IGLU MASCOT

CIVIL DA REPORT

Prepared for: Iglu

By: enstruct group pty ltd

March 2020

IGLU MASCOT

CIVIL DA REPORT

ISSUE AUTHORISATION

PROJECT: Iglu Mascot, 8 John Street Mascot
Project No: 5899

Rev	Date	Purpose of Issue / Nature of Revision	Prepared by	Reviewed by	Issue Authorised by
A	11/09/2019	Draft DA	TH	PL	PL
B	24/09/2019	Development Application	TH	PL	PL
C	17/10/2019	Development Application	TH	PL	PL
D	25/03/2020	Development Application	TH	PL	PL

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Executive Summary

Situated between John Street and Church Avenue in Mascot, and within the Mascot Station Precinct, 8-10 John Street and 13b Church Avenue represents an excellent opportunity for lot amalgamation and re-development.

Iglu has prepared a proposal for a student accommodation facility at the site with access to Sydney's major university campuses (comprising a mixture of studios and 6-bed apartment rooms.

The proposed site can meet stormwater quantity and quality objectives through the use of rainwater harvesting and re-use, as well as the provision of an on-site detention tank with stormwater filters. Part of the site is flood affected, and has been designed to meet the flood planning levels outlined in the Botany Bay DCP 2013.

As part of the development, some land will be dedicated to Council to achieve the road widening outlined in the Mascot Station Precinct Development Control Plan

Contents

1 Introduction

This report has been prepared to support the development application for the site at 6-8 John Street in Mascot. The report covers stormwater detention, stormwater quality and flooding, and outlines the requirement for public domain works.

1.1 Location

The site extends between John Street and Church Avenue in Mascot.

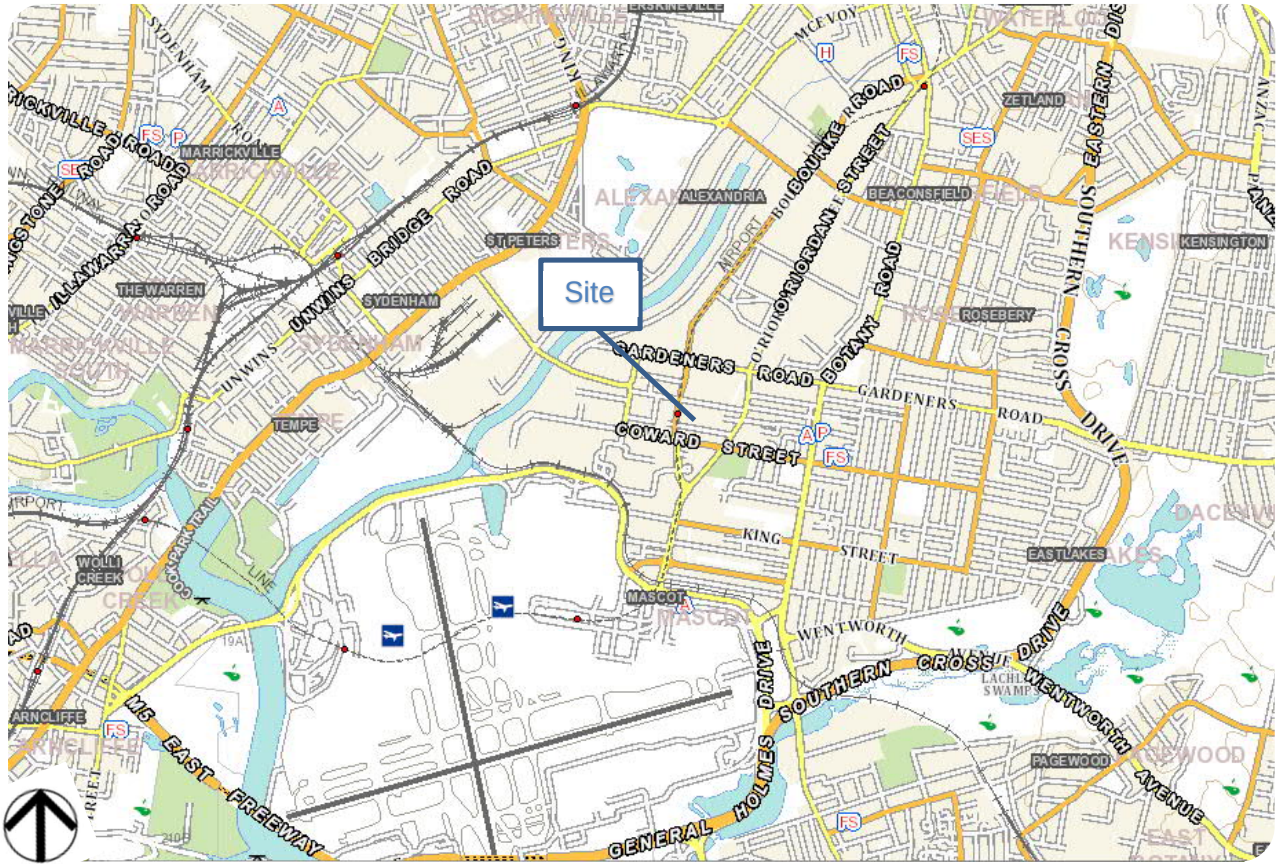


Figure 1 Locality Plan (Source: NSW Six Maps)

