

A large teal graphic element on the left side of the page, consisting of a triangle pointing upwards at the top, a horizontal line below it, and a vertical line extending downwards from the left side of the horizontal line, forming a partial 'L' shape.

# **Explorer Street, Eveleigh NSW 2015**

Stormwater Management Report

July 2023

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# **Explorer Street, Eveleigh NSW 2015**

## **Stormwater Management Report**

July 2023

# Issue and Revision Record

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# Executive summary

The Department of Planning and Environment is preparing a rezoning package for Explorer Street, Eveleigh, which builds upon work previously undertaken by the Land and Housing Corporation (LAHC). The development seeks to redevelop the site to provide social, affordable, and private housing, as well as an improved social housing experience.

The development site has an area of 1.9 ha and is currently occupied by public housing, in the form of terraces, South Sydney Rotary Park to the south and a small park to the east currently owned by City of Sydney. Post-development, the site will be comprised of multi-storey apartment buildings and various types of public spaces, which are assumed to be comprised of fully impervious surfaces for this preliminary design stage based on multiple proposed development options; whilst the rotary park at its current scenario is described as significantly pervious; Refer to Landscape Design Report Planning Proposal undertaken by URBIS on 28<sup>th</sup> June 2023, for the proposed landscaping.

This stormwater management report has been prepared by Mott MacDonald for this site and aims to support the delivery of the site master plan by identifying opportunities, constraints, and risks related to civil design. The scope of this report summarises the existing and proposed stormwater drainage design, as well as the design approach, key assumptions, relevant references, and standards applied to the development of the civil concept design for this site.

In general, the proposed stormwater drainage and Water Sensitive Urban Design (WSUD) measures have been designed in accordance with the City of Sydney and Sydney Water design guidelines and other relevant standards. All adopted parameters for the assessment undertaken, as part of the design, are discussed in detail in this report.

This stormwater management report discusses the following aspects of the proposed development and should be read in conjunction with the stormwater management plans and separate flooding report also prepared by Mott MacDonald:

- Stormwater drainage; and
- Water Sensitive Urban Design.

The conclusion of this report states that each of the development options for the site can satisfy the relevant design controls regarding stormwater drainage and water quality management. Future revisions of this report will address these design controls, providing detailed assessment of the final proposed design incorporating further detailed survey data and definition of the public domain areas.

# 1 The Site

## 1.1 Site Description

The site is located on Explorer Street, which is currently occupied by terrace houses, South Sydney Rotary Park to the south and a small park to the east currently owned by City of Sydney as shown in the figure below. It is located approximately 1.4km southwest of Redfern Station and has an overall area of approximately 1.9 ha. The site is bounded by a rail corridor to the north, Station Place to the east, Explorer Street and Rotary Park to the south, and a car park for the Downer Rail Eveleigh Maintenance Centre to the west. There are 2 cul-de-sacs, Explorer Street and Aurora Place, which are adjacent to the site.

Legally, the site is described as being part of Lot 21 in Deposited Plan 835061 as well as Lot 122 in Deposited Plan 1030021. This allotment includes the public housing cluster and park. This proposed development site is owned by LAHC.

**Figure 1-1 Site Location**



Source: Six Map, 2023

## 1.2 Proposed Layout

The preferred option by WMK Architecture and Urbis propose to transform the terrace houses into multi-storey apartments as well as an activated park, which consists of the following areas:

- Seating/shelter area;
- Quiet passive public space;
- Private open space; and
- An upgrade of the public pocket park (located in the northeast side of the site).
- An upgrade of South Sydney Rotary Park



The preferred option is shown in the figure below:

**Figure 1-2 Development Layout**



Source: Urbis, 28 June 2023

## 2 Methodology & Approach

The following summary provides key tasks in the technical assessment and design of stormwater management infrastructure for the proposed development to achieve the required outcomes.

- Review of the landscape layouts for the preferred provided by WMK Architecture and Urbis, dated 28<sup>th</sup> June 2023.
- Email coordination with Sydney Water conducted regarding the on-site detention (OSD) and permissible site discharge (PSD) requirements for the site, attached in Appendix A of this report.
- Review of relevant guidelines including City of Sydney Council DCP to prepare the stormwater design criteria for the site.
- Preparation of a preliminary stormwater management plan to demonstrate the proposed stormwater strategy for the site.
- Preparation of a baseline MUSIC model to investigate the treatments required for the site to achieve the pollutant reduction targets in accordance with the City of Sydney Council guideline; and
- Provide development recommendations for stormwater management infrastructure.

