Council | Mon, Tues, Fri
☎ph: 02 9942 2915 | 📠fax: 02 9942 2691 | ✉email: tulkv@warringah.nsw.gov.au





ANY RETAINING WALLS, IF REQUIRED, ARE BY OWNER
UNLESS SPECIFICALLY INCLUDED IN TENDER PRICE

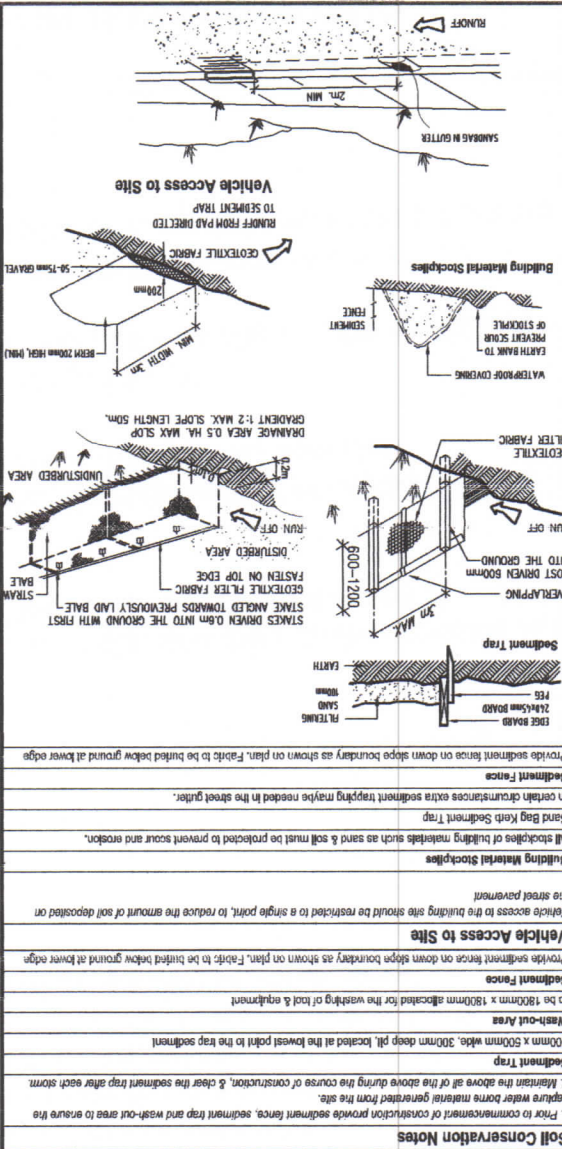
DRIVEWAY AND FOOT PATHS BY OWNER

SEWERAGE CONNECTION TO THE REQUIREMENT OF LOCAL
AUTHORITY

STORM WATER DISPOSAL TO ENGINEER DETAILS TO COMPLY
WITH LOCAL COUNCIL AUTHORITY

FINAL LOCATION AND HEIGHTS OF DROP EDGE BEAM; TO BE
DETERMINED ON SITE.

NO ALLOWANCE FOR ROCK EXCAVATION.
ADDITIONAL COST BY OWNER



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