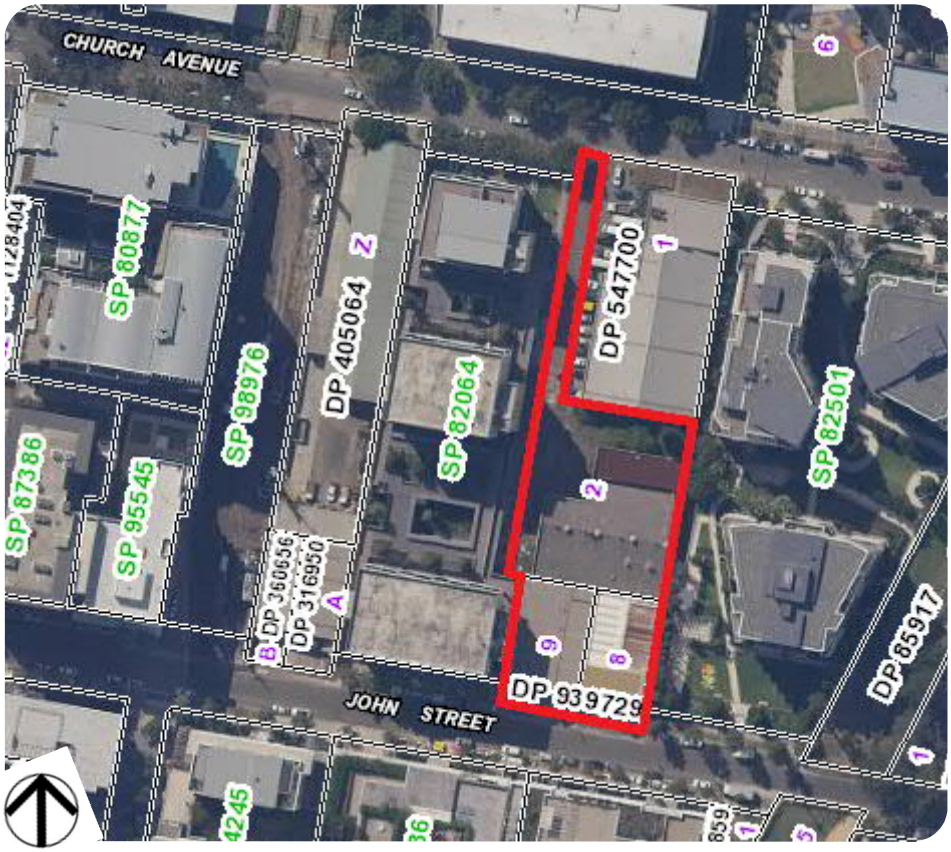


Figure 2 Existing Site (Source: NSW Six Maps)

1.2 Site

The site includes 6 and 8 John Street and 13b Church Avenue. The site covers an area of approximately 3,161m^2.

The western side of the 13b Church Avenue property includes an access easement for 19-21 Church Avenue, the property immediately west of the subject site.

The site is currently occupied by industrial offices and warehouse facilities. Site survey shows surface levels of between 10.19 mAHD and 11.49 mAHD on the John Street frontage. The surface level towards the rear of the property are between 7.92 mAHD and 6.97 mAHD.

1.3 Existing Stormwater Drainage

Church Avenue generally falls to the west towards a low point on Kent Road approximately 450m from the site.

It is understood there is a 750mm diameter stormwater pipe under Church Avenue at the site.

John Street falls to a sag point approximately 50m west of the site, where the underground drainage network takes stormwater west to Bourke Street and continues to Church Avenue.

Ultimately, the local catchment discharges to Alexandria Canal.

2 Project Description

Iglu is seeking to develop a student accommodation facility in Mascot with excellent access to Sydney's major university campuses (comprising a mixture of studios and 6-bed apartment rooms).

The proposed development consists of three connected buildings with a central landscaped courtyard. The proposal includes landscaped rooftop terraces to gain additional private open space.

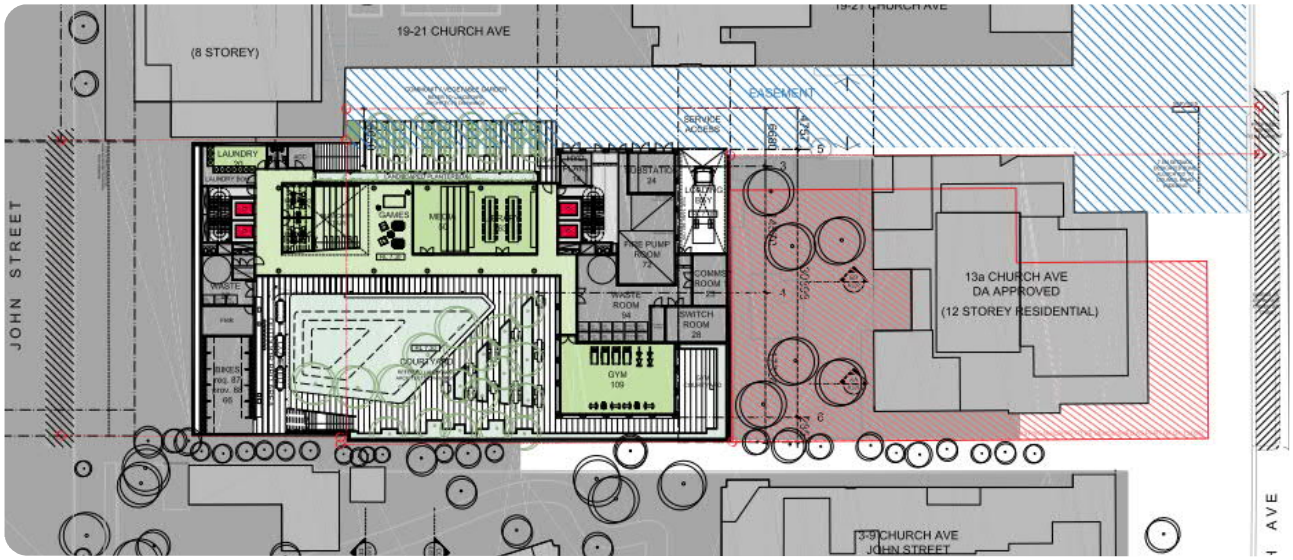


Figure 3 Proposed Lower Ground Floor Plan (Source: Iglu)

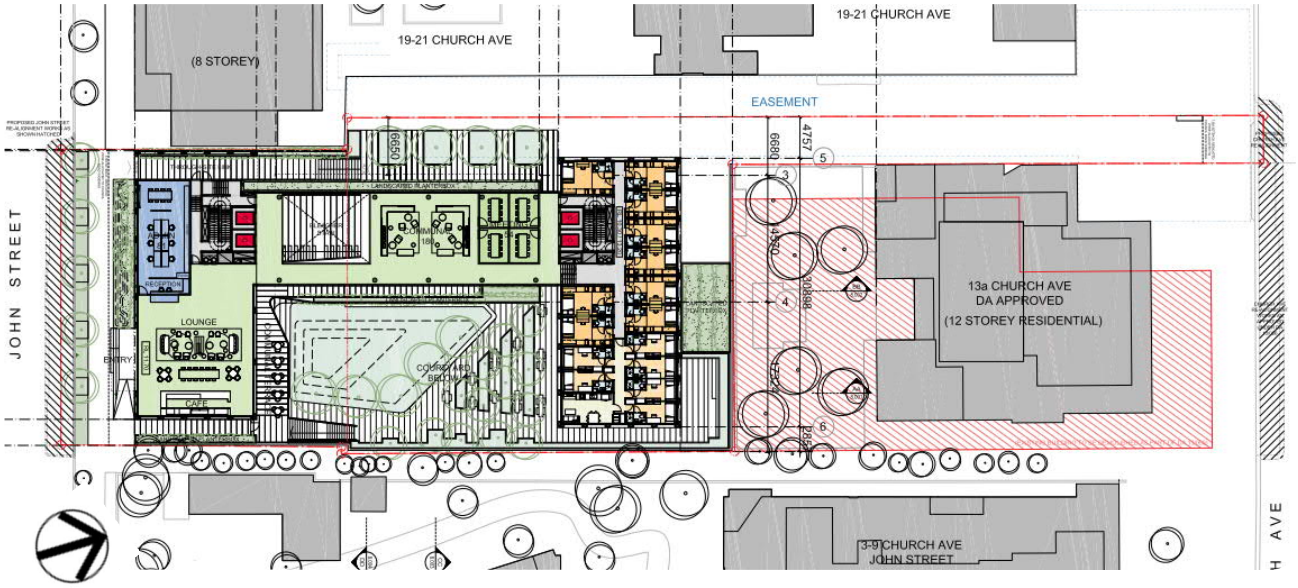


Figure 4 Proposed Upper Ground Floor Plan (Source: Iglu)