## 3 Design Inputs & Guidelines

### 3.1 Consultation

Mott MacDonald is in consultation with the project team throughout the design phase to obtain a feasible design solution for the proposed development site. The proposed stormwater drainage design was conducted in accordance with the City of Sydney's Development Control Plan (DCP) and other relevant guidelines.

### 3.2 Codes & Guidelines

The design has been undertaken in compliance with the relevant Australian Standards and local government guidelines. Key documents used as guidance for the design are summarised in Table 3-1.

**Table 3-1 Design Standards & References**

Reference	Title	Version/Date
AS/NZS 3500.3	Plumbing and Drainage – Stormwater Drainage	2021
ARQ	Australian Runoff Quality – A Guide to Water Sensitive Urban Design (National Committee for Water Engineering)	2006
BCA	Building Code of Australia	2019
Blue Book	Managing Urban Stormwater – Soils and Construction, Volume 1, 4 <sup>th</sup> edition, March 2004, Landcom	March 2004
eWater	MUSIC User Manual	V6
City of Sydney Council	Sydney Development Control Plan	2012
City of Sydney Council	City of Sydney's Interim Floodplain Management Policy	2014
City of Sydney Council	Sydney Streets – Technical Specifications A4 – Stormwater Drainage Design	2019
City of Sydney Council	Stormwater Drainage Manual	2017
City of Sydney Council	Water Cycle Management Plan	
Sydney Water	On-site Stormwater Detention Policy	2021
Sydney Water	On-site Stormwater Detention Guide	2020
Explorer Street Design Guide	Guide for Consultant	2023

### 3.3 Other Consultant Inputs

The proposed stormwater design is also based on:

- Architectural/landscape design layouts provided by WMK Architecture and Urbis on 28<sup>th</sup> June 2023.
- Survey undertaken by RPS Australia East PTY LTD on 26<sup>th</sup> July 2015.

### 3.4 Stormwater Management Design Parameters

#### 3.4.1 Design Requirements

The Sydney Development Control Plan 2012 and Sydney Streets – Technical Specifications Part A4 (Stormwater Drainage Design) provides the design requirements for the subject site. Design criteria has been developed to ensure the proposed design adheres to the requirements denoted in the City of Sydney guidelines. Table 3-2 summarises the design criteria for hydrology and hydraulic analysis:

**Table 3-2 Hydrology & Hydraulic Design Criteria**

Item	Standard	Adopted
<b>Hydrology &amp; Hydraulics</b>		
Hydrological Model	City of Sydney	DRAINS file (ILSAX type time-area method)
Minor Design Storm	City of Sydney	20yr Average Recurrence Interval (5% AEP)
Major Design Storm	City of Sydney	100yr Average Recurrence Interval (1% AEP)
Design Rainfall	City of Sydney	AR&R 2019 values
Urban Rainfall Losses	NA	Paved (impervious) area depressions storage (mmm)=1 Supplementary area depression storage (mm) =1  Grassed (pervious) area depression storage (mm) = 5
Pipe Size	City of Sydney	Pipelines – minimum 375mm nominal diameter Box culverts – 450mm width by 300mm height nominal.
Retardance Coefficient (manning's n)	AR&R 2019	Impervious = 0.01 Industrial/commercial = 0.2-0.5 Residential (low density) = 0.1-0.2 Residential (high density) = 0.2-0.5 Open previous areas, minimal vegetation (grassed) = 0.03-0.05 Open previous areas, moderate vegetation (shrubs) = 0.05-0.07 Open previous areas, thick vegetation (trees) = 0.07-0.12
Pit Spacing	City of Sydney	Conduit diameter/width=375mm - 40m 750mm≤diameter/width<1500mm – 60m Diameter/width ≥ 1500mm – 100m
Pit Losses	City of Sydney	Missouri charts
Pit Blockage Factors	City of Sydney AR&R 2019	Sag blockage factor: kerb inlet <= 1.0m – 0.7 kerb inlet > 1.0m – 0.5 v grate or grate only – 0.9 strip drain or other – 0.95  On grade blockage factor: kerb inlet <= 1.0m – 0.5 kerb inlet > 1.0m – 0.2 v grate or grate only – 0.9 strip drain or other – 0.95
Tail water level/sea water level	City of Sydney	Minor Storm adopts the higher of the: <ul style="list-style-type: none"> <li>• obvert of the pipe</li> <li>• Ocean Boundary Conditions</li> <li>• Hydraulic Grade Line of the downstream connection conduit</li> </ul>

