Canva

8-24 KIPPAX STREET, SURRY HILLS

CIVIL ENGINEERING DEVELOPMENT APPLICATION REPORT

Prepared for: Canva
By: **en**struct group pty ltd
Revision: 04
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8-24 KIPPAX STREET, SURRY HILLS

CIVIL ENGINEERING DEVELOPMENT APPLICATION REPORT

ISSUE AUTHORISATION

PROJECT: 8-24 Kippax Street, Surry Hills
Project No: 7039

Rev	Date	Purpose of Issue / Nature of Revision	Prepared by	Reviewed by	Issue Authorise by
01	01/12/23	Draft Issue for DA	MZV	PAL	PAL
02	07/12/23	Issue for DA	MZV	PAL	PAL
03	10/04/24	Reissue for DA	MZV	PAL	PAL
04	12/04/24	Reissue for DA	MZV	PAL	PAL

Executive Summary

This Development Application Civil Engineering report has been prepared by **en**struct Group to accompany the Development Application (DA) for a comprehensive refurbishment and fit out of the building located at 8-24 Kippax Street, Surry Hills (the site). The development will result in a commercial office space for Canva, the client.

This report has been prepared to address various aspects of civil design, including stormwater discharge quality and quantity including Onsite Stormwater Detention (OSD), flood planning, and erosion and sedimentation control.

This report concludes that the proposed mixed use commercial development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- Erosion and sediment control measures,
- Stormwater quality measures, and
- Adopting a flood planning level in line with City of Sydney's Interim Flood Management Plan.

Contents

1 Introduction

enstruct Group have been engaged by Canva as Civil engineering consultants for the refurbishment works at 8-24 Kippax Street, Surry Hills. The upgrade and refurbishment works may include but are not limited to:

- Strip out of the existing fit out back to cold shell,
- Loading Dock relocation,
- External upgrades, including façade,
- Rooftop terrace,
- New End Of Trip (EOT) facility,
- Base building services upgrades including fire safety, central MEP, lift replacement, structural enhancements, security upgrades etc., and

1.1 Design Standards

The civil design shall be in accordance with the latest revision of all relevant civil Australian Standards, relevant civil sections of the BCA and other statutory requirements.

Particularly, the civil design will be in accordance with the following relevant Australian Standards:

- Sydney Development Control Plan (DCP) 2012
- Sydney Local Environmental Plan (LEP) 2012
- City of Sydney Interim Floodplain Management Policy (2014)
- Austroads: Guide to Pavement Technology
- AS1428.1 Design for Access & Mobility
- AS/NZS 2890 Parking facilities
- AS/NZS 3500.3 (2021) – Plumbing and Drainage Part 3: Stormwater Drainage
- AS 3600 (2018) – Concrete Structures
- AS 3700 (2011) – Masonry Code
- Australian Rainfall and Runoff (ARR 2019)
- Managing Urban Stormwater: Soils and construction - Volume 1 4th edition (Landcom)

2 Site Description

The subject site is located 8-24 Kippax Street, Surry Hills, and falls within the Local Government Area (LGA) of City of Sydney (CoS). The site is bound by Sophia Street to the north, Terry Street to the west, Kippax Street to the south, and a commercial building to the east. The site is approximately 100m from Central Station. The Terry Street frontage grades steeply to the north, and Kippax Street and Sophia Street grade to the west.

The existing building consists of a nine-storey commercial building with an additional two basement levels. It was built in the 1960's and last underwent refurbishment in the 1990's. The site area is approximately 1,034m^2, however, the commercial office space totals around 8,500m^2.

Figure 1: Subject Site (Source: NearMaps)

2.2 *Existing Stormwater Drainage*

City of Sydney stormwater mapping provided through Dial Before You Dig indicates the Council stormwater network surrounding the site. The Council network run through both Kippax Street and Sophia Street, adjacent to the site. There is an existing stormwater pit at the north-west corner of the site. Refer to **Figure 2**.

Figure 2: City of Sydney Council Stormwater Network (Source: City of Sydney Council)

3 *Stormwater Drainage Design*

The stormwater design has been prepared in accordance with Australian Standards, Sydney Development Control Plan, and Australian Rainfall and Runoff (2019). In general, drainage is designed to ensure that site facilities are available for visitors and staff to use in all weather conditions up to the 1% Annual Exceedance Probability (AEP) storm event. All new roof stormwater will be collected in roof gutters and downpipes and conveyed to the water quality control tank.

Pipes and pits have been designed to satisfy the minimum provisions of AS 3500.3. They have been designed to convey, at least, the 5% AEP flows. Where pipe capacity is exceeded i.e., greater than 5% AEP, stormwater will be conveyed as overland flow.

Overland flow paths are designed to convey at the minimum 1% AEP stormwater flows with a Velocity x Depth to be less than 0.4m^2/s.

Class D pits have been specified in accordance with AS 3996.

3.1 *On-site Stormwater Detention (OSD)*

Correspondence with Sydney Water on 16th of October 2023has indicated no OSD is required for any development at the site. Refer to **Appendix A** for this correspondence.

3.2 *Overland Flow Paths*

If the piped in-ground stormwater system proposed in Sophia Street fails due to blockage or other obstruction, or in an event larger than the 20-year ARI event, stormwater flows will be required to be conveyed as overland flow. The overland flow is to be directed away from buildings and downstream along Council's system.

Overland flow paths will be sized to accommodate the 1% AEP storm flows and not exceed safe Depth x Velocity products of 0.4m^2/s for pedestrians and vehicles.

3.3 *Stormwater Quality*

City of Sydney's DCP Part 3 describes the provisions for Water Sensitive Urban Design (WSUD), including water quality. Part 3 of the DCP requires all commercial developments of sites greater than 1,000m^2 to demonstrate that the development will achieve the post-development pollutant load standards described in **Table 1** below.

Table 1: Pollutant Load Reduction Requirements (Source: City of Sydney DCP)

Pollutant	**Post-development reduction of Baseline Annual Pollutant Load**
Gross pollutants	90%
Total suspended solids	85%
Total phosphorus	65%
Total nitrogen	45%

3.3.1 *MUSIC Model*

A MUSIC model was developed in accordance with the City of Sydney WSUD MUSIC Technical Guideline to indicate the suitability of the proposed WSUD measures on the site. The MUSIC model was set up using the City of Sydney MUSIC-Link with clay soil type as per the soil map provided by City of Sydney, **Figure 3**.

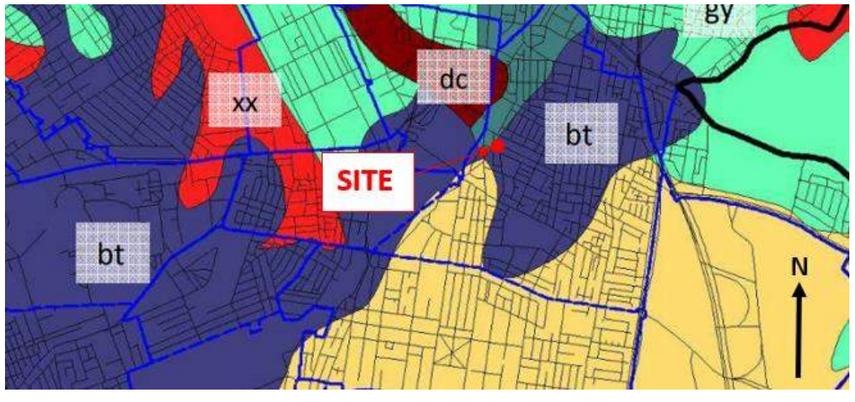


Figure 3: City of Sydney Soil Types (Source: City of Sydney WSUD MUSIC Technical Guideline)

The MUSIC model sought to decrease the annual pollutant load discharged from the site to the values described in **Table 1**. A comparison on the achieved reduction rates compared to the objectives is available in **Table 2** and further detail of the model is available in **Appendix B**. To achieve these reductions, the following water quality devices are proposed:

- A stormwater quality tank containing:
    - 1 x OceanGuard pit insert, and
    - 2 x 690mm StormFilters.
- A 6kL rainwater tank.

Table 2: Pollutant Reduction MUSIC Results Comparison

Pollutant	**Post-development reduction of Baseline Annual Pollutant Load**	**Post-development reduction of Baseline Annual Pollutant Load result**
Gross pollutants	90%	99%
Total suspended solids	85%	85.4%
Total phosphorus	65%	72.4%
Total nitrogen	45%	54.4%

4 *Flooding*

The site is located in the CoS Darling Harbour catchment as per **Figure 4**.CoS Council have undertaken a flood study covering the Darling Harbour Catchment. The flood study, including the TuFLOW model, has been obtained by enstruct in order to identify the Flood Planning Levels for the site. enstruct has reviewed the existing flood conditions with the TuFLOW model and adapted the model to the proposed conditions to assess the impact of the development on the surrounding flood conditions.

Figure 4: City of Sydney Flood Catchment Mapping (Source: City of Sydney)

4.1 *Existing Flood Conditions*

The flood study and TuFLOW model show the site is flood affected in the 1% Annual Exceedance Probability (AEP) and Permissible Maximum Flood (PMF) events. The TuFLOW model of the existing conditions provided by Council was updated to use the 2019 ARR Rainfall Data. The model indicates the existing flood conditions to be flood depths between 100mm-500mm surrounding the property in the 1% AEP event, and flood depths between 200mm-800mm in the PMF event. Refer to the figures below.

As the site currently exists, there is not known to be any flooding of the building or basement levels. However, there is clear flooding in Kippax Street, Terry Street, and Sophie Street in the described flood events.

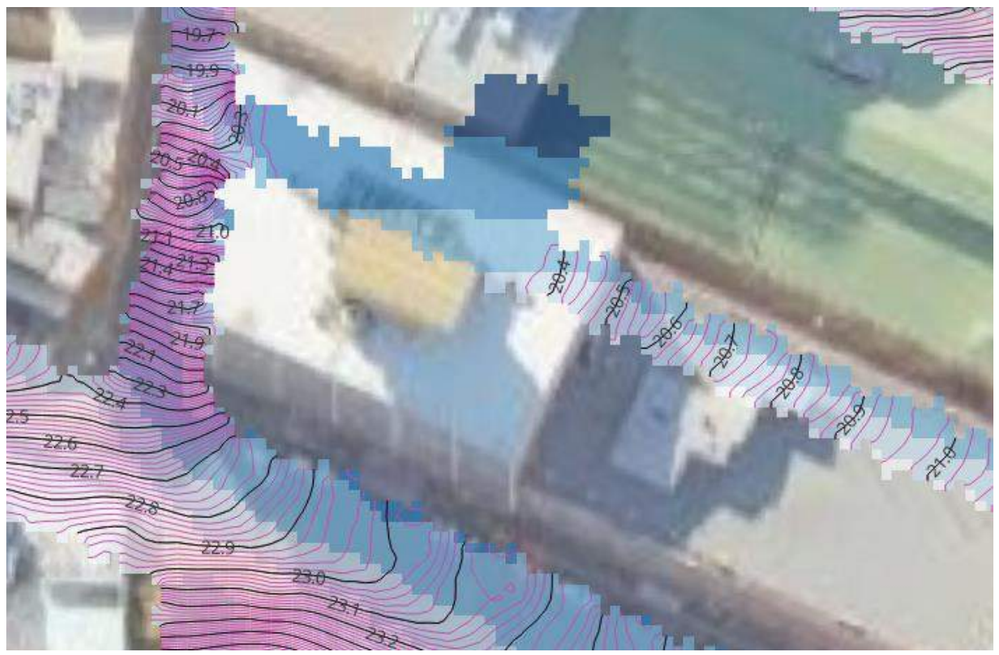


Figure 5: Pre-development Site Flood Contour Map 1% AEP

Figure 6: Pre-development Site Flood Contour Map PMF

4.2 *Flood Related Requirements*

The flood related requirements assigned to the site are outlined in the City of Sydney Interim Floodplain Management Policy. The Policy applies to all developments in the CoS LGA. The Policy lists the following general controls for "commercial" developments:

1. The proposed commercial building and car parking must meet the requirements detailed in **Table 3**. The City may consider merits-based approaches presented by the applicant.

2. The proposed commercial development and car parking should not increase the likelihood of flooding on other developments, properties, or infrastructure.

3. The proposed car parking should not increase the risk of vehicle damage by flooding inundation.

Note: the requirements for fencing, filling of flood prone land, on-site sewer management, storage of hazardous substances, and consideration of the impact of Climate Change have not been listed as they do not apply to this development.

The site is classed as a "Commercial - business" development type and hence, the flood planning levels described in **Table 3** apply. The Policy specifies for below-ground development, the flood planning level refers to the minimum level at each access point. Further, where more than one flood planning level is applicable the higher of the applicable flood planning levels shall prevail.

Table 3: City of Sydney Flood Planning Levels

Development	Type of Flooding	Flood Planning Level
Business Floor Levels	Mainstream or local drainage flooding	Merits approach presented by the applicant with a minimum of the 1% AEP flood level
Below Ground	Mainstream or local drainage flooding	1% AEP flood level + 0.5m or the PMF (whichever is higher) *
Above Ground Enclosed Car Parks	Mainstream or local drainage flooding	1% AEP flood level

* The below ground level applies to all possible ingress points such as vehicle entrances and exits, ventilation ducts, windows, light wells, lift shaft openings, risers, and stairwells.

The policy also lists flood compatible materials for each development component. Flood compatible materials are to be installed where required for the development.

4.2.1 *City of Sydney Performance Criteria*

The City of Sydney Interim Floodplain Management Policy also describes the performance criteria required for each development, they require the development:

a. is compatible with the established flood hazard of the land. In areas where flood hazard has not been established through previous studies or reports, the flood hazard must be established in accordance with the Floodplain Development Manual considering the following:

   i. Impact of flooding and flood liability is to be managed ensuring the development does not divert floodwaters or interfere with flood storage or the natural function of the waterway;

   ii. Flood behaviour (for example, flood depths reached, flood flow velocities, flood hazard, rate of rise of floodwater);

   iii. Duration of flooding for a full range of events;

   iv. Appropriate flood mitigation works;

   v. Freeboard;

   vi. Council's duty of care – Proposals to address or limit; and

   vii. Depth and velocity of flood waters for relevant flood events.

b. will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties;

c. incorporates appropriate measures to manage risk to life from flood considering the followings:

   i. The proposed development should not result in any increased risk to human life

   ii. Controls for risk to life for floods up to the Flood Planning Level

   iii. Controls for risk to life for floods greater than the Flood Planning Level

   iv. Existing floor levels of development in relation to the Flood Planning Level and floods greater than the Flood Planning level

   v. Council's duty of care – Proposals to address and limit

   vi. What level of flooding should apply to the development e.g. 1 in 100 year, etc

   vii. Effective flood access and evacuation issues

   viii. Flood readiness – Methods to ensure relative flood information is available to current and future occupants and visitors;

d. will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of creek or channel banks or watercourses;

e. is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding;

f. is consistent with the principles of Ecologically Sustainable Development; and

g. adequately considers the impact of climate change.