3 Stormwater

3.1 Discharge Point

The proposed development will discharge via a new pipe in the driveway to the existing stormwater system in Church Avenue. Part of the development is below the level of John Street, so stormwater cannot discharge to John Street.

3.2 Stormwater Quantity

Bayside Council requires on-site detention (OSD) for development sites within the LGA.

The proposed stormwater management plan seeks to control the outflow through the construction of an OSD tank beneath the lower ground level of the proposed building.

The OSD tank volume and discharge rate have been designed in accordance with the Council's Stormwater Management Guidelines. The permissible site discharge (PSD) is based on the pre-developed "state of nature" 20% AEP peak discharge rate. The OSD volume is based on the developed site restricting the 1% AEP peak discharge rate to the above mentioned PSD rate. The OSD tank has been optimised through the design of a high early discharge (HED) chamber in accordance with the Stormwater Management Guidelines

The results of the DRAINS analysis are shown in Table 1.

Table 1 OSD calculation results

Permissible Site Discharge (PSD)	100 L/s
OSD Volume	60 m^3
Critical storm duration	15 minute

The DCP gives requirements for the minimum clearance height for OSD tanks:

e. The minimum clearance height for underground tank shall be 900mm. If this cannot be achieved due to level or other constraints, Council may consider to accept the internal heights of the tank absolutely not less than:

- Commercial/industrial developments: 750mm
- Residential developments: 600mm

The OSD tank has an internal height of 700mm. This is constrained by the level of the outlet pipe to drain by gravity to Church Avenue, and by the finished floor level (FFL) of the Loading Dock. A deeper tank would not drain and have permanent water in the base. To improve access and safety, additional lids have been included in the design. The proposed development is a residential development, so the OSD tank complies with the minimum clearance height of 600mm for constrained sited.

3.3 Rainwater Tanks

The Botany Bay DCP2013 requires a minimum rainwater tank volume of 10m^3 for multi-unit developments. Rainwater can be used for irrigation and/or laundry and toilet flushing.

Overflows from the rainwater tank will be directed to the OSD tank.

3.4 Stormwater Quality

The proposed development seeks to treat stormwater in accordance with the Botany Bay & Catchment Water Quality Improvement Plan. The plan outlines the stormwater quality targets for multi-unit dwellings, summarised in Table 2.

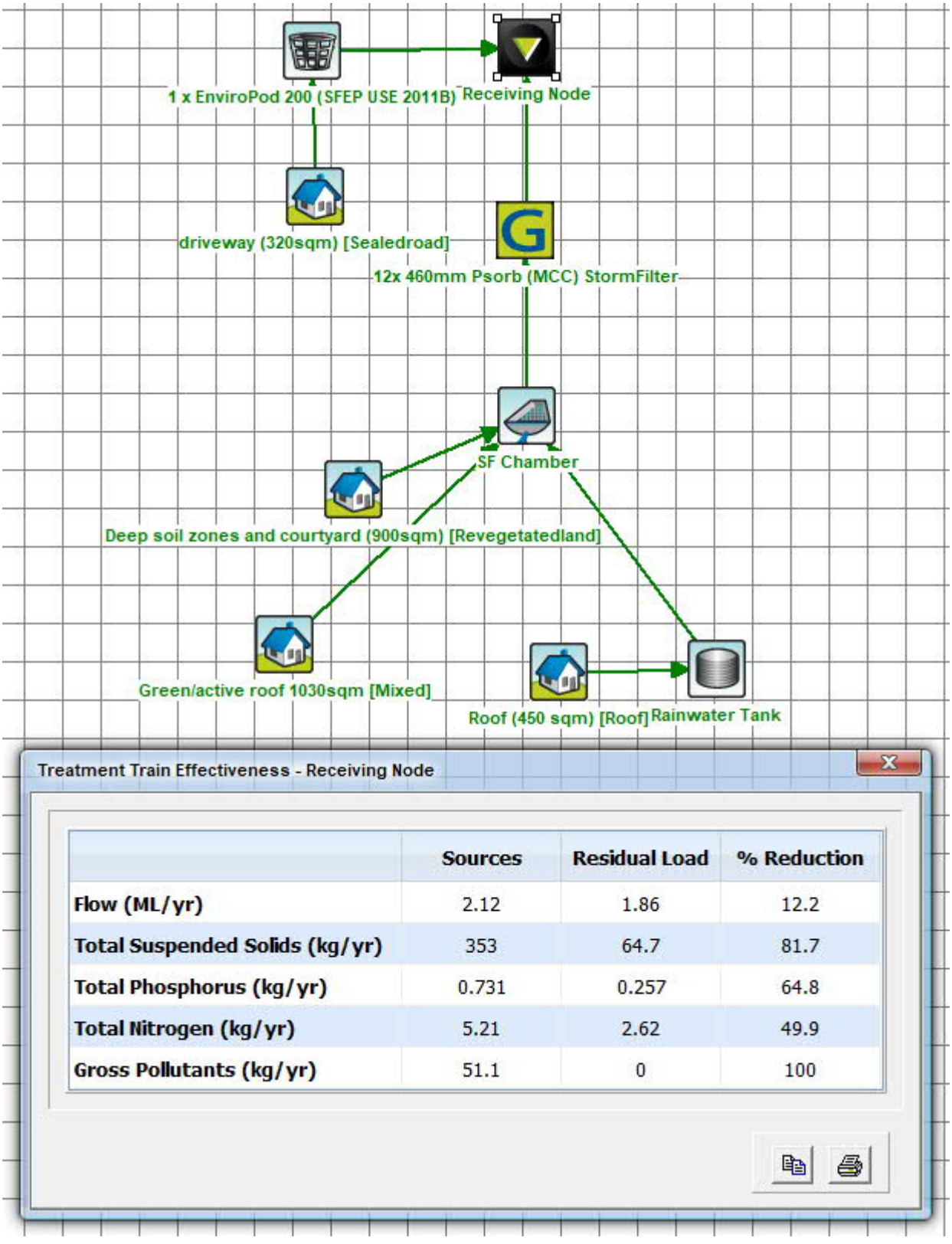
Table 2 Stormwater performance objectives

Pollutant	Stormwater pollutant reduction target
Suspended solids (SS)	80%
Total phosphorus (TP)	55%
Total nitrogen (TN)	40%
Gross Pollutants	90%

The approach to meeting the stormwater pollutant reduction targets is through rainwater collection and re-use, and providing stormwater quality filters in the OSD tank. The driveway area will discharge via a pit basket device to remove gross pollutants, sediments and attached nutrients.