Item	Standard	Adopted
		<ul style="list-style-type: none"> <li>• 150mm below the surface, where the downstream conduit capacity is less than the 20yr ARI.</li> </ul> <p>For the impacts of a proposed network:</p> <ul style="list-style-type: none"> <li>• The obvert of the pipe</li> <li>• The hydraulic grade line of the downstream network for the same storm event</li> <li>• For flood prone land, flood levels reported in the relevant City of Sydney flood study</li> <li>• Ocean boundary conditions consistent with the relevant City of Sydney flood study.</li> </ul>
Overland Flow Safety Criteria	City of Sydney	Max Depth x Velocity = 0.4m <sup>2</sup> /s Maximum flow width 1.5m Maximum depth 50mm
Pollution reduction targets	City of Sydney	Gross Pollutants 90% TSS 85% TP 65% TN 45%
Stream Erosion Metrics	AR&R 2019	Maximum 3.5 resulting stream erosion index

## 4 Stormwater Management Design

### 4.1 Proposed Development Requirements

The residential development site has a total area of 12,618m<sup>2</sup> inclusive of the small public park currently owned by City of Sydney and a small overlapping area along the northern boundary with Rail Corridor. It is noted that, post-development, the percentage of impervious area within the site will increase due to additional public spaces, which are assumed to be comprised of fully impervious spaces at this stage. This will result in higher runoff volumes when compared to the runoff flows in the pre-development scenario. To mitigate against the impacts of greater runoff volumes, Sydney Water provides specific guidance regarding stormwater management for all potential development across the catchment. As per consultation with Sydney Water, the site requires the following:

- Minimum On-site Detention (OSD) Volume: 237m<sup>3</sup>
- Maximum Permissible Site Discharge (PSD): 416L/s

An upgrade of South Sydney Rotary Park is proposed as per figure below. Confirmation with Sydney Water Authority regarding any on-site detention requirement will need to be confirmed at a later stage once management and ownership of the park is resolved.

**Figure 4-1: Proposed Landscaping**



Source: URBIS, June 2023

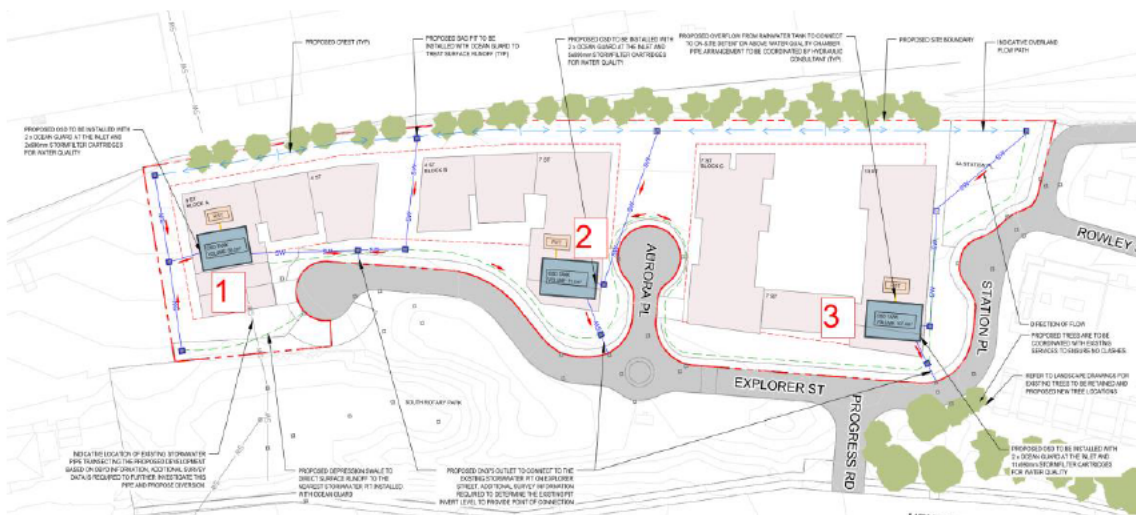
## 4.2 On-site Detention

The required OSD volume as advised by Sydney Water has been divided amongst each proposed apartment buildings based on the building roof footprint. The minimum OSD volumes allocated to each building are shown in Table 4-1:

**Table 4-1 Minimum OSD Volumes**

Building Number	(m <sup>3</sup> )
Building 1	58.2
Building 2	71.4
Building 3	107.4

**Figure 4-2: Indicative OSD Tank Locations**



The current preliminary OSD location and volume noted on the plans are subject to change:

- once additional survey information has been made available to Mott MacDonald
- as the invert level of the existing stormwater pit along Explorer Street will determine the effective internal storage height of the tank
- as hydraulic assessment will be carried out in future stages to ensure there is no backwater effect in the proposed outlets due to the downstream tailwater level.