A matrix outlining how each of the performance criteria above are met is included in **Appendix C**.

4.3 *Proposed Flood Conditions*

The proposed development requires no change to the building footprint with mainly internal works to be undertaken, including modifications to entry points and minor adjustments to some interior floor levels. The proposed development also requires an extension of the existing Council drainage system in Sophia Street to allow for stormwater discharge from the property.

In order to model the proposed flood conditions, the existing Council TuFLOW model was updated to use the 2019 ARR Rainfall Data and to include the proposed drainage in Sophia Street. Further, there seemed to be some anomaly in the existing flood model where flood waters were entering 1-15 Foveaux Street. The model was adjusted to reflect the existing conditions so that this anomaly was removed for the 1% AEP event.

The proposed conditions indicate no change in flood affectation from the existing conditions at the site other than at the new grated inlet pit where the flood depth will be locally lower. The model indicates the proposed flood conditions to match the existing flood depths between <50mm-600mm surrounding the property in the 1% AEP event, and flood depths between 200mm-800mm in the PMF event. Refer to the figures **Figure 7** and **Figure 8**.

The flood hazard classification surrounding the property in the 1% AEP storm event is shown in **Figure 9**. The classification along the property frontage on Kippax Street varies depending on local topography; in some areas it is generally safe for people, vehicles, and buildings, however, where there are small sag points, it can become unsafe for vehicles and people. The steep slope in Terry Street results in a high velocity of flood waters in the 1% AEP storm event, increasing the flood hazard level to unsafe for vehicles and people and requiring the building to have special engineering design and construction. The hazard level along the eastern portion of the property frontage along Sophia Street is generally safe for people, vehicles, and buildings. The flood hazard gets more severe as Sophia Street meets Terry Street.

The flood hazard classification surrounding the property in the PMF storm event is shown in **Figure 10**. Compared to the 1% AEP storm event, the flood hazard level in Sophia Street worsens to unsafe for vehicles, children, and the elderly, in Terry Street to unsafe for vehicles and people and the building will be vulnerable to failure, and in Kippax Street, it is unsafe for vehicles and people and the building needs special engineering design and construction.

Additional post-development flood mapping is available in **Appendix D**.

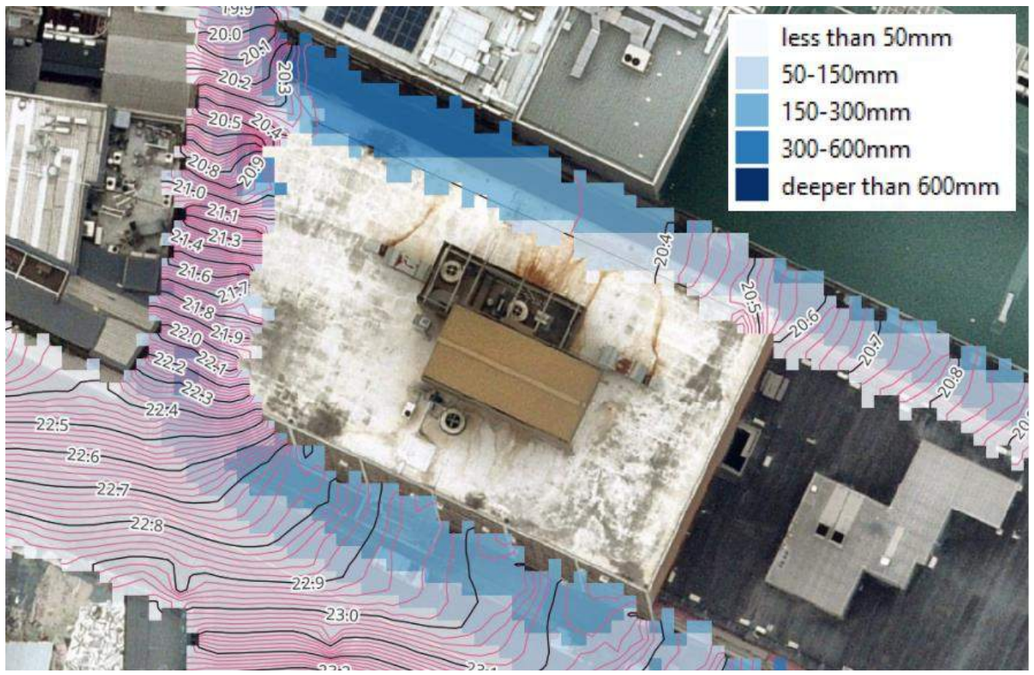


Figure 7: Post-development Site Flood Contour Map 1% AEP

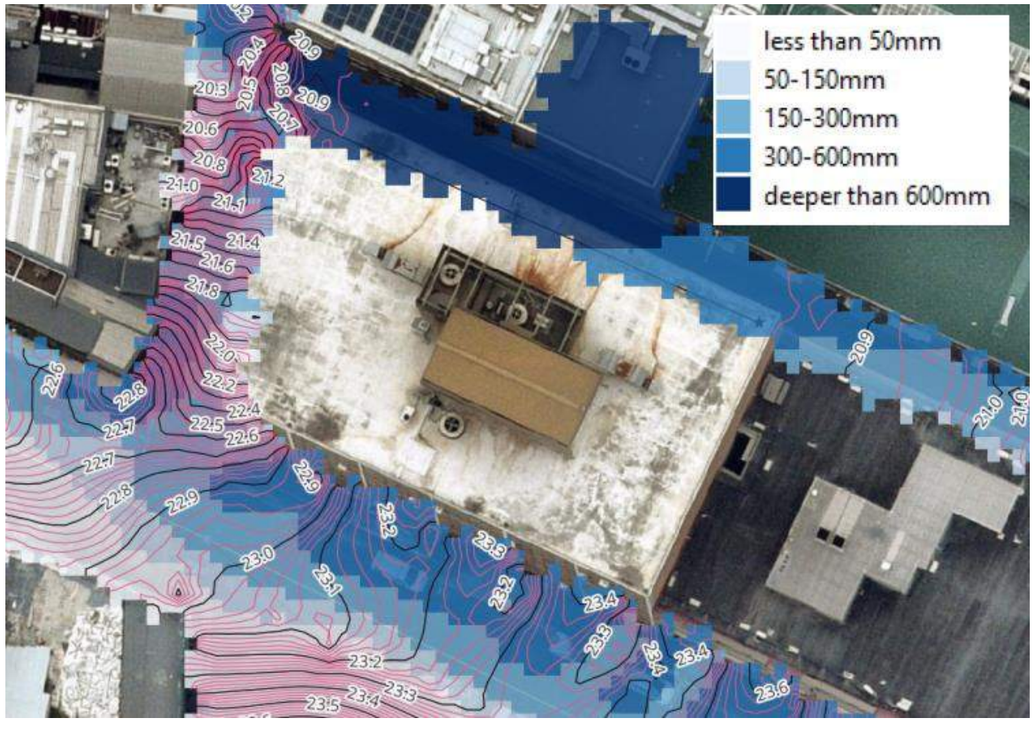


Figure 8: Post-development Site Flood Contour Map PMF

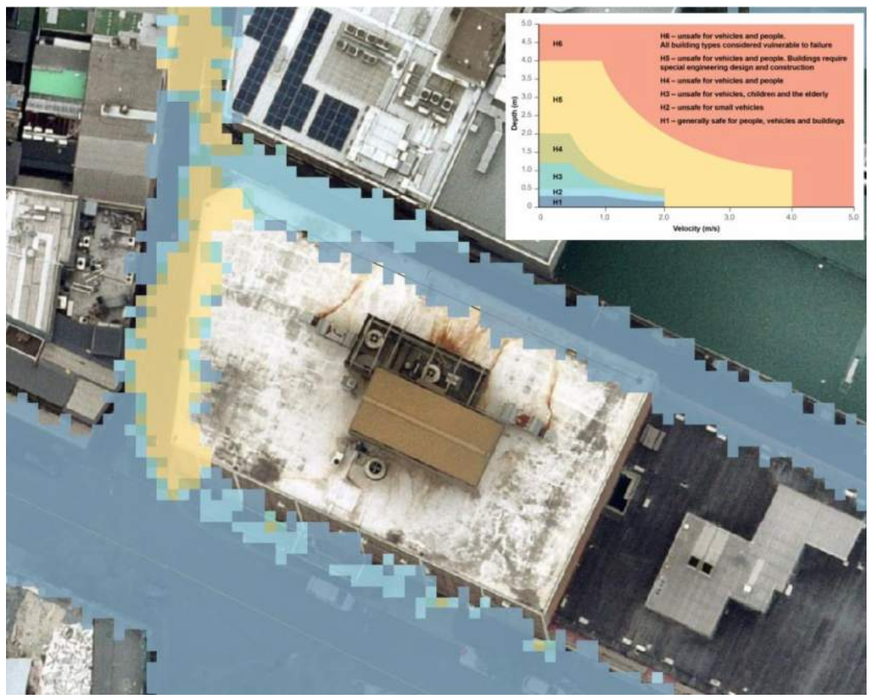


Figure 9: Post-development Site Flood Hazard Map 1% AEP

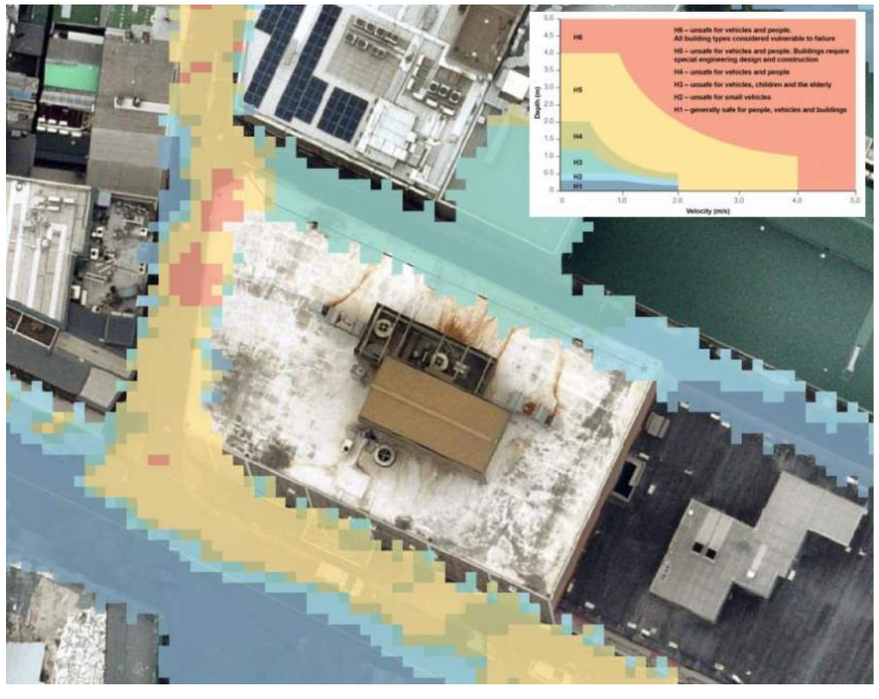


Figure 10: Post-development Site Flood Hazard Map PMF

4.4 *Flood Risk Management Plan*

4.4.1 Floor Levels

All points of entry on the lower ground level, as per Figure 11, and on the ground level as per Figure 12, have sought to meet the flood planning levels described in Table 3. Table 4 shows a summary of the Flood Planning Level (FPL), flood levels, and proposed design at each entry point. The entries marked in orange in the figures indicate a basement ingress point, and the entries marked in purple indicate all other building entries.

Table 4: Flood Planning Level Comparison

Entry Point	1% AEP Level (mAHD)	1% AEP Level + 500mm (mAHD)	PMF Level (mAHD)	FPL (AHDm)	Proposal	Entry point above 1% AEP?	Is FPL met?
1	20.52	21.02	20.88	21.02	Flood Door	✓	X
2	20.50			20.50	FFL: 20.515m	✓	✓
3	20.46			20.46	FFL: 20.815m	✓	✓
4	20.42			20.42	FFL: 20.815m	✓	✓
5	20.40			20.40	FFL: 20.725m	✓	✓
6	20.39			20.39	FFL: 20.725m	✓	✓
7	20.39			20.39	FFL: 20.410m	✓	✓
8	20.38			20.38	FFL: 20.404m	✓	✓
9	20.38			20.38	FFL: 20.398m	✓	✓
10	20.38			20.38	FFL: 20.393m	✓	✓
11	20.38			20.38	FFL: 20.385m	✓	✓
12	20.38			20.37	FFL: 20.377m	✓	✓
13	20.37			20.37	FFL: 20.483m	✓	✓
14	20.36			20.36	FFL: 20.465m	✓	✓
15	20.34			20.34	FFL: 20.340m	✓	✓
16	20.39	20.89	20.86	20.89	FFL: 20.483m	✓	X
17	20.39	20.89	20.86	20.89	FFL: 20.483m	✓	X
18	20.39	20.89	20.86	20.89	FFL: 20.483m	✓	X
19	20.39	20.89	20.86	20.89	FFL: 20.50m	✓	X
20	23.15			23.15	FFL: 23.282m	✓	✓
21	23.15	23.65	23.38	23.65	Flood Door	✓	X
22	23.12	23.65	23.38	23.12	FFL: 23.400m & Flood Door	✓	✓

Options have been analysed to meet the FPL at basement entry point's 1 and 17. At these two points, the basement emergency egress is via stairwells located to the eastern side and centre of the building to meet the existing slab RLs and building constraints. Due to the existing building conditions and with the current geometric constrains and head height constraints it is not possible to achieve the FPL before descending to the basement. Currently along Sophia Lane there are no flood mitigation measures, however flood doors are proposed to mitigate any risk of flooding and improve the flood risk compared to pre-development.

Similarly, options to ramp up or add additional steps to increase the maximum level before descending into the basement at entry points 16, 17, and 18 have been analysed. At these points, it is also unfeasible with the current geometric constraints and head height constraints to change the stair arrangement to reach the FPL before descending to the basement. Further, internal flood doors are not feasible in terms of cost or within the existing structure. At the lift wells marked as basement entry point 19, like the above discussions, it is unfeasible with the current geometric constraints and head height constraints to ramp up to reach the FPL before descending to the basement. Further, installation of flood doors at either all entry points along Sophia Street or at either end of the lift foyer is likewise unworkable. The client has accepted the minor risk of flood waters entering the basement through the lift wells and fire stairs if the 1% AEP flood level is exceeded and water enters the lower ground floor level from Sophia Street and migrates to the lift wells. The foyer of the lift wells and entry points to the fire stairs have at least ~100mm freeboard from the 1% AEP flood level at the entry points along Sophia Street. Further, the following flood mitigation measures will be incorporated into Lifts A, B, C and D:

- The elevator car will be equipped with controls that prevent the cab from descending into floodwaters including:
    - Installation of a pit water sensor;
    - Provision of flood operation mode (lift controller program);
    - Installation of a pit pump (if the water ingress is expected to be at a low rate).