A MUSIC model was established for the site to determine the stormwater pollution removal rates.

The model results in Figure 5 show that the proposed site exceeds the stormwater performance objectives.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.12	1.86	12.2
Total Suspended Solids (kg/yr)	353	64.7	81.7
Total Phosphorus (kg/yr)	0.731	0.257	64.8
Total Nitrogen (kg/yr)	5.21	2.62	49.9
Gross Pollutants (kg/yr)	51.1	0	100

Figure 5 MUSIC model results

3.5 Flooding

Flood level information has been provided by Council, based on the Mascot, Rosebery and Eastlakes Flood Study (WMA Water, March 2019). The flood advice letter has been included as Appendix B.

The 1% AEP flood level on John Street is 10.95 mAHD.

The 1% AEP flood level on the Church Avenue driveway entry is 7.00 mAHD.

The Botany Bay DCP2013 gives criteria for setting finished floor levels for new developments. An extract of the DCP is given below:

8. Finished Floor Levels

All new developments shall have finished floor levels complying with the following minimum criteria:

(i) For a site within Council's identified flood area or within the vicinity of Council or Sydney Water drainage easement/reserve or stormwater drainage system (including open/covered channel, watercourse and underground drainage pipes/culverts), the finished floor levels shall be minimum 500mm (habitable buildings/structures) and 300mm (non-habitable buildings/structures, such as garages, ramps to the basement car parking area) above the estimated 1% AEP flood level.

(ii) For developments associated only with extension of a single dwelling where this requirement may create a major problem, Council will consider lowering the criteria, depending on the size of the proposed extension and its proposed use.

(iii) For a site falls toward the streets and not affected by overland flow path and flooding, the finished floor level of the habitable area shall be minimum 300mm above the top of kerb fronting the site.

(iv) For site falls to the rear and not affected by overland flow path and flooding, the finished floor level of the habitable area shall be minimum 300mm above the highest natural surface RL directly adjoining the proposed floor.

3.5.1 Upper Ground Floor

The properties on John Street are not flood affected. The floor level of the upper ground floor level on John Street is required to be a minimum of 300mm above the kerb fronting the site. The existing kerb on John Street has a level of 11.40 mAHD on the high (east) side of the site. Note that this kerb will be retained in the road widening works. The resultant finished floor level for the upper ground floor at John Street is 11.70 mAHD.

3.5.2 Lower Ground Floor

13b Church Avenue is tagged as "flood affected" by the flood study. The lower ground floor connects to Church Avenue via the driveway. With reference to the DCP, the lower ground finished floor level has been set 500mm above the 1% AEP flood level on Church Avenue, and a minimum of 300mm above the natural surface RL. The resultant finished floor level for habitable floors is 7.50 mAHD.

3.5.3 Loading Dock

The loading dock is considered as a driveway, and needs to be set above the 1% AEP flood level. The level of the loading dock has been set at 7.10 mAHD to minimise the risk of stormwater entering the dock. Any non-habitable storage areas associated

with the loading dock require a minimum of 300mm freeboard to the 1% AEP flood level, resulting in a level of 7.30 mAHD.

3.5.4 Substation

The substation located on the ground floor has been designed with a floor level of 7.150 mAHD. This meets Ausgrid requirements of being above the 1% AEP flood level, and having a 120mm step up from the adjacent laneway level.

3.6 Overland Flow

The OSD tank has been designed to safely surcharge into the driveway in the event of a blockage or extreme storm event larger than the 1% AEP event. The driveway grades towards Church Avenue at approximately 0.25%

3.7 Erosion and Sediment Control

The erosion and sediment control measures adopted for the development during the construction phase have been designed in accordance with Council guidelines and Soils and Construction – Managing Urban Stormwater – Landcom.

Erosion and sediment controls will be provided during the construction phase in accordance with Council guidelines. The control measures have been developed alongside consideration of the necessary earthworks associated with the development.

A sedimentation and erosion control plan has been prepared for the site works, and is provided as part of the civil drawing set. The plan includes measures such as: sediment fences surrounding disturbed areas to capture sediment runoff and a truck shaker tray at each point of access to the work area. The measures to be adopted are summarised in the Table 3.

Final details of sediment and erosion control measures for the early works and main works will be implemented on site by the successful contractor who will be provided with these drawings. The contractor will take into account the site works staging including the preferred site access points, site shed locations and temporary stockpile locations in developing and implementing these requirements but will be ultimately responsible for managing temporary stormwater and sediment and erosion control during construction.

Table 3 Erosion and sediment control measures

Measure	Location	Purpose
Sediment Fence	Near site boundary along the downstream side of the site.	To prevent sediment leaving the site with stormwater runoff. Stormwater will pass through the fence but the fence will trap the sediment.
Shaker Grid and Wash Down	At construction exit from the site.	To remove ground materials from the construction vehicle wheels prior to the vehicle leaving the site and discharging material onto the public roadway.
Sand Bag Sediment Traps	Directly upstream of all stormwater kerb inlet structures located in close proximity of the site.	To prevent sediment discharged from the site from entering the stormwater inlet structure and contaminating the water course.
Inlet Sediment Trap	Around any stormwater surface inlet structures	To prevent sediment discharged from the site from entering the stormwater inlet structure and contaminating the water course.

Erosion and sediment control will also be further addressed during detailed design and construction of this development.

