

ATTACHMENT J

Flood and Stormwater Study

27 November 2009

GSA Planning
95 Paddington Street
Paddington
Sydney 2021
Attention: Shaun Hehir

Dear Sir,

RE: GLEBE AFFORDABLE HOUSING – PRELIMINARY FLOOD ADVICE

The following information is a preliminary assessment of flood issues at the site. It is in accordance with the principles with the NSW Floodplain Development Manual. Please find attached the following information

- Site Location and Catchment Plan (08s144C MP202)
- Proposed lot layout
- 100 year ARI flood extents (Bewsher Consulting, October 2008)
- Existing drainage system (08s144C MP104)

Site Location

The site is located between Cowper Street and Bay Street and can be seen at HT Dwg MP202. The site currently comprises residential properties with Elger Street and Stirling Street providing local access. The site is elevated above Bay Street and there is a topographical ridgeline that divides the site between Blackwattle Bay and Cowper Street Catchments.

It is proposed the site be redeveloped to provide affordable a housing, the current layout can be seen at Figure 2.

Blackwattle Bay Catchment

Bewsher Associates has undertaken a stormwater analysis of this catchment. A ridgeline runs north south through the site. The catchment to the east of the ridgeline falls toward Bay Street which is within the Blackwattle Bay catchment.

The 100 year ARI flood extent (100% blocked) for Blackwattle Bay is shown at Figure A4. The 100 year ARI flood levels at Bay Street are shown to be in the region of 4.0 – 4.5mAHD. The site is shown to be above the 100 year ARI flood level, however residential property is adjacent to the limits of the flood envelope.

Cowper Street Catchment



The west side of the site falls towards Cowper Street.

HT Dwg MP202 is marked to show an upstream catchment of approximately 4 hectares. Overland flow from the upstream catchment will flow via the street system as shown and flows from the site will be to Cowper Street. Flow within Cowper Street is contained within the road reserve, contours indicate that flow will continue down Cowper Street to Wentworth Park Road or via the connecting roads to Mitchell Street at the east.

There are formal drainage lines with pit entries at Wentworth Park Road and Mitchell Street. HT dwg MP104 shows the existing drainage layout.

There is no overland flow path from the upstream catchment through the site.

Preliminary calculations (Rational Method) indicate that the existing 100 year ARI flow from the upstream catchment is in the order of $2.1\text{m}^3/\text{s}$. Cowper Street has a significant grade of 5% (estimated from 1:10000 mapping).

A cross section of Cowper Street obtained from survey shows that Cowper Street falls away from the site. In the event of a 1 in 100 year ARI storm event upstream flow would be channelled to the left hand gutter (downstream) and pavement before continuing downstream. Flows up to the 100 year ARI will be contained within Cowper Street.

Freeboard

Freeboard is stated by the City of Sydney Council to be 500mm above the 100 year ARI flood level habitable floor levels. The flood planning level is therefore the 100 year ARI flood level + 500mm freeboard. This is in accordance with the NSW Floodplain Development Manual.

Conclusions

The section of the site within the Blackwattle Bay catchment is elevated above 100 year ARI flood level identified by Bewsher Associates (2008) and is not defined as flood prone land by the NSW Floodplain Development Manual. However, site levels in the vicinity will be dictated to by the 100 year ARI flood level in Bay Street.

Flows from the Cowper Street catchment are not expected to be significant during a 100 year ARI event. The site is elevated above Cowper Street and is not expected to be impacted by overland flow flood levels.

The site is not impacted by overland flow paths from the upstream catchment.