Entry point 23 has elected a flood door as although it ramps up to above the 1% AEP flood level, the incorporation of a flood door will assist in prevention of flood waters entering the basement level through the central fire stairs or the lifts A, B, C and D. Similar reasons to those explained above do not allow to the stairs and lift well on this floor to meet the basement FPL.

Figure 11: Lower Ground Entry Point Map (Source: COX)

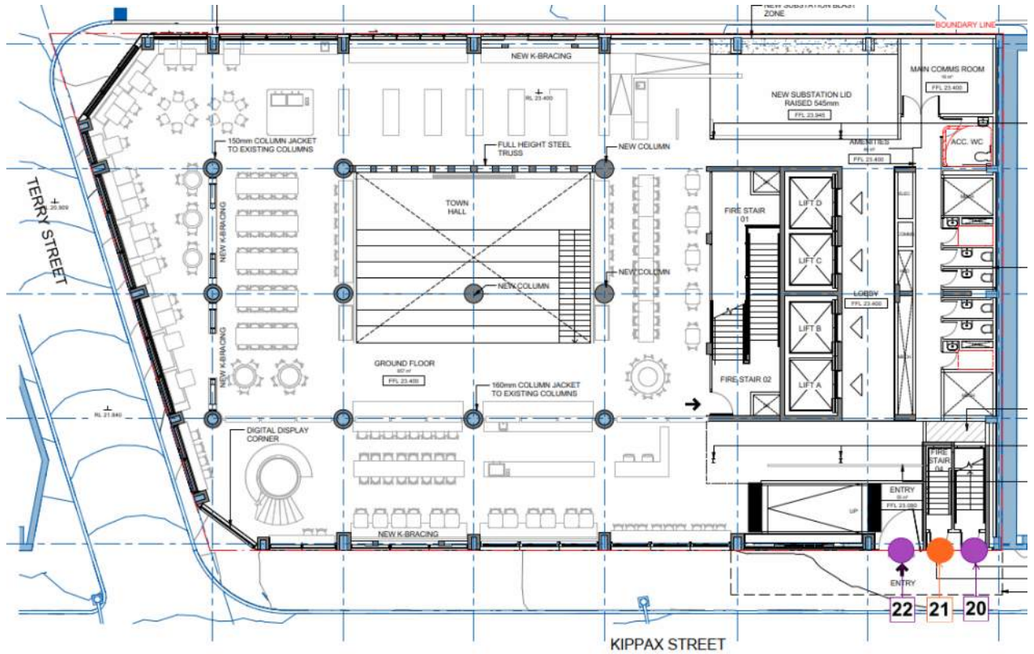


Figure 12: Upper Ground Entry Point Map (Source: COX)

Additional sketches of the flood levels around the site and at doorways / entry points are available in **Appendix E**.

4.4.2 Building Components and Method

Building components shall be constructed of the approved flood compatible materials described in the CoS Interim Floodplain Management Policy or other approved alternatives.

4.4.3 Below Ground

As per **Section 4.4.1** basement entry points are protected by flood doors to ensure no flood water enters the basement level in either the 100-Year ARI storm event or the PMF event. It is accepted that some flood waters more than the 100-Year ARI storm event may enter the basement through the central lift wells.

4.4.4 Flood Evacuation and Flood Warnings

There are several official flood warnings issued by the Bureau of Meteorology, State Emergency Service (SES) and NSW Police which can assist in the preparation of a potential flood. The warning types are:

Severe Weather Warnings (Bureau of Meteorology):

Severe Weather Warnings are provided for potentially hazardous or dangerous weather that is not directly related to severe thunderstorms, tropical cyclones or bushfires. They are issued for sustained winds of gale force; wind gusts of 90km/h or more; very heavy rain that may lead to flash flooding and abnormally high tides.

Severe Thunderstorm Warnings (Bureau of Meteorology):

A Severe Thunderstorm Warning is issued if the severe phenomena are directly caused by the thunderstorm and include wind gusts of 90km/h or more; gale force winds; tornados; blizzards\ heavy rainfall that is conducive to flash flooding; hail with a diameter of at least 2cm; abnormally high tides and unusually large surf waves expected to cause dangerous conditions on the coast.

Flood Watch (Bureau of Meteorology):

A Flood Watch is issued by the Bureau of Meteorology if flood producing rain is expected to happen in the near future and flooding is expected to be above Minor level. A Flood Watch covers a river basin or catchment. The general weather forecasts can also refer to flood producing rain. You should be prepared to act should flooding occur.

Flood Warning (Bureau of Meteorology):

A Flood Warning is issued by the Bureau of Meteorology when flooding is expected to occur or is happening. Flood Warnings provide a predicted flood level and time at which a river will reach that level. Flood Warnings are issued in relation to flood gauges which are situated at a certain point on a river. Flood Warnings may contain observed, peak, or predicted river heights.

NSW SES Flood Bulletins (SES):

NSW SES Flood Bulletins provide information on likely flood consequences and what actions are required to protect yourself and your property.

Evacuation Warning (SES):

When flooding is likely to cut evacuation routes or inundate property, the NSW SES issues an Evacuation Warning to indicate that you should get prepared to evacuate. Being prepared will allow you to respond quickly if an Evacuation Order is issued.

Monitor the flood situation:

In addition to receiving an official warning, monitoring the situation before flooding begins to impact the site is important. Monitoring the situation can be undertaken by personally witnessing the height and rate at which floodwaters are rising; maintaining contact with other people in the building and local and government radio stations to receive and share updates on the flood situation.

The likelihood of flash flooding:

Severe Weather Warnings and Severe Thunderstorm Warnings issued by the Bureau of Meteorology warn of the possibility of flash flooding.

When flash flooding is likely, leaving low-lying businesses (evacuation) well before flash flooding begins is the best action to take, but only if it is safe to do so. If you are trapped by rising floodwater, seek refuge in the highest levels of the project. Stay there and call '000' (triple zero) if you need rescue.

All warnings will be issued through the Bureau of Meteorology website, television and local radio stations for weather warnings such as 702 ABC SYDNEY 702 AM, 2CH 1170 AM, 2DAY FM 104.1 FM, 2GB 873 AM, 2ME 1638 AM, 2SM/GORILLA 1269 AM, 2UE 954 AM, C91.3 FM 91.3 FM, MIX 106.5 106.5 FM, NOVA 96.9 FM, RADIO 2MORO 1620 AM, RADIO 2RDJ 88.1 FM, SBS RADIO 97.7 FM, SYDNEY'S 95.3 95.3 FM, TRIPLE M 104.9 FM and WFSM 101.7 FM.

Flood Evacuation and Management Personnel

It is the responsibility of the Emergency Planning Committee as part of the site Emergency Management Plan that they prepare the site for a flood event. This will be achieved through induction training, nomination of flood wardens reporting to the Chief Warden during emergency events, education of flood risks and behaviour, and the preparation and maintenance of a Floodsafe Emergency Kit.

The Emergency Planning Committee is also to organise evacuation drills and flood emergency kits to prepare all site personnel for flood risks.

5 Erosion and Sediment Control

During construction and while the site is disturbed, erosion prevention and sediment control measures will be required. Erosion prevention generally involves managing stormwater by diverting overland flow around construction areas as well as collecting stormwater within the construction zone and directing to sediment control devices. Devices likely to be incorporated are silt removal fences, catch drains, and water flow dissipation and discharge control devices such as sandbags, pollution mattresses and basins.

Erosion prevention and sediment removal strategies need to be inspected regularly during construction works, cleaned, and maintained after storm events, and modified to suit construction work progress, decanting, and demolition.

Erosion and sediment controls are to be maintained until the site is fully stabilised to prevent pollution of the receiving environment. The controls are to be designed, constructed, and installed in accordance with Managing Urban Stormwater: Soils and Construction Volume 1 and 2 (Blue Book Vol. 1 and 2), and City of Sydney DCP.

6 Conclusion

The civil works associated with the refurbishment of Canva, Surry Hills will be carried out in accordance with normal engineering practice and will meet the requirements of relevant standards.

After correspondence with Sydney Water, the site will require not OSD. The site will however require stormwater quality control measures. The site will utilise a preliminary a combined tank including one pit insert and two StormFilter cartridges to reduce pollutants before discharge. This tank will work to remove pollutant loads alongside a rainwater tank, assumed to be 6kL in volume.

Due to the flood affectation of the property in both the 1% AEP and PMF flood events, Flood Planning Levels apply to floor levels and basement ingress points along the property frontages. Some areas have met the FPL; however, some areas require alternative methods such as flood doors. Where change to the floor levels and flood doors are not feasible, it expected patrons will act in accordance with the FERP (7039-CV-RP-002). Overall, the development meets the performance criteria described in the CoS Interim Flood Management Plan. The development is compatible with the established flood hazard of the land, will not significantly adversely affect flood behaviour, the environment, or cause avoidable erosion, incorporates appropriate measures to manage risk to life, is not likely to result in great costs, is consistent with the principles of Ecologically Sustainable Development, and adequately considers the impact of climate change.

Erosion and sediment control measures are to be in place during construction to prevent contamination of the downstream stormwater system and tracking of grit and sediment onto the roadway.

APPENDIX A

Sydney Water Correspondence

Veitch, Mia

From: Jeya Jeyadevan <JEYA.JEYADEVAN@sydneywater.com.au>
Sent: Monday, 16 October 2023 1:40 PM
To: Mia Veitch
Cc: Phillip Lambley
Subject: RE: [External] 8-24 Kippax Street OSD Requirement

Mia,

Please ensure all future correspondence in relation to all stormwater enquires including On Site Detention requirements are sent to the following address:
stormwater@sydneywater.com.au

On Site Detention is not required for any development at this property 8-24 Kippax Street, Surry Hills.

Best Regards

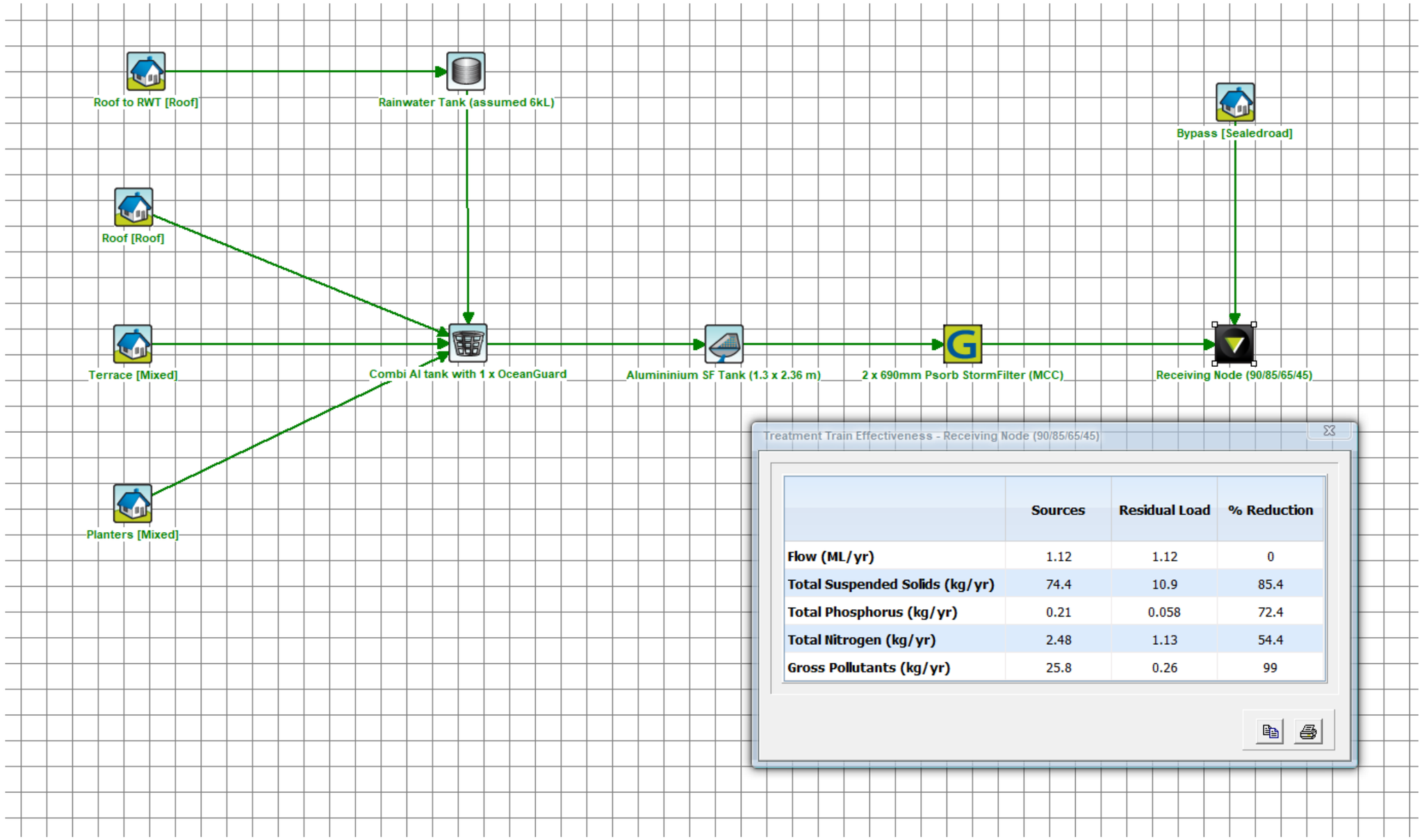
Jeya Jeyadevan
Senior Capability Assessor
Business Development
Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150

Sydney WATER

Phone: 8849 6118
Mobile: 0409 318 827
jeya.jeyadevan@sydneywater.com.au

APPENDIX B

MUSIC Model & Outputs



	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.12	1.12	0
Total Suspended Solids (kg/yr)	74.4	10.9	85.4
Total Phosphorus (kg/yr)	0.21	0.058	72.4
Total Nitrogen (kg/yr)	2.48	1.13	54.4
Gross Pollutants (kg/yr)	25.8	0.26	99

MUSIC-*link* Report

Project Details		Company Details	
Project:	8-24 Kippax Street, Surry Hills	**Company:**	enstruct
Report Export Date:	1/12/2023	**Contact:**	Mia Veitch
Catchment Name:	231201 - MUSIC Model - MZV	**Address:**	Level 4/2 Glen St, Milsons Point NSW 2061
Catchment Area:	0.103ha	**Phone:**	(02) 8904 1444
Impervious Area*:	84.46%	**Email:**	Mia.Veitch@wsp.com
Rainfall Station:	66062 SYDNEY		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1982 - 31/12/1986 11:54:00 PM		
Mean Annual Rainfall:	1278mm		
Evapotranspiration:	1265mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.34		
Study Area:	City of Sydney Clay Soil		
Scenario:	City Of Sydney Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness

Node: Receiving Node (90/85/65/45)	Reduction
Flow	0.00018%
TSS	85.4%
TP	72.4%
TN	54.4%
GP	99%

Treatment Nodes

Node Type	Number
Sedimentation Basin Node	1
Rain Water Tank Node	1
GPT Node	1
Generic Node	1

Source Nodes

Node Type	Number
Urban Source Node	5

Comments

The aluminium SF tank inputs are as per manufacturers (OceanProtect) specification. For enquires please contact OceanProtect on 1300 354 722.