4 Public Domain

4.1 John Street

As part of the development, a 5.5m depth of the property along John Street will be dedicated to Council for road widening in accordance with the Mascot Station Precinct Development Control Plan. Works in the public domain will include:

- Kerb re-alignment
- Road pavement construction
- Footpath and verge to match the adjacent finishes and in accordance with the Mascot Station Precinct Development Control Plan

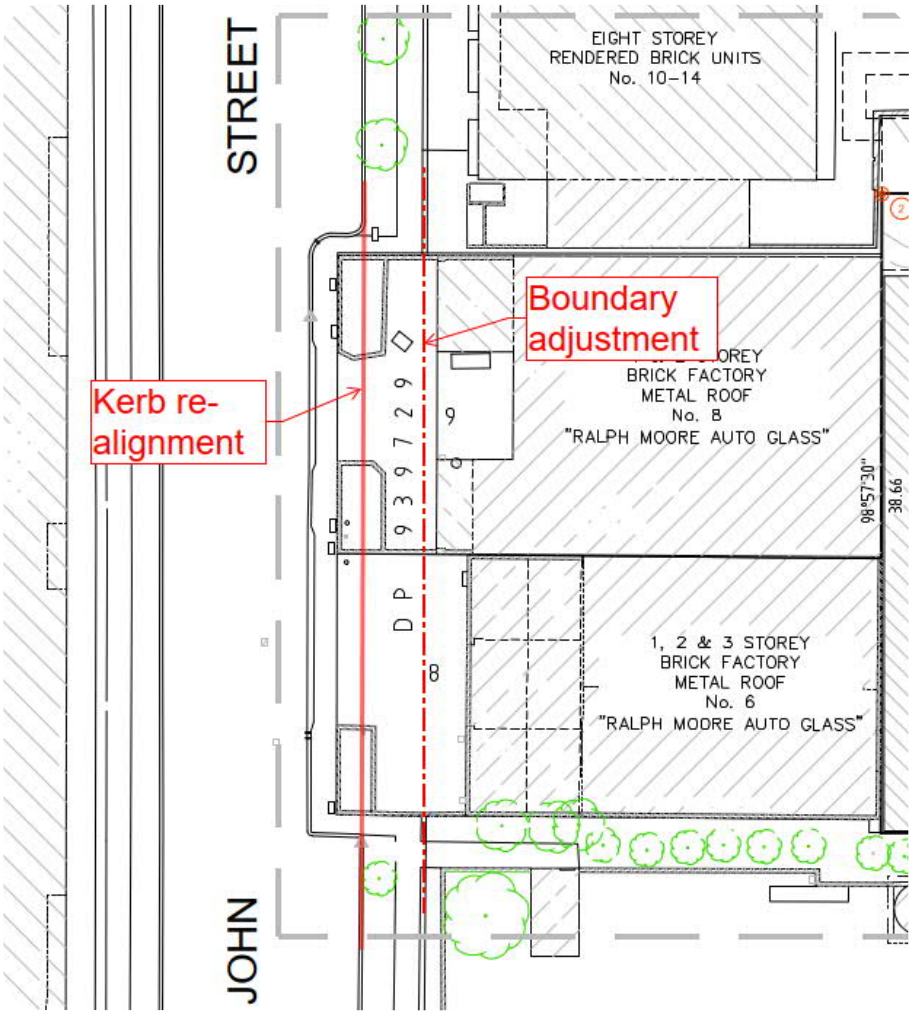


Figure 6 John Street Widening

4.2 Church Avenue

Church Avenue is also subject to road widening, with a 7.0m depth of property on Church Avenue dedicated to Council for road widening in accordance with the Mascot Station Precinct Development Control Plan.

The existing driveway entry provides access via right of way easements to 21 Church Avenue, the subject site (13B Church Avenue) and 13A Church Avenue. The crossing is in poor condition. Refer to Figure 7.

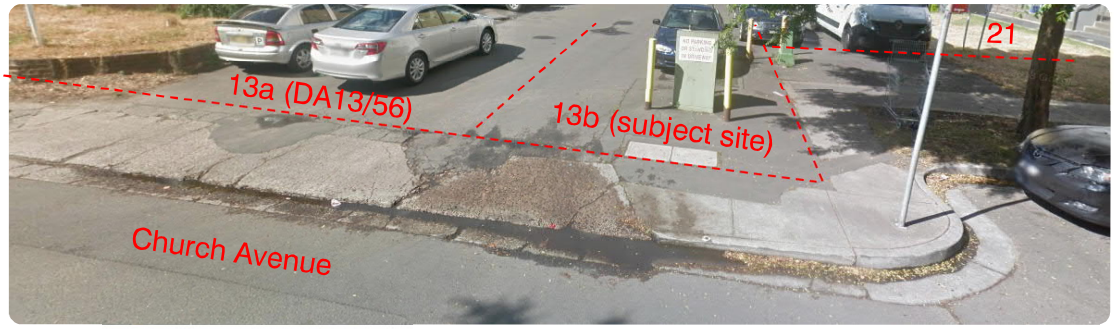


Figure 7 Church Avenue driveway crossing with approximate boundaries shown

The 13A Church Avenue site is subject to a development application (DA-13/56/03). A condition of consent on that DA is the Church Avenue road widening works and public domain fronting the site. Note that 13A Church Avenue frontage is 32.8m, while the subject site is 5.5m.

Given the location of the driveway relative to the property boundaries and the shared access between the three properties, a piecemeal approach to the public domain works would not be appropriate. We recommend the public domain works is completed in coordination with the developer of 13A. The timing of the works would be dependent on the timing of construction of the 13A development.

In the meantime, there will be some work to make good the existing driveway, noting that works cannot be completed on other properties (13A) as part of the proposed works.

5 Conclusion

The proposed development at 6-8 John Street, Mascot, meets the requirements of the Botany Bay DCP 2013 in terms of stormwater management and flood planning levels. The development allows for the Mascot Station Precinct Development Control Plan with respect to road widening of John Street and Church Avenue.

APPENDIX A Stormwater Concept Plan Checklist

Stormwater Concept Plan Certification

Document Number: F18/596 (18/173679)

Bayside Council
Serving Our Community

The information requested on this form is required to be submitted to Council with concept drainage plans when lodging your DA. Please tick and sign the appropriate box and attach the information as requested.

Property and Development Details					
Unit No.		Street No.	6-8	Street	John Street
Suburb	Mascot			Postcode	2020
Type of Development	Student accommodation → multi-storey.				

Designer Details				
Ms/Mr/Mrs/ Other (please circle)	Given Name(s)	Tim	Surname	Henderson
Street Address	L4, 2 Glen Street, Milsons Point 2061			
Company Name (if applicable)	enstruct group pty. ltd.			
Mailing Address (if different)				
Daytime Telephone No. (Home/Work)	89041444	Mobile No.		
Email Address	tim.henderson@enstruct.com.au			

I certify that the drainage design is in accordance with the relevant Technical Specification/DCP controls and I am practising in my area of competence and have the accreditation required. I acknowledge that where I am not competent Council has the right to recover from me the reasonable costs of the time spent assessing this design.