Yours faithfully

HUGHES TRUEMAN

PHILLIP J MCBRIDE

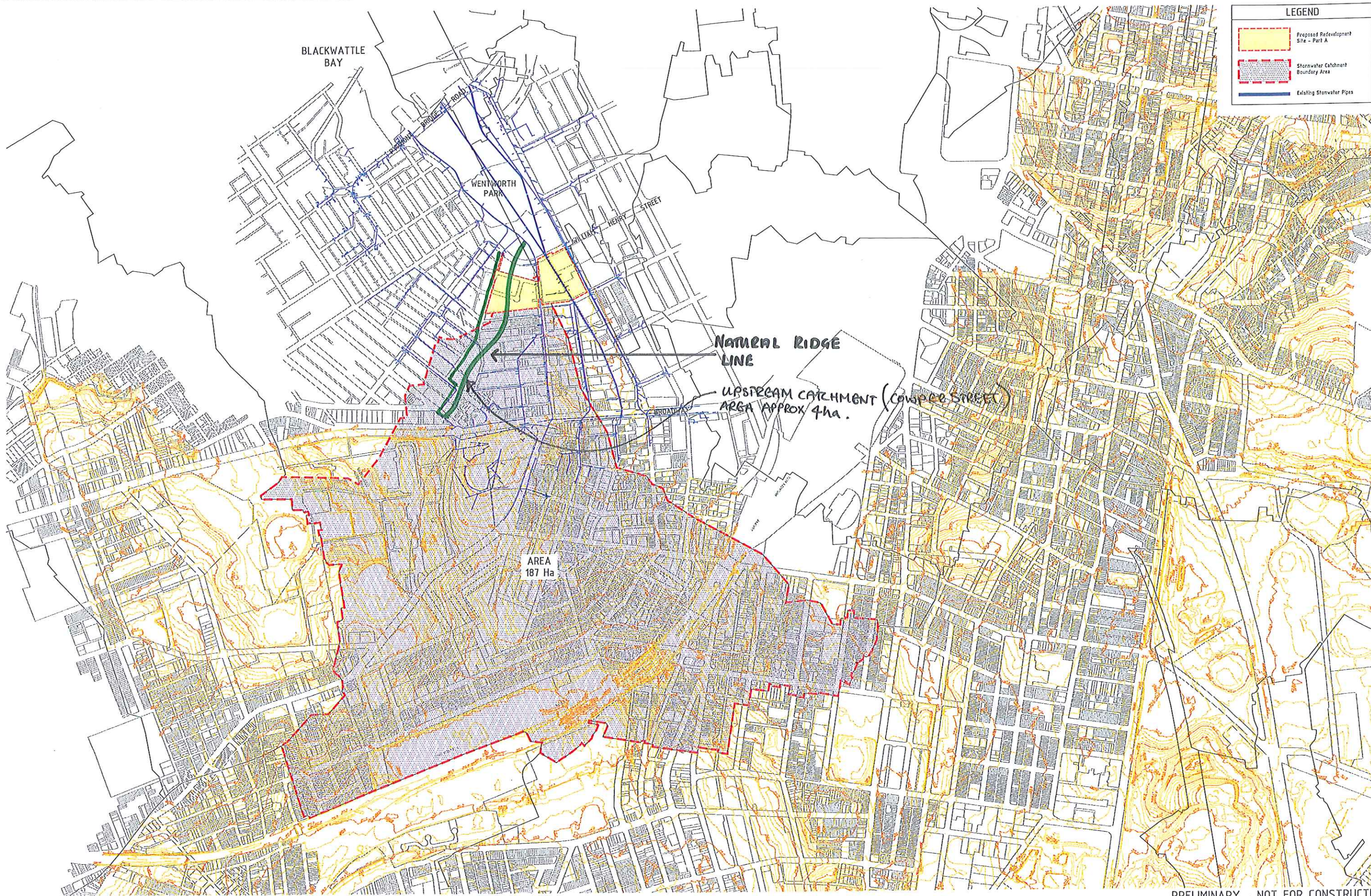
Director

BE, FIE, CPENG

300mm B1 SHEET

200mm

100mm



LEGEND

- Proposed Redevelopment Site - Part A
- Stormwater Catchment Boundary Area
- Existing Stormwater Pipes

PRELIMINARY - NOT FOR CONSTRUCTION

Rev	Amendment / Reason For Issue	Date	By	RD	X	FPB
A	ISSUED FOR CLIENT REVIEW ONLY	23.01.09	BY	RD	X	FPB
			Completed by	Designed & Checked by	Verified by	Issue
					X = Not verified	Authorised (s)

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100 50 0 100 200 300
Plan Scale 15000 @ A1

North

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**BLACKWATTLE BAY REGIONAL
STORMWATER UPGRADE
MASTER PLANNING - PART B**

Client
CITY OF SYDNEY COUNCIL
Architect/Project Manager
HILLS THALIS/APP CORPORATION

Drawing Title
**CATCHMENT PLAN ABOVE
WENTWORTH PARK**

Drawing No.
08S144C-MP202

Sheet
02

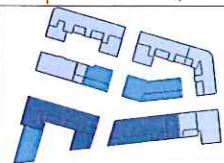
Rev
A

Filename: P:\S1_Foreman\08S144C-MP202\Map\WPS\08S144C-MP202 Part B Above Wentworth Park.dwg
Plotted By: J. Byrde
Date: 03-10-09 11:04am



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Housing type legend

- Market housing
- Affordable housing
- SEPP Seniors Living NSW

Housing type location from Joint
HNSW + COS Feasibility Stage
of the project

This study makes allowances only, for the following:

- disabled access requirements
- ramping at ground level (has not been registered to survey RL's)
- servicing requirements including fire, switchboards and garbage rooms
- BCA Issues including egress
- impact of site flooding + fireboard requirements
- access to basement carparking

However yields may be affected by consultant team input during design development, subsequently modifying these preliminary allowances particularly at ground floor level. The building registration onto the ground plane is not definitive and may also affect yield.

Apartment size

- studio
- 1 bedroom
- 2 bedroom
- 3 bedroom

- Use figure dimensions only
- Do not scale
- Comply with relevant
Australian requirements
- Comply with the Building
Code of Australia
- Comply with all relevant
Australian Standards

Glebe Affordable Housing Demonstration Project
For Housing NSW

DRAFT ISSUE

Indicative Ground Floor Plan

ISSUE SCALE DATE
1:250@A1 20 JULY 2009

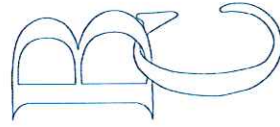
1.1

FIGURE 2 - PROPOSED LOT LAYOUT



City of Sydney Council - Bay Street Depot Development

**Figure A4:
100 Year Flood (Site Blocked)
Existing Conditions**



**Bewsher
Consulting
Pty Ltd**

Job: J1773
File: BW_ExpSB_100y90m_01
Date: 29 Oct 08