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
GPT	Combi Al tank with 1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.04
Rain	Rainwater Tank (assumed 6kL)	% Reuse Demand Met	None	None	0
Receiving	Receiving Node (90/85/65/45)	% Load Reduction	None	None	0.00018
Receiving	Receiving Node (90/85/65/45)	GP % Load Reduction	90	None	99
Receiving	Receiving Node (90/85/65/45)	TN % Load Reduction	45	None	54.4
Receiving	Receiving Node (90/85/65/45)	TP % Load Reduction	65	None	72.4
Receiving	Receiving Node (90/85/65/45)	TSS % Load Reduction	85	None	85.4
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	% Reuse Demand Met	None	None	0
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Extended detention depth (m)	0.25	1	0.77
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	High Flow Bypass Out (ML/yr)	None	None	0
Urban	Bypass	Area Impervious (ha)	None	None	0.001
Urban	Bypass	Area Pervious (ha)	None	None	0
Urban	Bypass	Total Area (ha)	None	None	0.001
Urban	Planters	Area Impervious (ha)	None	None	0
Urban	Planters	Area Pervious (ha)	None	None	0.016
Urban	Planters	Total Area (ha)	None	None	0.016
Urban	Roof	Area Impervious (ha)	None	None	0.034
Urban	Roof	Area Pervious (ha)	None	None	0
Urban	Roof	Total Area (ha)	None	None	0.034
Urban	Roof to RWT	Area Impervious (ha)	None	None	0.034
Urban	Roof to RWT	Area Pervious (ha)	None	None	0
Urban	Roof to RWT	Total Area (ha)	None	None	0.034
Urban	Terrace	Area Impervious (ha)	None	None	0.018
Urban	Terrace	Area Pervious (ha)	None	None	0
Urban	Terrace	Total Area (ha)	None	None	0.018

Only certain parameters are reported when they pass validation

Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Notional Detention Time (hrs)	8	12	0.0708
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	Alumininium SF Tank (1.3 x 2.36 m)	Total Suspended Solids - k (m/yr)	8000	8000	1

Only certain parameters are reported when they pass validation

APPENDIX C

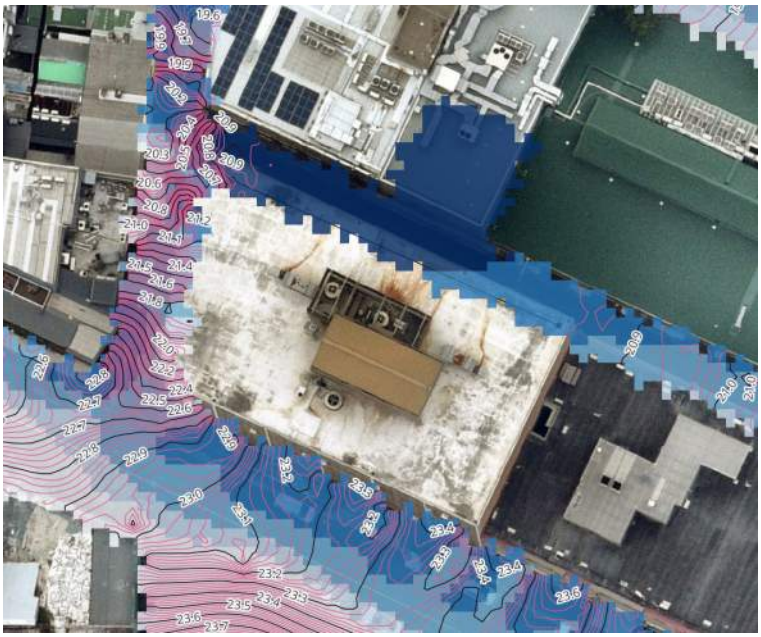
City of Sydney Performance Criteria Matrix

Performance Criteria	How it has been addressed:
a.	The development is compatible with the established flood hazard of the land. The post-development flood mapping shows the development has no impact on the flood conditions surrounding the property.
b.	The development will not significantly adversely affect flood behaviour resulting in determinantal increases in the potential flood affection of other development or properties. The development does not propose any alteration to the building footprint, nor any items in the public domain that will impact the surrounding floodway path or flood storage extent. The development does not increase the rate of discharge of stormwater from the building as there was no existing OSD, and there is a small increase in pervious area resulting in slightly slower flow rates from the building post-development. The proposed development will have no impact on the surrounding flood conditions.
c.	The development incorporates appropriate measures to manage risk to life from flood by proposing no alteration to the existing building layout resulting in no increase in flood hazard surrounding the building. The development meets FPLs where possible or proposes flood doors where not feasible. Where neither of these methods are feasible it is expected building patrons will move to the assembly point in accordance with the Flood Emergency Response Plan (FERP) (7039-CV-RP-001) and additional flood controls are proposed.
d.	The development will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of creek or channel banks or watercourse. The proposed design does not increase any flood velocities surrounding the property and incorporates WSUD measures in line with Council's requirements.
e.	The development is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding as there is no impact to the surrounding flood conditions.
f.	The development is consistent with the principles of Ecologically Sustainable Development. Refer to the ESD DA Report by E-Lab.
g.	The development adequately considers the impact of climate change by analysing the 1% AEP storm event with an applied factor of 19.7% to the rainfall data in line with Representative Concentration Pathway (RCP) 8.5 in 2090 (worst case scenario) ARR 2019 interim Climate change rainfall intensity factors. This factor aligns with an increase in temperature of 3.679°C. RCP 8.5 is looking less likely with global action to limit climate change; the adopted scenario represents a conservative approach to the many unknowns in future climate prediction. In the RCP 8.5 scenario the building is expected to be protected up to a 5% to 2% AEP storm event (which has the equivalent intensity of the current 1% AEP storm event). In the RCP 8.5, 1% AEP storm event, the flood levels around the site will enter the building via entry points along Sophia Street, however, it is expected prior to flood water entering the building, patrons will act in accordance with the FERP (7039-CV-RP-001). This risk is accepted for the development understanding the presented RCP 8.5 scenario is unlikely and the building would be protected up to a 5% to 2% AEP storm event. The flood maps for the RCP 8.5 scenario are available in **Appendix D**.

APPENDIX D

Post-Development Flood Maps

PMF

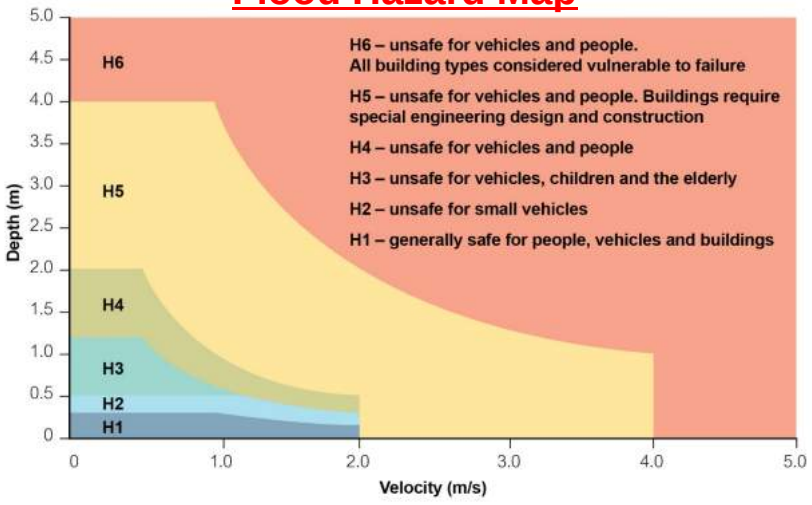


Legend:

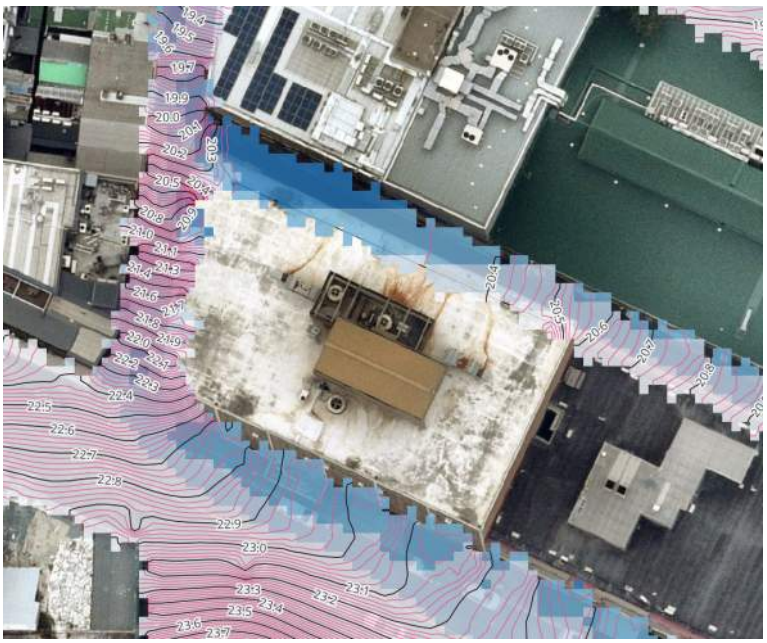
- less than 50mm
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

Flood Contour Map

Flood Hazard Map



1% AEP



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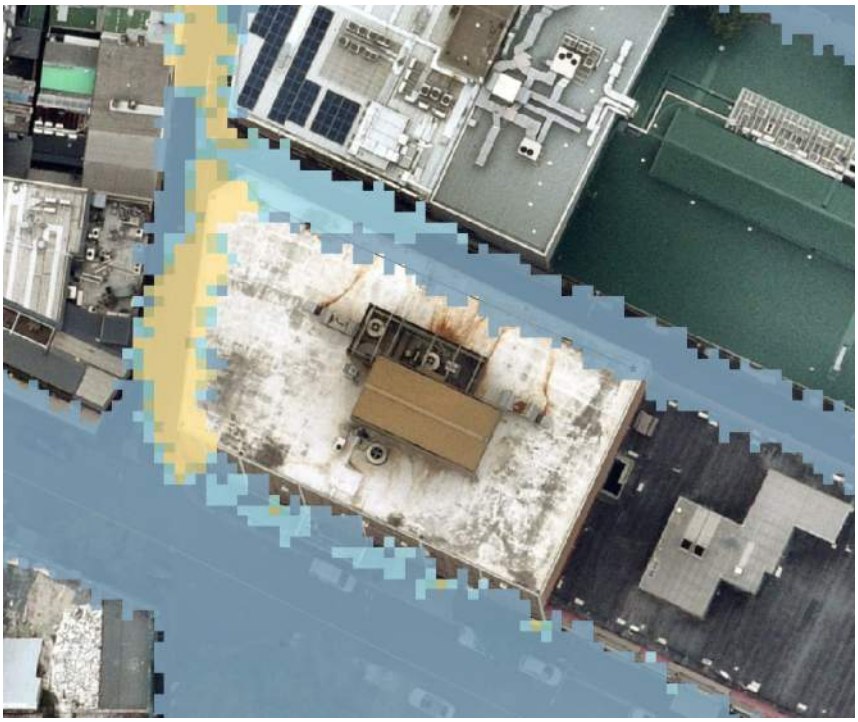
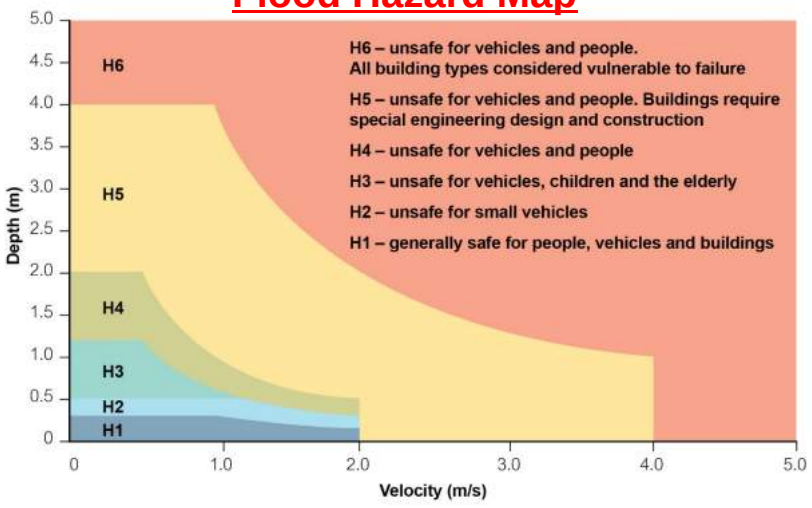
- 150-300mm
- 300-600mm
- deeper than 600mm