Design Certification			
Design Certifiers Name	Tim Henderson	Design Certifiers Signature	Tim Hen.
Professional Qualifications	B.E (civil), CPEng, NER	Date	10 / 9 / 19
Accreditation Organisation	Engineers Australia	Accreditation Reference	2574729
Contact Details if Different to Designer Above			

Privacy Statement

The personal information provided on this form (including your name and other details) will be handled in accordance with the Privacy and Personal Information Protection Act 1998 and may be available to the public under various legislation. Refer also to the Privacy Statement on Council's website.

STORMWATER CONCEPT PLAN CHECKLIST

Property Address: ..... Date: ...../..../.....

Mark table section as applicable where the designer is unable to comply with a DCP requirement additional information is to be provided to Council to justify the non compliance.

DCP Requirements	Applicable (Yes/No)	Design Complies (Yes/No)	If No, Reason for Variation
Site			
• Contours and Spot Levels	Y	Y	
• Building envelope	Y	Y	
• Floor Levels (Habitable & Garage/parking)	Y	Y	
• Trees/Landscaping	Y	Y	
• Easements/Major Services	Y	Y	
Roof Drainage Systems			
• Roof catchment	Y	Y	
• Roof runoff	Y	Y	
• Eave, box and valley gutter size	Y	N/A	To be prepared by the hydraulic consultant
• Eave, box and valley gutter details	Y	N/A	"
• Downpipe location & spacing	Y	N/A	"
• Downpipe size	Y	N/A	"
Surface Drainage Systems			
• Pipe size	Y	Y	
• Pipe grade	Y	Y	
• Pipe class	Y	Y	
• Pipe cover	Y	Y	
• Pipe flow	Y	Y	
• Kerb adapter required for discharge	N		Discharge to pipe network
• Kerbs provided along boundary	Y	Y	
• Hydraulic grade line	N		
• Overland flow path location	Y	Y	
• Overland flow path flow	N		100-year flow in pipe
• Overland flow path depth	N		"
• Overland flow path velocity	N		"
• Overland flow path detail/section	N		
• Flow through fence detail provided	N/A		
• Pit location	Y	Y	
• Pit size	Y	Y	
• Pit invert levels	Y	Y	
• Pit surface levels	Y	Y	
• Pit detail/section	Y	Y	
• Driveway trench grates	Y	Y	

DCP Requirements	Applicable (Yes/No)	Design Complies (Yes/No)	If No, Reason for Variation
Subsoil drainage			
• Subsoil drain location	N/A	N/A	
• Subsoil drain size	N/A		
On-site Detention (OSD)			
• OSD location	Y	Y	
• OSD volume	Y	Y	
• OSD discharge rate	Y	Y	
• Detention Design Calculation Checklist			
• OSD detail/section	Y	Y	
• OSD discharge control detail	Y	Y	
On-site Retention (OSR)			
• OSR location	N		By hydraulic engineer
• Absorption rate from Council	N		
• OSR absorption test and rate	N		
• OSR volume	N		
• Absorption Design Calculation Checklist	N		
• OSR detail/section	N		
• Special requirements for Atlantis Cells detailed	N		
Pumped discharge systems			
• Pump storage location	N		
• Pump storage volume	N		Gravity System
• Pump discharge	N		
• Pump storage detail/section	N		
• Pump discharge rating curve	N		
• Pump specification	N		
• Pump configuration specification	N		
• Pump maintenance schedule	N		
Ancillary (where applicable)			
• Reflux valves	N		
• Connection to Council pipes	Y	Y	
• BASIX or rainwater tank requirements	N		By hydraulic consultant
• Rainwater tank offset from Council claimed	N		
• Rainwater tank location	N		
• Rainwater tank overflow detail	N		
• Freeboard to habitable floor levels	Y		
• Drainage of Low Level Properties Procedure followed.	N/A		

DCP Requirements	Applicable (Yes/No)	Design Complies (Yes/No)	If No, Reason for Variation
• Risk assessment report for flows onto adjoining properties attached.	N/A		
• Council advice letter for Drainage of Low Level Properties attached if applicable.	N/A		
• Protection of Low Level Driveways procedure followed	N/A		
• Groundwater Recharge Trench	N/A		
• Silt/litter arrestor pit provided	Y	Y	
• Stormwater Reuse System	Y	Y	
• Car park water treatment provided	Y	Y	
• Car wash areas provided	N	Y	
• Other WSUD Requirements	Y	Y	
• Flood Advice Requirements	Y	Y	
• Structural Design of Drainage Elements incl tanks, retaining walls	Y	N/A	
• Warning signs have been detailed for the various areas at risk.	N/A		

APPENDIX B Flood Advice Letter for 6 – 8 John Street, MASCOT

Bayside Council
Serving Our Community

16 March 2020

Our Ref: FA-2020/28
Contact: Pulak Saha

Enstruct
4/2 Glen St
MILSONS POINT NSW 2061

Dear Sir/Madam,

Re: Flood Advice Letter for 6 - 8 John Street, MASCOT (Lot 2 DP 547700, Lot 8 & 9 DP 939729)

When lodging a Development Application you must enclose a copy of this letter.

FLOOD NOTATION

Lot 8 & 9 DP 939729

Council has not notated this property as being affected by the 1% Annual Exceedance Probability (AEP) flood and Probable Maximum Flood (PMF).

Lot 2 DP 547700

Council has notated this property as being affected by the 1% Annual Exceedance Probability (AEP) flood and PMF Flood.

FLOOD STUDY

The Council Flood Study applicable to the property is:
Mascot, Rosebery & Eastlakes Flood Study, WMA Water Ltd, 2019

FLOOD LEVELS

Australian Height Datum (AHD)

Flood Event	Point A	Point B
10% AEP	10.88	6.98
5% AEP	10.88	6.98
2% AEP	10.90	6.99
1% AEP	10.95	7.00
PMF	11.00	7.02

FLOOD RISK EXPOSURE

The Flood Risk Exposure of the site has been assessed as

Overland Flooding: Flood Fringe: Low Hazard: H1

FLOOD COMMENTARY

- An example of the flood management plan included at the end of this letter. Additional information may be required for larger/complex developments.
- No accurate information is recorded regarding the impact of tsunamis in the Bayside Local Government area.

HAZARD CATEGORY DETAILS	H1 - Generally safe for vehicles, people and buildings.
FLOOD PLANNING LEVEL (FPL)	The Flood Planning Level (FPL) is a height used to set floor levels for property development in flood prone areas. It is generally defined as the 1% AEP flood level plus an appropriate freeboard. For the design of a new developments on this land the minimum habitable floor level is: 1% AEP Flood Level + 0.5m freeboard The minimum level for non-habitable buildings and structures such as garages and ramps to basement car parking is: 1% AEP Flood Level + 0.3m freeboard As noted these floor levels are minimums, floor levels higher than these are allowable subject to normal planning rules. In order to relate these levels to your property you will need to obtain a survey to determine the ground level to AHD at the site.
OVERLAND FLOW	The development is not to increase the water level or hazard on adjoining properties. Opportunities should be investigated to design a development that is clear of the overland floodway and acts to reduce the impacts of these flows, possibly by removing inappropriate travel paths and/or reducing the hazard. Where a new development may impact on the flood behaviour (e.g. filling within the flood affected area or major obstruction to the flood water flow path) a civil/hydraulic engineer is to be engaged to assess the impacts of the overland flows before and after development using a hydraulic model. A TUFLOW model has been created by WMAWater Pty Ltd for Bayside Council reflecting catchment conditions in 2015. The model will be made available to a nominated Consulting Engineer subject to entering a Model and Data Licence Agreement and payment of the required fee as listed in Council's fees and charges — Flood studies/ GIS drainage.
FLOW THROUGH FENCING	Flow through open form fencing (louvres or pool fencing) is required for all new fencing and gates up to the 1% AEP Flood level to allow flood water flow through.
FLOOD RELATED DEVELOPMENT CONTROLS	The following additional flood related development controls apply: 1. Any portion of the building or structure lower than the applicable flood planning level (FPL) shall be built from flood compatible materials to be specified by a Structural Engineer. 2. All services associated with the development shall be flood proofed to the habitable floor level. 3. Filling on this land may impact on flood behaviour and may increase the hazard on adjoining properties. A qualified civil/hydraulic engineer is to be engaged to assess the impacts of the filling before and after development

using a hydraulic model.
4. A suitably qualified engineer is to certify that the structure can withstand the forces of floodwater, debris and buoyancy in a 1% AEP flood event.
5. A Flood Management Plan is required to be lodged with the DA which will detail whether evacuation procedures are required and if so how they will be initiated, warning signs and preservation of flood awareness as owners and/or occupants change through time. An example is attached.

Council considers that this is the best information currently available on flooding in the area, but Council cannot comment on the accuracy of the result.

Should you require any further information, please contact Council's Strategic Floodplain Engineer, Pulak Saha on 02 95621617.

Yours faithfully

Alexandra Vandine
COORDINATOR POLICY & STRATEGY

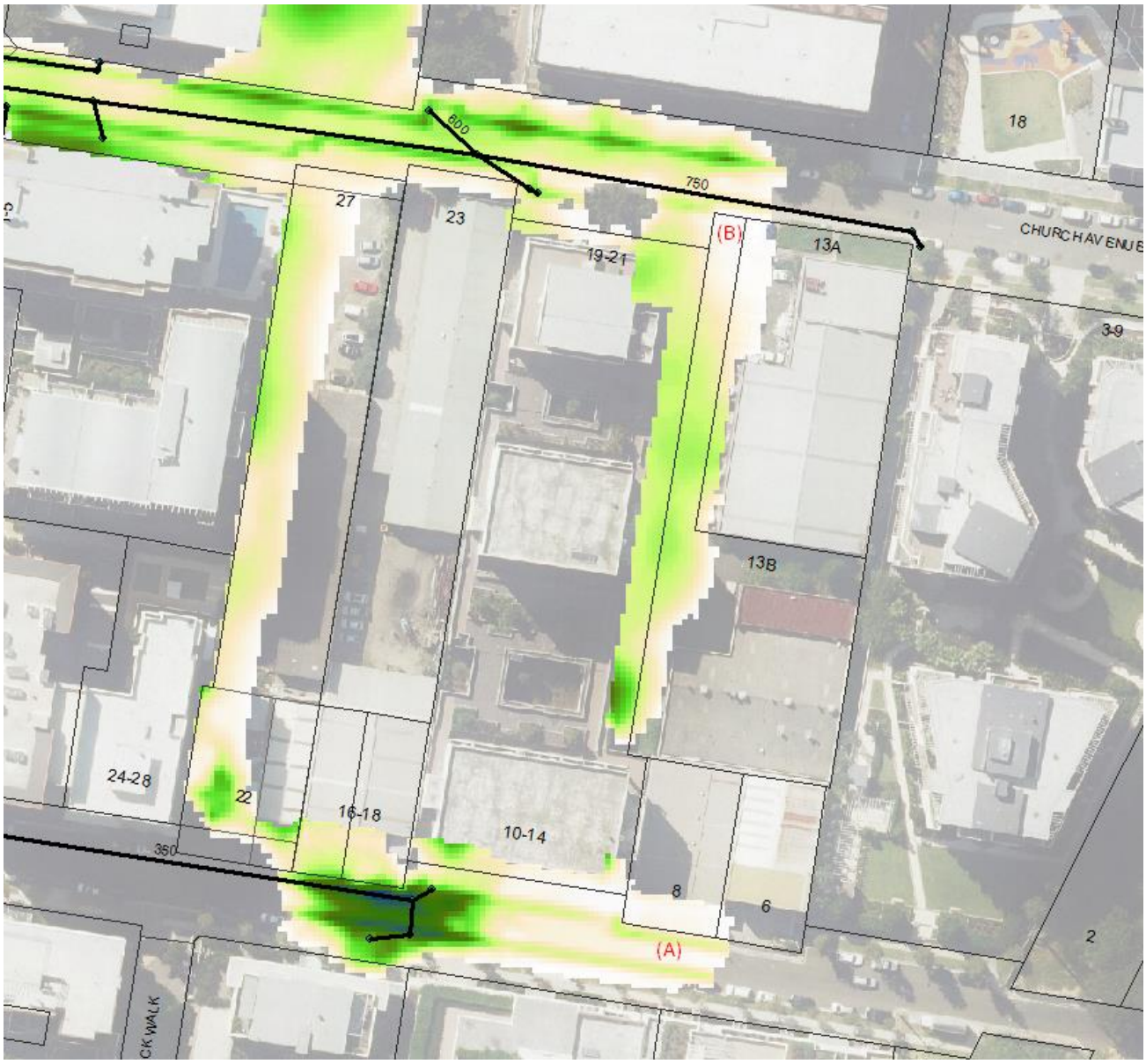


Figure 1: 1% AEP Flood extent map (dark green indicates greater depth of water and light yellow indicates shallower depth, thick black line indicates approximate location of the existing drainage network)