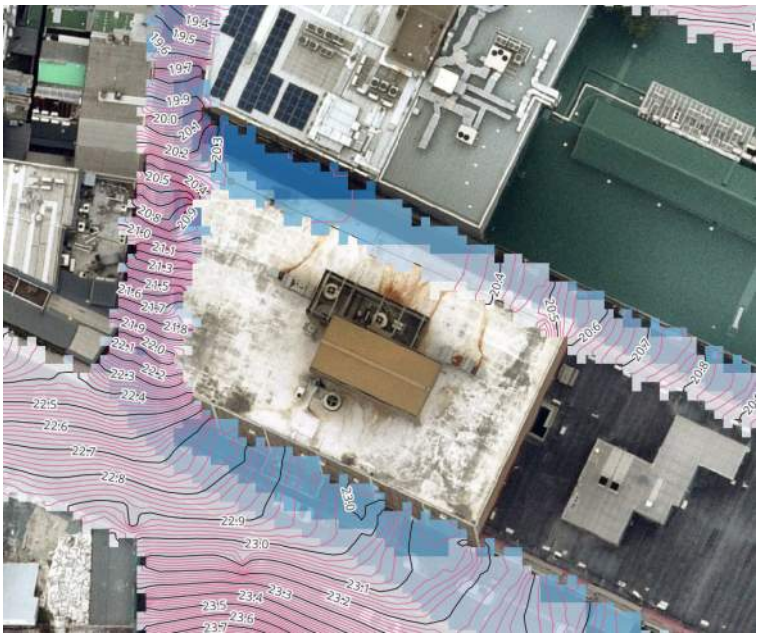
Flood Contour Map



Flood Hazard Map



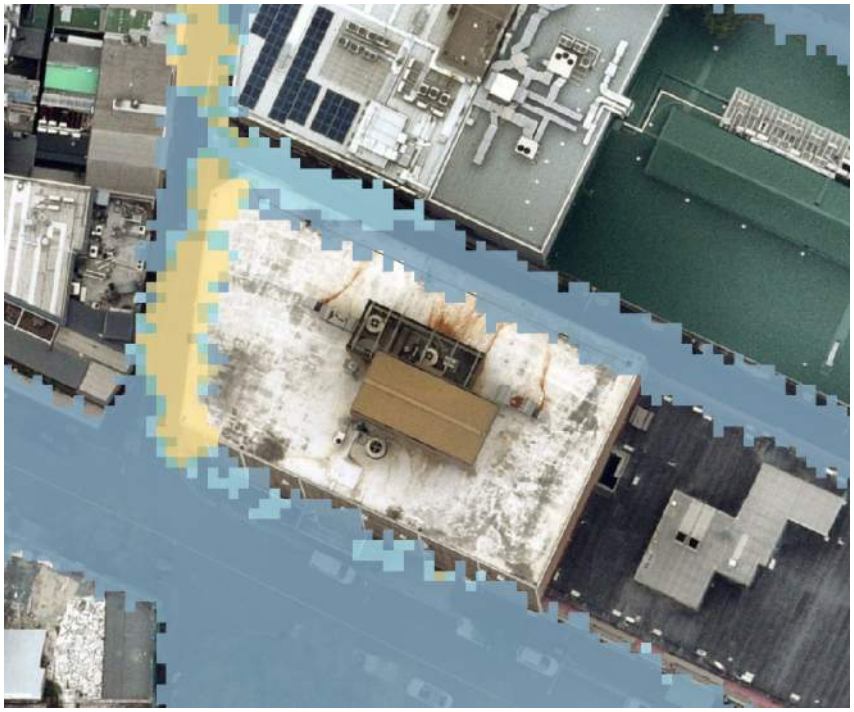
5% AEP



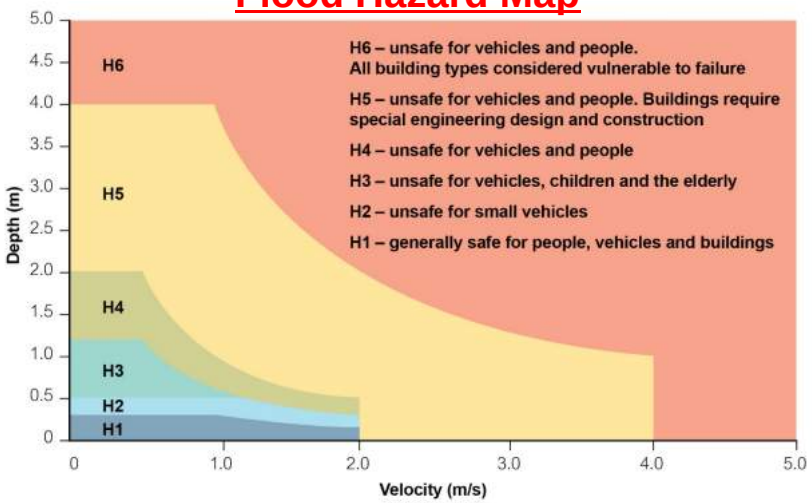
Legend:

- less than 50mm
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

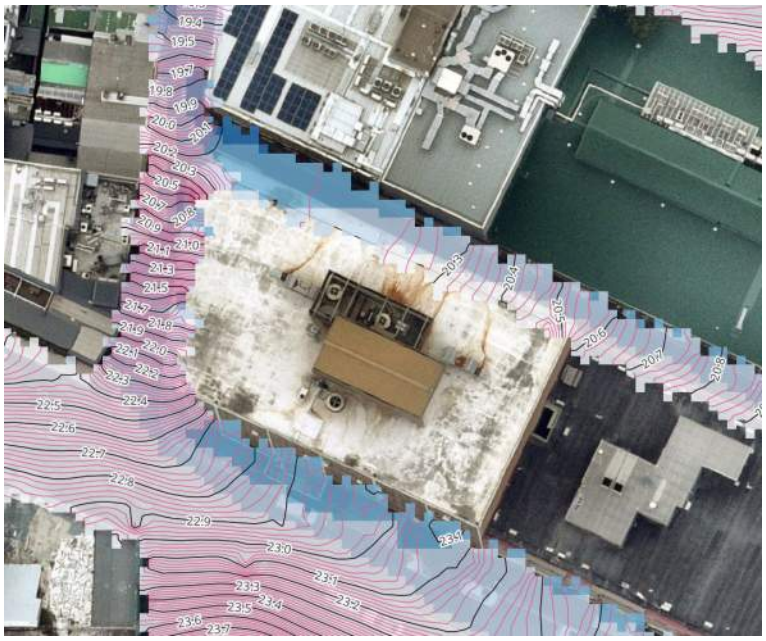
Flood Contour Map



Flood Hazard Map



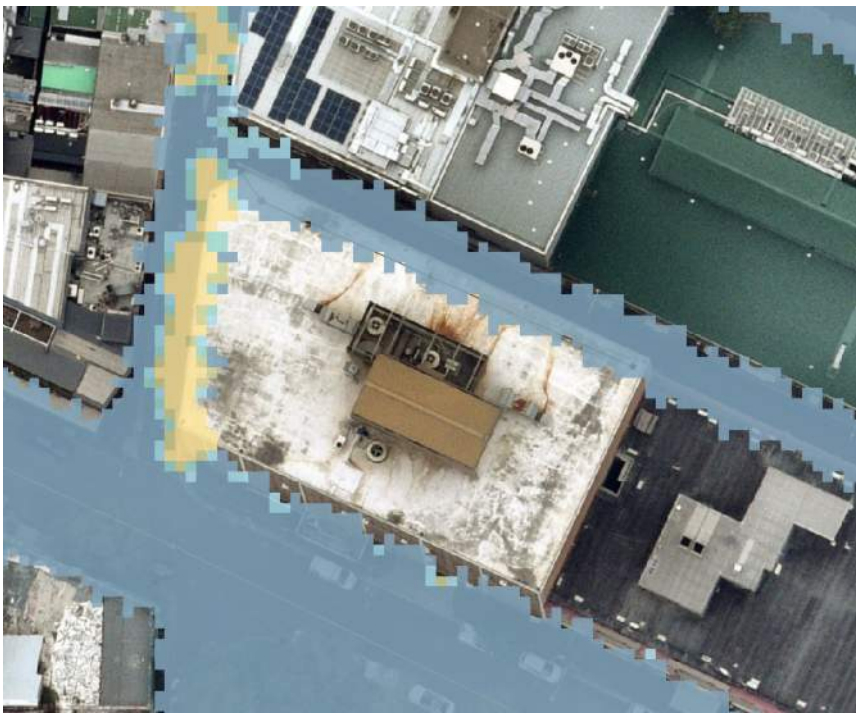
10% AEP



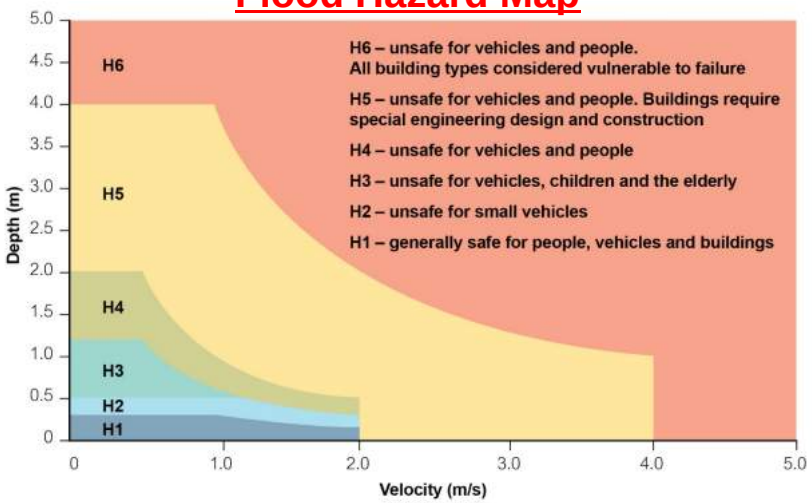
Legend:

- less than 50mm
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

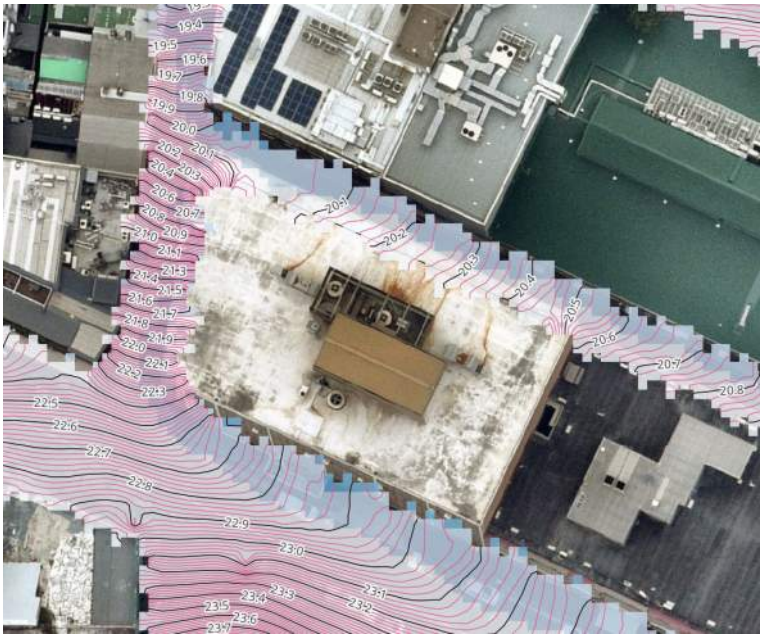
Flood Contour Map



Flood Hazard Map



20% AEP

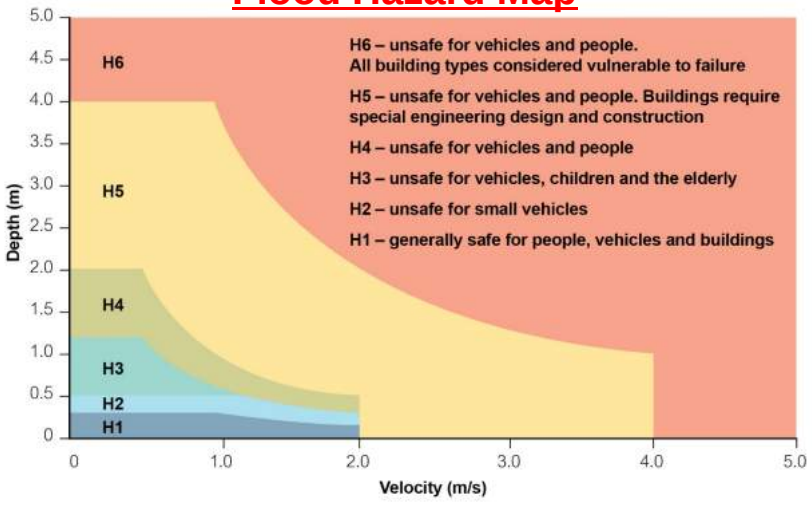


Legend:

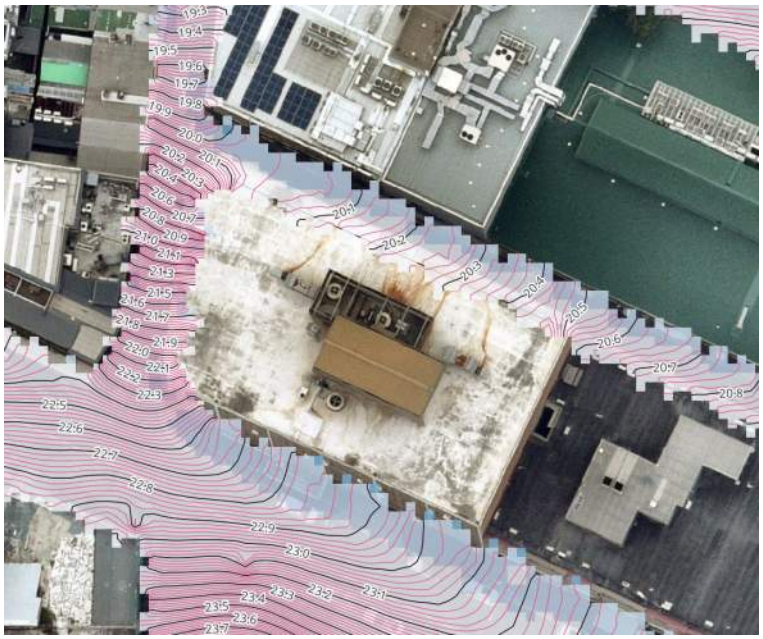
- less than 50mm
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

Flood Contour Map

Flood Hazard Map



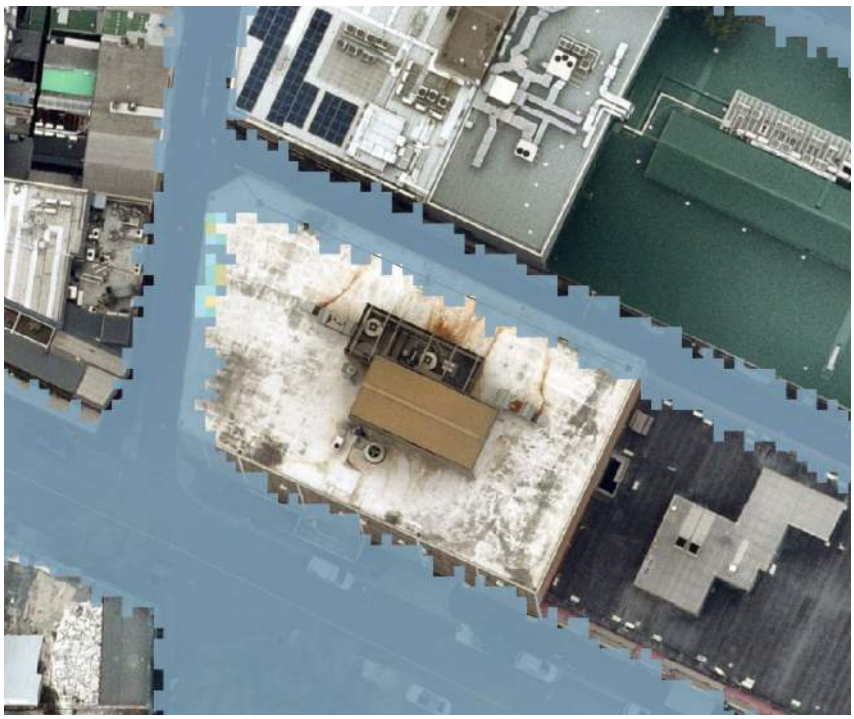
50% AEP



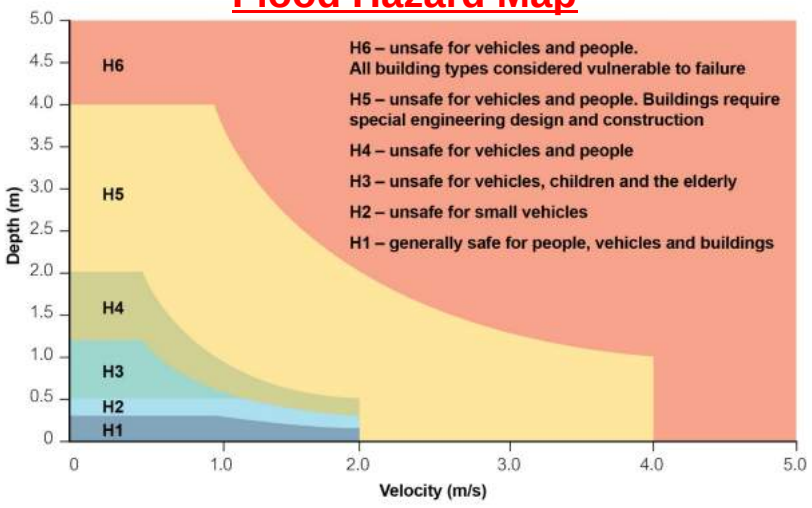
Legend:

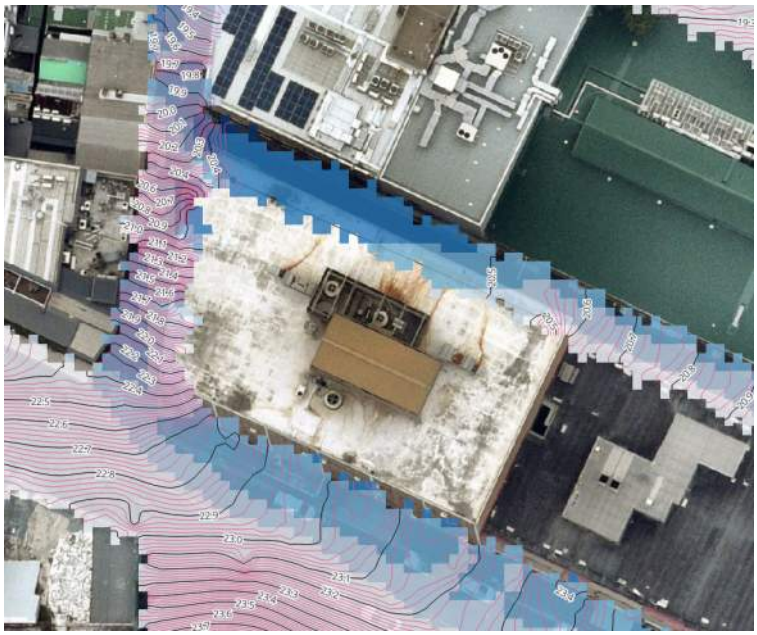
- less than 50mm
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

Flood Contour Map



Flood Hazard Map





1% AEP

Climate Change Factor 19.7%
2090, RCP 8.5

Legend:

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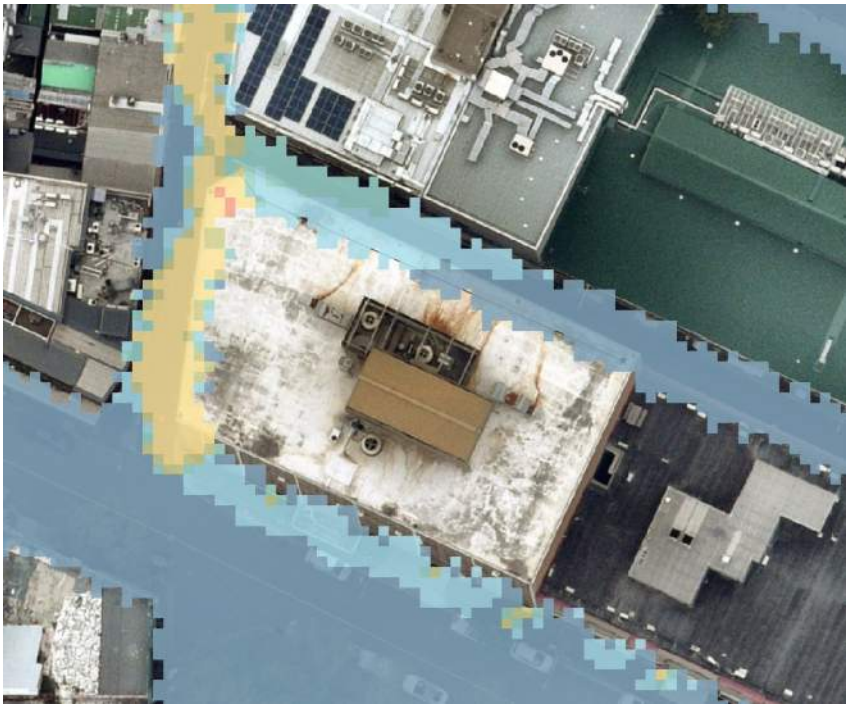
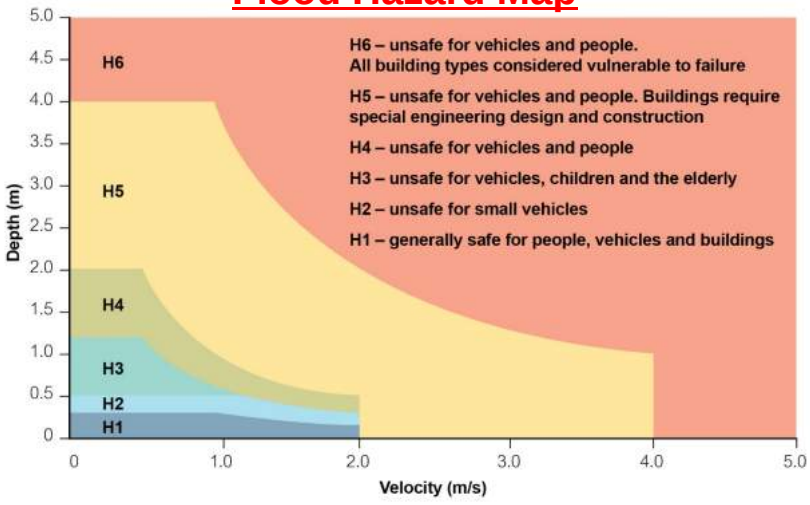
- 50-150mm
- 150-300mm
- 300-600mm
- deeper than 600mm

Flood Contour Map



Flood Hazard Map



APPENDIX E

Flood Level Sketches

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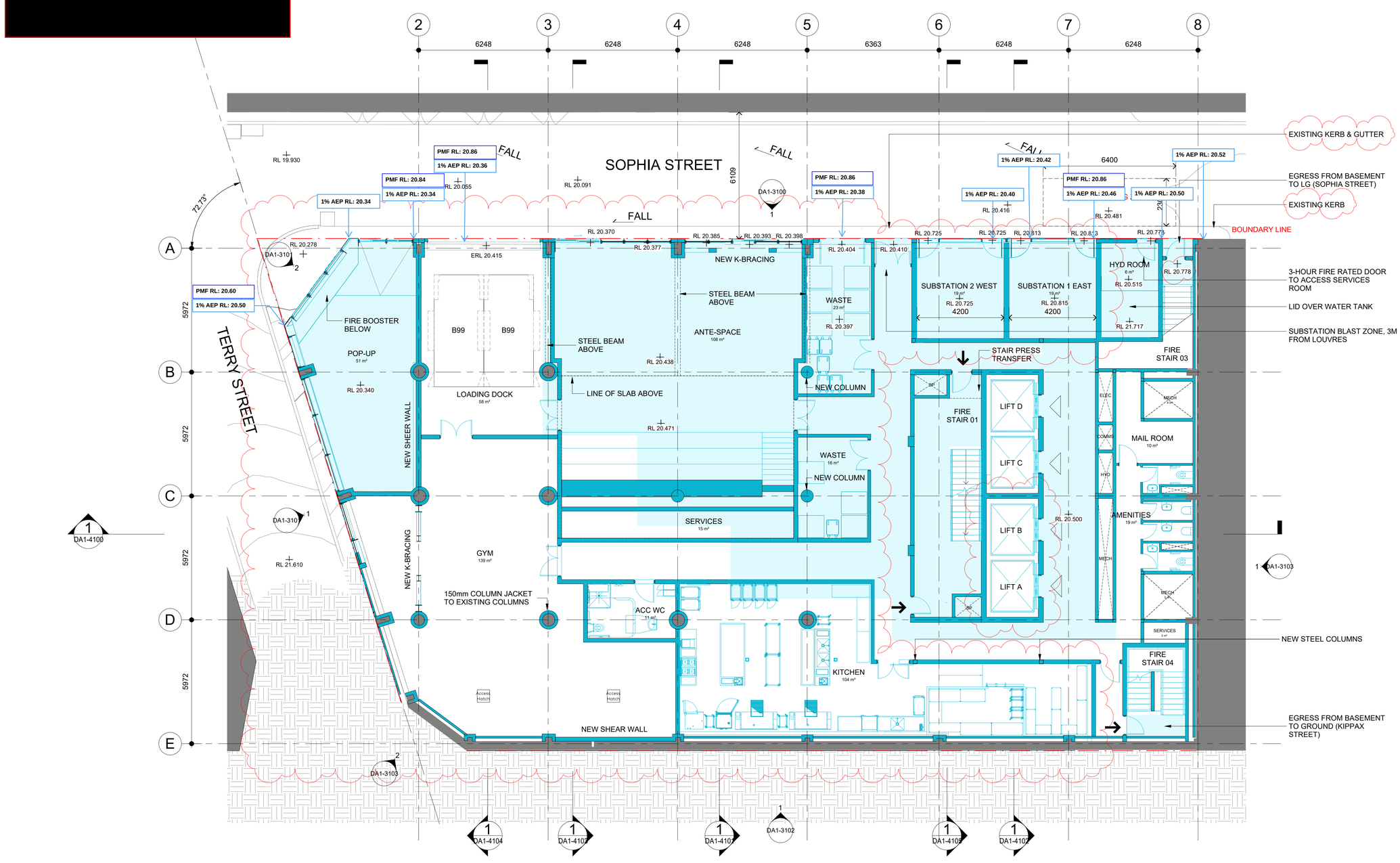


1 GA PLAN - LOWER GROUND
SCALE 1 : 100

MZV

Scale 1:100

0 1m 2m 5m 10m

Rev	Description	By	Date
1	Issue For DA1 Submission	LV	05/12/2023
2	Amendments to DA1 Submission	LV	04/04/2024

PROJECT MANAGER — GENERATE PROPERTY GROUP
Level 13/25 Bligh St, Sydney NSW 2000

STRUCTURAL ENGINEER — MEINHARDT
4/66 Clarence St, Sydney NSW 2000
+61 414 950 668

SERVICES ENGINEER — ADP
33 Erskine St, Sydney NSW 2000
+61 408 679 459

TOWN PLANNER — ETHOS URBAN
Level 4/180 George St, Sydney NSW 2000
+61 410 291 014

WASTE CONSULTANT — MRA CONSULTING
Henry Lawson, Building, 408/19 Roseby St, Drummoyne
+61 2 8541 6169

TRAFFIC CONSULTANT — TTPA
10 Help St, Chatswood NSW 2067
+61 2 9411 5660

FACADE ENGINEER — SURFACE DESIGN
68 York St, Sydney NSW 2000
+61 2 9249 1400

SPECIALIST FIRE ENGINEER / ESD — E-LAB CONSULTING
Level 11, 10 Carrington Street, Sydney, NSW, 2000
+61 447 343 458

BCA CONSULTANT — JENSEN HUGHES
Suite 302, Level 3, 151 Castlereagh Street
+61 2 9411 5360

LEGEND

- EXISTING BUILDING FABRIC
- NEW BUILDING FABRIC
- NEW SLAB INFILL AREA
- DEMOLISHED BUILDING FABRIC
- EXTENT OF SLAB DEMOLISHED
- EXTENT OF FACADE DEMOLISHED
- BOUNDARY LINE
- INDICATIVE EXPOSED SERVICES ZONE

GENERAL NOTES

DRAWINGS TO BE READ IN CONJUNCTION WITH REPORTS PREPARED FOR THE PURPOSE OF THIS DEVELOPMENT APPLICATION.
BASE BUILT INFORMATION BASED ON SURVEY MODEL PROVIDED BY SURVEYOR.

Cox Architecture
70 George Street
The Rocks NSW 2000
Australia

T + 61 2 9267 9599
coxarchitecture.com.au

Nominated Architects:
Joe Agius no. 6491
Russell Lee no. 6367

COX

Client
CANVA

Project No.
22058.0

Project
CANVA
8-24 KIPPAX STREET, SURRY HILLS

Acknowledgement
In the language of the Eora Nation people, this site is known as Gadigal land.