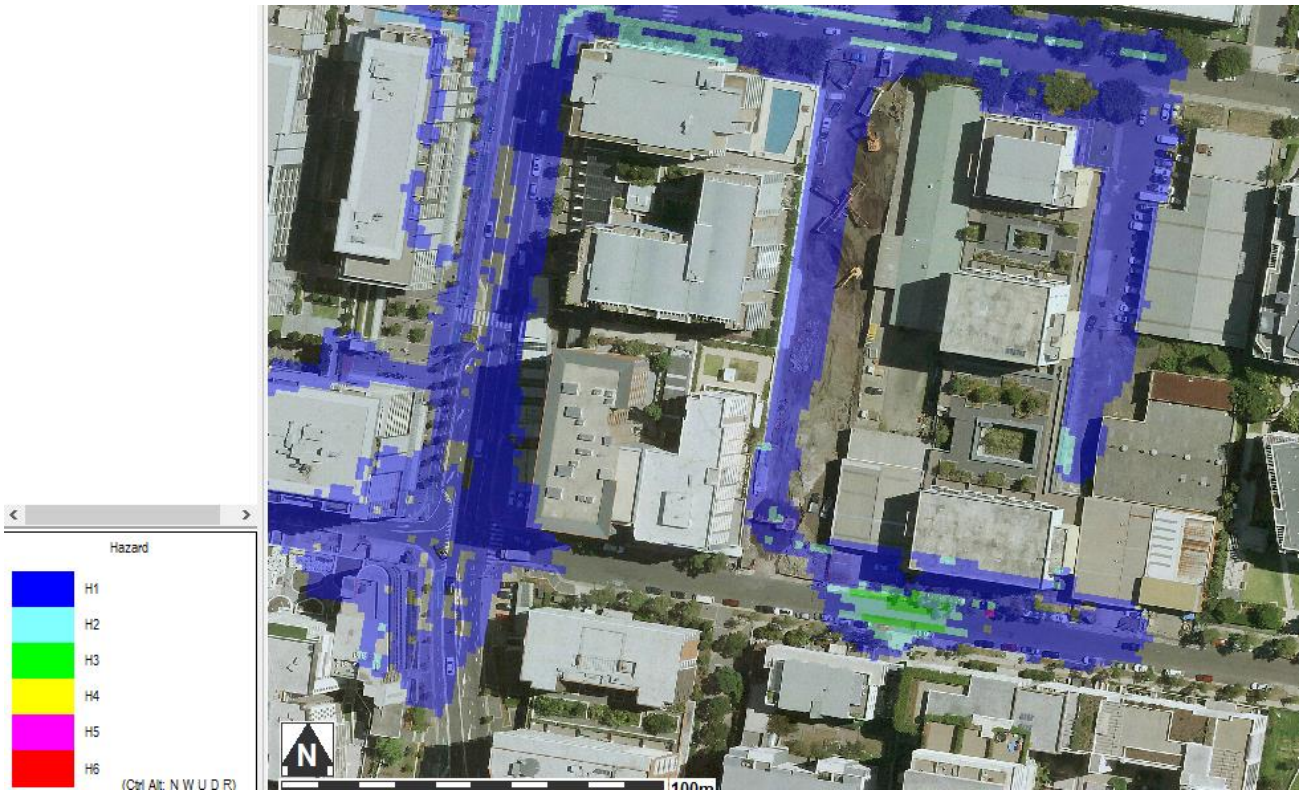


Figure 2: 1% AEP Flood hazard

FLOOD MANAGEMENT PLAN FOR ……..

Background

Council has advised that this property is subject to flooding in a 1% AEP (1 in 100 year AEP) storm event. The Probable Maximum Flood (PMF) is the highest flood level that is ever likely to occur, however it is extremely rare.

Council has no information regarding Tsunami in Bayside Local Government.

Relevant levels are: *Complete as appropriate for your property*

1% AEP Flood Level =	m Australian Height Datum (AHD)
Probable Maximum Flood =	m AHD
Garage Floor Level =	m AHD
Driveway Crest Level =	m AHD (below ground garages only)
Habitable Floor Level =	m AHD
Second Floor Level =	m AHD
Front Boundary Level =	m AHD
Lowest Ground Level =	m AHD at ……..

The above levels give an indication of how the various floods will impact this property and what level of protection is provided. Habitable living areas are designed to be a minimum of 0.5 m above the 1% AEP Flood Level and staying within the home will provide protection for a wide range of floods.

Procedure

1. Floods in Bayside Local Government are considered as "flash floods" and no warning system is available. Storms leading to major flooding are typically 2 hours long, however shorter storms as little as a 30 minutes long can produce significant flooding. Once the storm passes floodwaters usually disappear rapidly.

2. During floods many local and major streets and roads will be cut by floodwaters.

Traveling through floodwaters on foot, or in a vehicle can be very dangerous as the water may be polluted, obstructions can be hidden under the floodwaters, or you could be swept away. Council recommends staying within the home as much as practical as this is the safest option. If you need to leave the home do so early in the flood event, before the flood level reaches …… *(the trigger location for your property*) ….

3. Develop your own family flood plan and be prepared if flooding should occur while the kids are coming home from school or when you are returning from work. Talk to the Council to determine the safer travel routes that are less likely to be cut by floodwaters.

4. For below ground garages do not attempt to save the car if floodwaters start to enter the garage, it is too dangerous as water levels will rise rapidly and you could be trapped.

5. As the flood level approaches the garage floor level (but only if safe to do so) relocate any items that may be damaged by water, or poisons, or wastes to as high a level as possible.

6. As the flood level approaches the habitable floor level:

i) gather medicines, special requirements for babies or the elderly, mobile phones, first aid kit, special papers and any valuables into one location,

ii) put on strong shoes, raise any items within the home that may be damaged by water (e.g. photo albums) to as high a level as possible, with electrical items on top. Turn off and disconnect any large electrical items such as a TV that cannot be raised.

iii) place wet towels across the bottom and lower sides of external doors to slow down the entry of water through the door.

7. In the very rare event that floodwaters may enter the home collect items from 6.i) above and move to an upper level if possible, or if in a single level dwelling provide a chair in the kitchen to enable access to the kitchen bench preferably adjacent to the window. Ensure window is not locked or key readily available. Do not

evacuate the home unless instructed to do so by the SES or the Police. Remember floodwaters are much deeper and flow much faster outside.

8. In the case of a medical emergency ring 000 as normal, but explain about the flooding.

9. A laminated copy of this flood plan should be permanently attached (glued) on an inside cupboard door in the kitchen and laundry and to the inside of the electrical meter box.

10. This flood management plan should be reviewed every 5 years, particularly with the potential effects of Climate Change with sea level rise and increased rainfall intensities.