Drawing Title
GA PLAN - LOWER GROUND

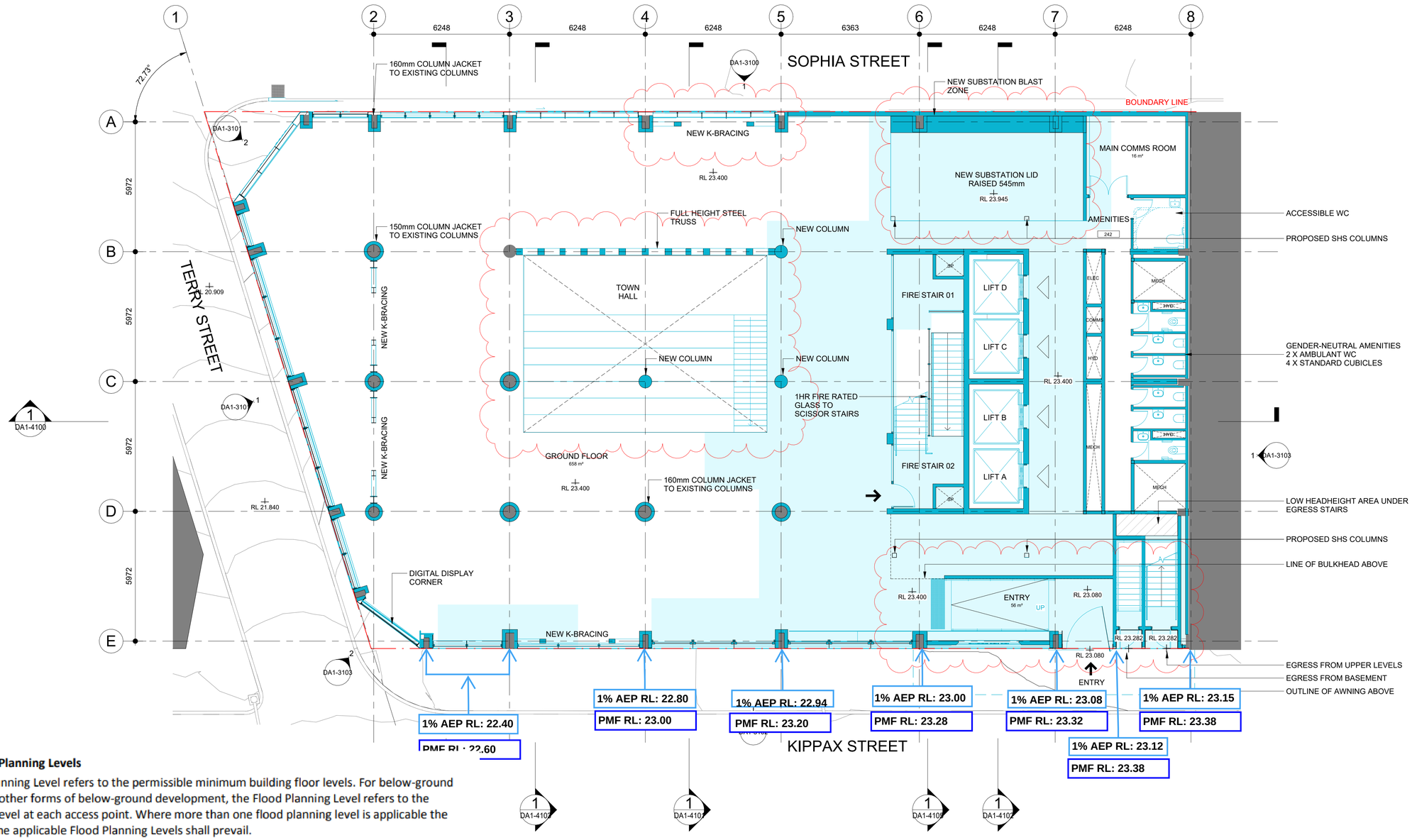
Document Control Status:
DEVELOPMENT APPLICATION

Co-ordinated: LV	**Drawn:** HC
Project Architect: LV	**Scale:** 1 : 100 @ A1
Project Director: RJ	**Date:** 04/04/2024
Drawing Number: DA1-2101	**Revision:** 2

PLOT STAMP DATE: 4/04/2024 6:07:21 PM

1% AEP RL: 20.00 1% AEP Flood Level

1% AEP RL: 20.00 PMF Flood Level



5 Flood Planning Levels

A Flood Planning Level refers to the permissible minimum building floor levels. For below-ground parking or other forms of below-ground development, the Flood Planning Level refers to the minimum level at each access point. Where more than one flood planning level is applicable the higher of the applicable Flood Planning Levels shall prevail.

Development		Type of flooding	Flood Planning Level
Industrial or Commercial	Business	Mainstream or local drainage flooding	Merits approach presented by the applicant with a minimum of the 1% AEP flood level
Below-ground garage/ car park	All other below-ground car parks	Mainstream or local drainage flooding	1% AEP flood level + 0.5 m or the PMF (whichever is the higher) See Note 1

Scale 1:100

0 1m 2m 5m 10m

Rev	Description	By	Date
1	Issue For DA1 Submission	LV	05/12/2023
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- NEW BUILDING FABRIC
- NEW SLAB INFILL AREA
- DEMOLISHED BUILDING FABRIC
- EXTENT OF SLAB DEMOLISHED
- EXTENT OF FACADE DEMOLISHED
- BOUNDARY LINE
- INDICATIVE EXPOSED SERVICES ZONE

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BASE BUILT INFORMATION BASED ON SURVEY MODEL PROVIDED BY SURVEYOR.

Cox Architecture
70 George Street
The Rocks NSW 2000
Australia

T + 61 2 9267 9599
coxarchitecture.com.au

Nominated Architects:
Joe Agius no. 6491
Russell Lee no. 6367

Client CANVA

Project No. 22058.0

Project CANVA

8-24 KIPPAX STREET, SURRY HILLS

Acknowledgement
In the language of the Eora Nation people, this site is known as Gadigal land.

Drawing Title GA PLAN - GROUND LEVEL

Document Control Status: DEVELOPMENT APPLICATION

Co-ordinated: LV
Drawn: HC
Project Architect: LV
Scale: 1 : 100 @ A1
Project Director: RJ
Date: 04/04/2024
Drawing Number: DA1-2102
Revision: 2

PLOT STAMP DATE: 4/04/2024 6:07:30 PM

APPENDIX F

Civil Drawings

enstruct

CIVIL ENGINEERING WORKS

CANVA - SURRY HILLS

8-24 KIPPAX STREET, SURRY HILLS 2010

LOCALITY PLAN
SCALE: 1:200

TO BE PRINTED IN FULL COLOUR

CIVIL ENGINEERING WORKS DRAWING LIST:

7039-CV-0001	COVER SHEET, LOCALITY PLAN AND DRAWING LIST
7039-CV-0002	NOTES SHEET
7039-CV-2001	SITEWORKS PLAN
7039-CV-3001	STORMWATER PLAN
7039-CV-3002	STORMWATER PLAN DETAILS SHEET 1
7039-CV-3051	STORMWATER CATCHMENT PLAN
7039-CV-3501	DETAILS SHEET 1

NOT FOR CONSTRUCTION

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rev	date	description	drn	ch'k
02	10/04/24	ISSUE FOR INFORMATION	MZV	PAL
01	01/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL

rev	date	description	drn	ch'k

enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

project: CANVA - SURRY HILLS

8-24 KIPPAX STREET, SURRY HILLS 2010

drawing title: COVER SHEET, LOCALITY PLAN AND DRAWING LIST

status: FOR INFORMATION ONLY

scale at A1	drawn	checked	approved
N.T.S	MZV	PAL	DEC-23

project no.	sheet	rev.
7039	7039-CV-0001	02

A1

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels : PM53243 - 18.302m AHD
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM
Coordinate system : MGA-56
Survey prepared by : C & A SURVEYORS
Setout Points : CONTACT THE SURVEYOR

enstruct does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING

The locations of underground services shown on enstruct drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.

The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

enstruct does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.

enstruct plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

SITEWORKS NOTES

1. All basecourse material to comply with RMS specification No 3051 and compacted to minimum 98% modified dry density in accordance with AS 1289 5.2.1.
2. All trench backfill material shall be compacted to the same density as the adjacent material.
3. All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1

DBYD SERVICES NOTE

"Public Service Utility information shown on plan has been complied from information received from Dial Before You Dig inquiry, reference Number 35269078, which was obtained on 17/10/2023. Unless specifically shown otherwise, this location and depth of services shown on this plan have not been verified.

The location of services shown on this drawing have been plotted as accurately as possible from diagrams provided by service authorities and should be confirmed by site inspection."

STORMWATER PIT SCHEDULE

Note: Grate size does not necessarily reflect pit size, refer pit type details, shown on 7039-CV-0002 Final internal pit dimensions are to comply with AS3500

Type	Description	Size	Class	Material	Number
A	Standard Gully Pit with Stone Inlet as per DWG 7.1.2	As per CoS DWG 7.1.2	D	Ductile iron, class D & bike safe grate and frame.	4
B	Existing pit to remain				1,2
C	Junction Pit as per DWG 7.1.7	As per CoS DWG 7.1.7	D	Ductile iron hinged lid with a spring locking system.	3,5

GENERAL NOTES

1. Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Superintendent
2. Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
3. Make smooth connection with all existing works.
4. Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
5. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority; the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site.
6. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
7. For all temporary batters refer to geotechnical recommendations.
8. The approval of a substation shall be sought from the superintendant but is not an authorisation of a cost variation. The superintendant must approve any cost variation before any work starts

REFERENCE DRAWINGS

1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev	Date
COX	General Arrangement Plan	DA1-2100	1	05/12/23
		DA1-2101	1	05/12/23
		DA1-2102	1	05/12/23
		DA1-2106	1	05/12/23

STORMWATER DRAINAGE NOTES

1. Stormwater Design Criteria :
(A) Average exceedance probability -
1% AEP for roof drainage to first external pit
(B) Rainfall intensities -
Time of concentration: 5 minutes
1% AEP = 260 mm/hr
5% AEP = 200 mm/hr
(C) Rainfall losses -
Impervious areas: IL= 1.0 mm , CL = 0 mm/hr
Pervious areas: IL= 28mm , CL = 1.6 mm/hr
2. Pipes up to 225 dia may be sewer grade uPVC with solvent welded joints, subject to approval by the engineer
3. Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia.
4. Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O.
5. Pit grates and covers shall conform with AS3996-2006, and AS1428.1 for access requirements.

EROSION AND SEDIMENT CONTROL NOTES

1. All work shall be generally carried out in accordance with
(A) Local authority requirements,
(B) EPA - Pollution control manual for urban stormwater,
(C) LANDCOM NSW - Managing Urban Stormwater: Soils and Construction ("Blue Book").
2. Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities.
The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
3. Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
4. Minimise the area of site being disturbed at any one time.
5. All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
6. Control water from upstream of the site such that it does not enter the disturbed site.
7. All vehicles leaving the site shall be cleaned and inspected before leaving.
8. Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
9. Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

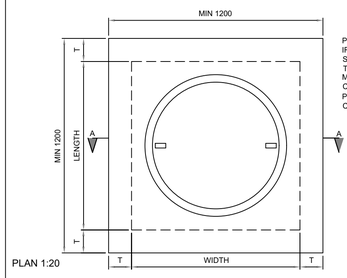
1. Prior to commencement of excavation the following soil management devices must be installed:
1.1. Construct silt fences below the site and across all potential runoff sites.
1.2. Construct measures to divert upstream clean flows into existing stormwater system.
1.3. Provide sandbag sediment traps upstream of existing pits.
2. Construct geotextile filter pit surround around all existing pits and proposed pits as they are constructed.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system.This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

MANHOLE COVER AND FRAME

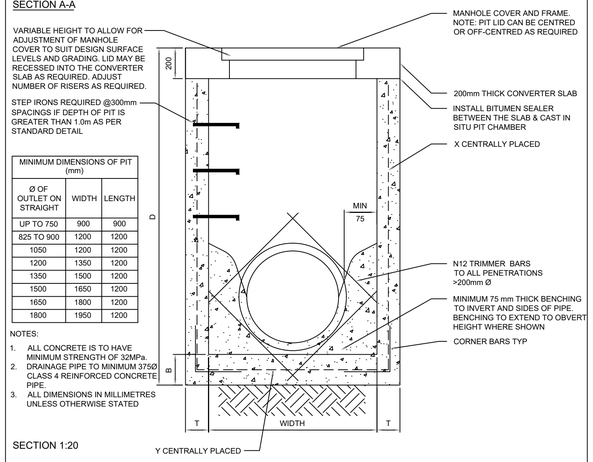


PIT LID IS A CLASS D DUCTILE IRON HINGED LID WITH A SPRING LOCKING SYSTEM THE LID SHALL BE A KORUM MANHOLE COVER (REF CDK060EFX17) OR SIMILAR PRODUCT APPROVED BY THE CITY.

PLAN 1:20

PIT SPECIFICATIONS					
D	B	T	X	Y	CORNER BARS
750 - 1200	150	150	SL82	SL81	N12-300 L 500
1200 - 2100	200	180	SL81	SL81	N12-200 L 600
> 2100	TO STRUCTURAL ENGINEERS SPECIFICATION				

SECTION A-A



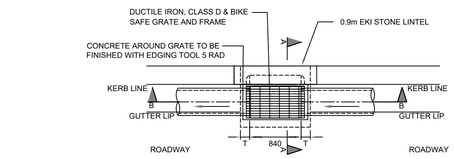
MINIMUM DIMENSIONS OF PIT (mm)		
Ø OF OUTLET ON STRAIGHT	WIDTH	LENGTH
UP TO 750	900	900
825 TO 900	1200	1200
1050	1200	1200
1200	1350	1200
1350	1500	1200
1500	1650	1200
1650	1800	1200
1800	1950	1200

NOTES:
1. ALL CONCRETE IS TO HAVE MINIMUM STRENGTH OF 32MPa.
2. DRAINAGE PIPE TO MINIMUM 375Ø CLASS 4 REINFORCED CONCRETE PIPE.
3. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

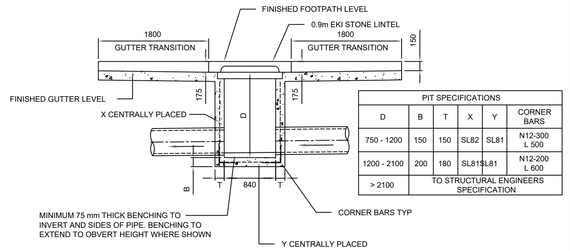
SECTION 1:20

	PITS & PIPES STANDARD JUNCTION PIT	DRAINAGE Rev E Date 16.11.22 Approved S A Dwg No. 7.1.7

PLAN

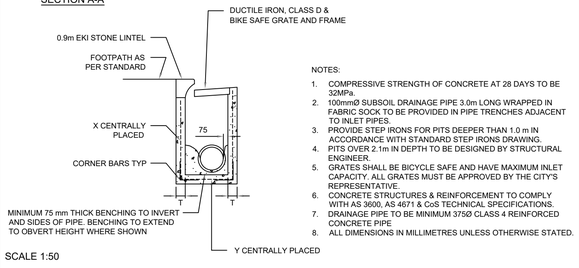


SECTION B-B



PIT SPECIFICATIONS					
D	B	T	X	Y	CORNER BARS
750 - 1200	150	150	SL82	SL81	N12-300 L 500
1200 - 2100	200	180	SL81	SL81	N12-200 L 600
> 2100	TO STRUCTURAL ENGINEERS SPECIFICATION				

SECTION A-A



NOTES:
1. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS TO BE 32MPa.
2. 100mmØ SUBSOIL DRAINAGE PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED IN PIPE TRENCHES ADJACENT TO INLET PIPES.
3. PROVIDE STEP IRONS FOR PITS DEEPER THAN 1.0 m IN ACCORDANCE WITH STANDARD STEP IRONS DRAWING.
4. PITS OVER 2.1m IN DEPTH TO BE DESIGNED BY STRUCTURAL ENGINEER.
5. GRATES SHALL BE BICYCLE SAFE AND HAVE MAXIMUM INLET CAPACITY. ALL GRATES MUST BE APPROVED BY THE CITY'S REPRESENTATIVE.
6. CONCRETE STRUCTURES & REINFORCEMENT TO COMPLY WITH AS 3600, AS 4671 & CoS TECHNICAL SPECIFICATIONS.
7. DRAINAGE PIPE TO BE MINIMUM 375Ø CLASS 4 REINFORCED CONCRETE PIPE
8. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

SCALE 1:50

	PITS & PIPES STANDARD GULLY PIT WITH STONE INLET	DRAINAGE Rev D Date 01.12.19 Approved P S Dwg No. 7.1.2

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rev	date	description	drn	ch'k
03	10/04/24	ISSUE FOR INFORMATION	ASE	PAL
02	07/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL
01	01/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL

enstruct group pty ltd
Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia
Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

project: CANVA - SURRY HILLS
8-24 KIPPAX STREET, SURRY HILLS 2010

drawing title: NOTES SHEET

status: FOR INFORMATION ONLY

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N.T.S	ASE	PAL	APR-24

project no.	sheet	rev.
7039	7039-CV-0002	03

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A1

PAVEMENT LEGEND

- P1 — Pavement Type 1: Pavers to City of Sydney Specification.
- P2 — Pavement Type 2: Pavers to City of Sydney Specification. Pavement constructed as a part of City of Sydney Terry Street Shared Zone.
- KG — PROPOSED KERB AND GUTTER
- DD — PROPOSED DISH DRAIN

SCALE 1:100

0 1 2 3 4 5 m

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03	07/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL
02	01/12/23	ISSUE FOR DEVELOPMENT APPLICATION	BEJ	PAL
01	27/11/23	ISSUE FOR INFORMATION	BEJ	PAL

rev	date	description	drn	ch'k

enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

project: CANVA - SURRY HILLS

8-24 KIPPAX STREET, SURRY HILLS 2010

drawing title: SITE WORKS PLAN

status: FOR INFORMATION ONLY

scale at A1	drawn	checked	approved
1:100	MZV	PAL	APR-24

project no.	sheet	rev.
7039	7039-CV-2001	04

A1

Ø450 EXISTING

REPLACE EXISTING Ø225 PIPE WITH Ø375 SN8 PIPE
LENGTH: 4.69m
UPIL: RL19.36
DSIL: RL19.31
1% SLOPE

Ø225 EXISTING

REFER TO 7039-CV-3002 FOR LONG-SECTION VIEWS OF HGL IN 1% AND 5% AEP STORM RESPECTIVELY

RECONSTRUCT EXISTING COUNCIL PIT (0.5m DEEP) IN ACCORDANCE WITH CITY OF SYDNEY STD. DRAWING 7.1.2

Ø300 EXISTING

Ø375 SN8 PIPE
LENGTH: 38m
UPIL: RL19.76
DSIL: RL19.38
1% SLOPE

NON-RETURN VALVE TO BE INSTALLED AT OUTLET

Ø225 SN8 PIPE
LENGTH: 1.1m
UPIL: RL19.79
DSIL: RL19.78
1% SLOPE

CONSTRUCT NEW COUNCIL STANDARD GULLY PIT IN ACCORDANCE WITH CITY OF SYDNEY STD. DRAWING 7.1.2

WATER QUALITY CHAMBER ON LOWER GROUND LEVEL. REFER TO 7039-CV-3501 FOR DETAILS.

LOWER GROUND LEVEL

GROUND LEVEL

E 334352.34
N 6249251.32

E 334389.57
N 6249234.08

E 334346.98
N 6249226.61

7°35'30" 4.665

7°35'30" 21.3

114°51'30" 45.645

294°51'30" 37.895

25°01'30" 24.695

SITEWORKS LEGEND

- Property boundary
- Dish drain
- Proposed stormwater line and stormwater pit
- Concrete encased stormwater line
- Existing stormwater line
- Overland flow path

STORMWATER PIT SCHEDULE

Note: Grate size does not necessarily reflect pit size, refer pit type details, shown on 7039-CV-0002
Final internal pit dimensions are to comply with AS3500

Type	Description	Size	Class	Material	Number
A	Standard Gully Pit with Stone Inlet as per DWG 7.1.2	As per CoS DWG 7.1.2	D	Ductile iron, class D & bike safe grate and frame.	4
B	Existing pit to remain				1,2
C	Junction Pit as per DWG 7.1.7	As per CoS DWG 7.1.7	D	Ductile iron hinged lid with a spring locking system.	3,5

SCALE 1:100
0 1 2 3 4 5 m

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02	01/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL
01	27/11/23	ISSUE FOR INFORMATION	BEJ	PAL

rev	date	description	drn	ch'k

enstruct group pty ltd
Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

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8-24 KIPPAX STREET, SURRY HILLS 2010

drawing title: STORMWATER PLAN

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project no.	sheet	rev.
7039	7039-CV-3001	04

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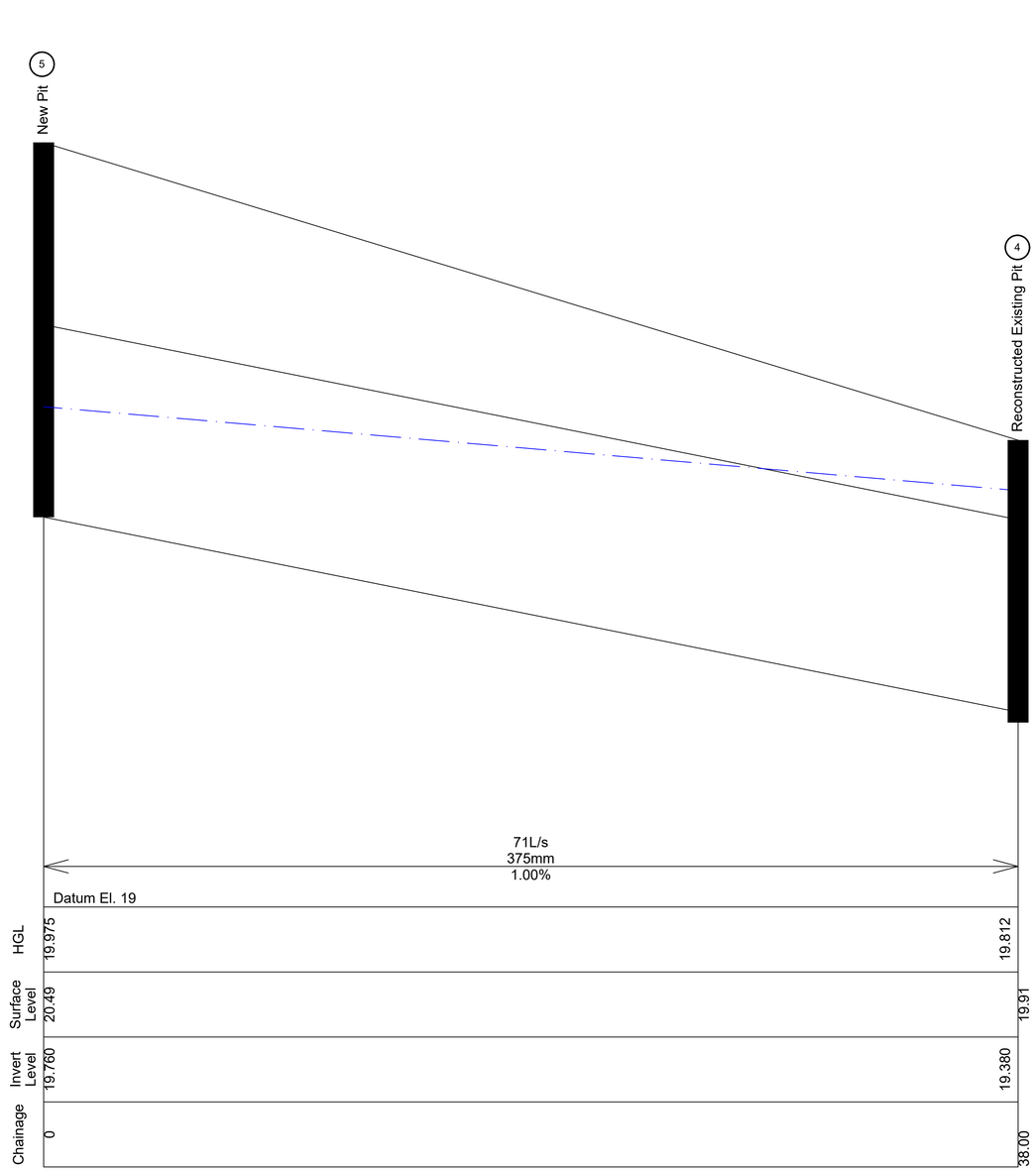
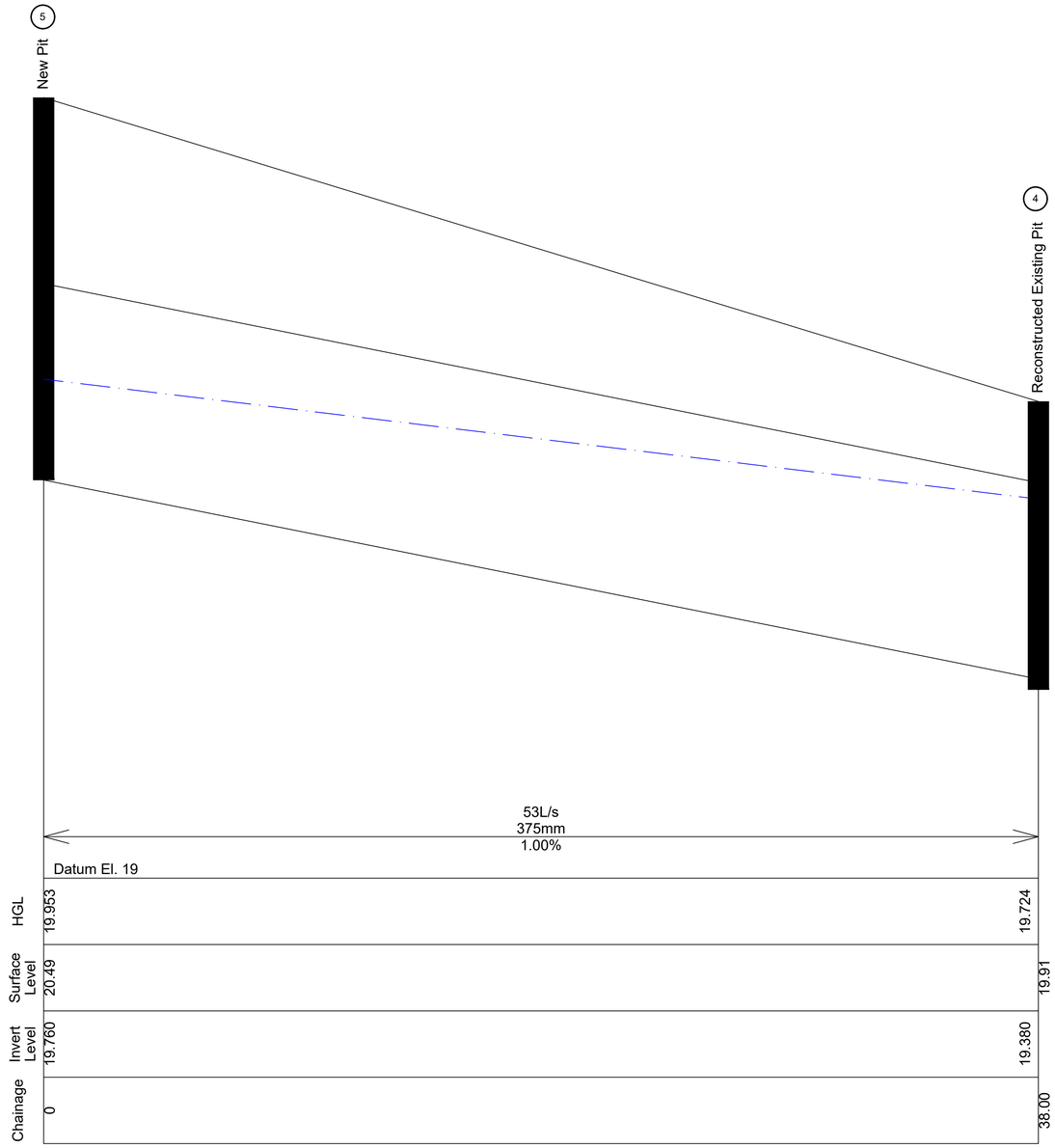


HGL LONG-SECTION VIEW FOR 1% AEP STORM
NTS



HGL LONG-SECTION VIEW FOR 5% AEP STORM
NTS

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enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

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8-24 KIPPAX STREET, SURRY HILLS 2010

drawing title
STORMWATER PLAN
DETAILS SHEET 1

status
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AS SHOWN	ASE	PAL	APR-24

project no.	sheet	rev.
7039	7039-CV-3002	01

A1

CATCHMENT LEGEND

- Roof Area
  Total Area = 680m²
- Terrace Footpath Area
  Total Area = 178m²
- Landscaping/Planters Area
  Total Area = 170m²
- Bypass Area
  Total Area = 6m²

Total Catchment Area = 1,034m²

SCALE 1:100

0 1 2 3 4 5 m

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02	10/04/24	ISSUE FOR INFORMATION	BEJ	ASE
01	01/12/23	ISSUE FOR DEVELOPMENT APPLICATION	MZV	PAL

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enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

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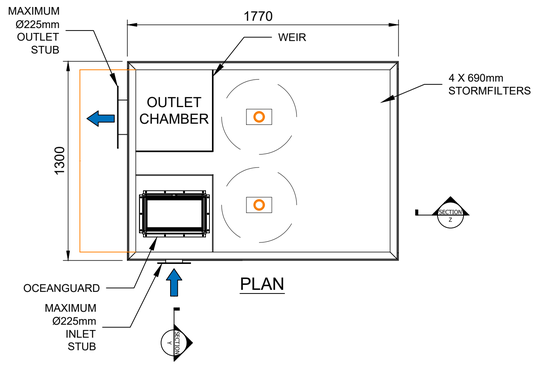
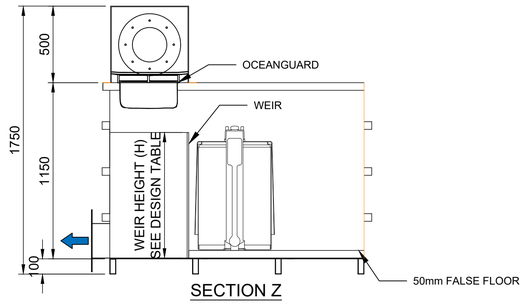
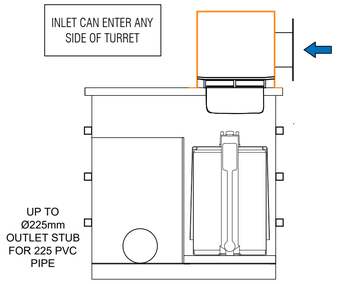
7039	7039-CV-3101	02



PLAN



SECTION Z



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enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

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drawing title
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