The OSD location will be revisited in later stage to further advise if the site can adhere to the maximum bypass of 10%, or alternatively the OSD size will need to increase to ensure the maximum site PSD of 416L/s is not exceeded.

### 4.3 Flooding

A separate report has been prepared which summarises the assessment and key design considerations in relation to flooding. This report makes recommendations regarding floor levels, potential basement entry thresholds and evacuation or emergency response plans for flooding events.

### 4.4 Overland Flow Path

The floor levels of the proposed development and integration with the public domain grading are to ensure that water drains away from the site and towards the road reserve (Explorer Street) during any blockage of the pit inlet capacity. A safe overland flow path will be provided to accommodate the 1% Annual Exceedance Probability (AEP) storm event. Overland flow hazard within the road reserve will be limited to a depth velocity product  $0.4\text{m}^2/\text{s}$ .

### 4.5 Point of Discharge

A few existing stormwater pits have been noted along Explorer Street, which provide potential points of connection for the development site. Additional survey information will be required to confirm the size, invert, and condition of the existing network. Upon analysis of the stormwater system in the context of the existing downstream network the connection point will be determined.

This connection is potentially within the road reserve of Explorer Street or along the existing network downstream of the road reserve, within Rotary Park.

### 4.6 Tailwater Assumption

As per the recommendations of the separate flooding report, and discussion of the City of Sydney TUFLOW modelling it was noted that the site is prone to flooding.

In accordance with the City of Sydney Guideline Sydney Streets Technical Specifications section 4.7.3.5 the downstream tailwater level will be adopted as the invert of the pipe in the minor storm event to determine any backwater effect in the proposed DN375 outlet pipe exiting the site.

For the major storm event, the relevant flood level from TUFLOW modelling, as described in the flooding report, will be adopted. In addition, the impact of tailwater level on the outlet of the OSD and local pipe system within the site will be further analysed in later stages which will involve hydraulic assessment.

### 4.7 Design Constraints

The following existing design constraints are noted for this development and are to be further investigated in future design stages:

- The physical constraint, easement, and access requirements of existing stormwater mains transecting the proposed development, including rail corridor cross-drainage, which is to be further assessed with additional survey information.
- Existing site topography (i.e.: low points, etc.) including the resulting overland flow paths and ponding behaviour.
- Depth and location of existing pits, and underground utilities.
- Existing rail tunnel easement.



## 5 Stormwater Quality Improvements

### 5.1 Design Objective

To ensure that the development improves the quality of stormwater leaving the development site, Mott MacDonald has assessed the existing site conditions, formulated a preliminary Water Sensitive Urban Design concept, and modelled the treatment train effectiveness.

The following reduction targets are based on the City of Sydney DCP 2012 and are to be achieved for water quality:

**Table 5-1 Average Annual Pollutant Load Reduction Targets**

Pollutant	Average Annual Pollutant Load Reduction Objective (%)
Gross Pollutant	90%
Total Suspended Solids	85%
Total Phosphorous	65%
Total Nitrogen	45%

### 5.2 Assumptions

The following assumptions have been made for the MUSIC models for both proposed development:

- Reuse of rainwater from the rainwater tanks will be limited to landscaping, toilet flushing and wash-down purposes, therefore, the rainwater tanks will likely be at capacity and require treatment. Thus, rainwater tank nodes have not been included in the MUSIC assessment.
- 100% of the proposed roof catchments will deliver their runoff to their respective building OSD tanks.
- 90% of the exterior catchments of the site, which will consist of public spaces, will deliver runoff to the proposed stormwater network.
- All footpaths external to the buildings will be comprised of fully impervious surfaces; and
- 10% of the exterior catchments will bypass the stormwater network.

The above assumptions are subject to change in later stages upon detailed catchment analysis and associated public domain areas, and investigation of potential site runoff re-use.

### 5.3 Proposed Water Quality Modelling Strategy

Modelling for both options for the proposed development was undertaken using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software. The software was utilised to simulate urban stormwater systems operating at a range of temporal and spatial scales. MUSIC models the total amounts of gross pollutants, phosphorus, nitrogen, and total suspended solids produced within various types of catchments. It allows the user to simulate the removal rates expected when implementing water quality treatment devices to reduce the increased gross pollutant and nutrient levels created by the proposed development.

MUSIC modelling assessments were undertaken for both development options to determine the treatment measures required to achieve the pollutant reduction targets.

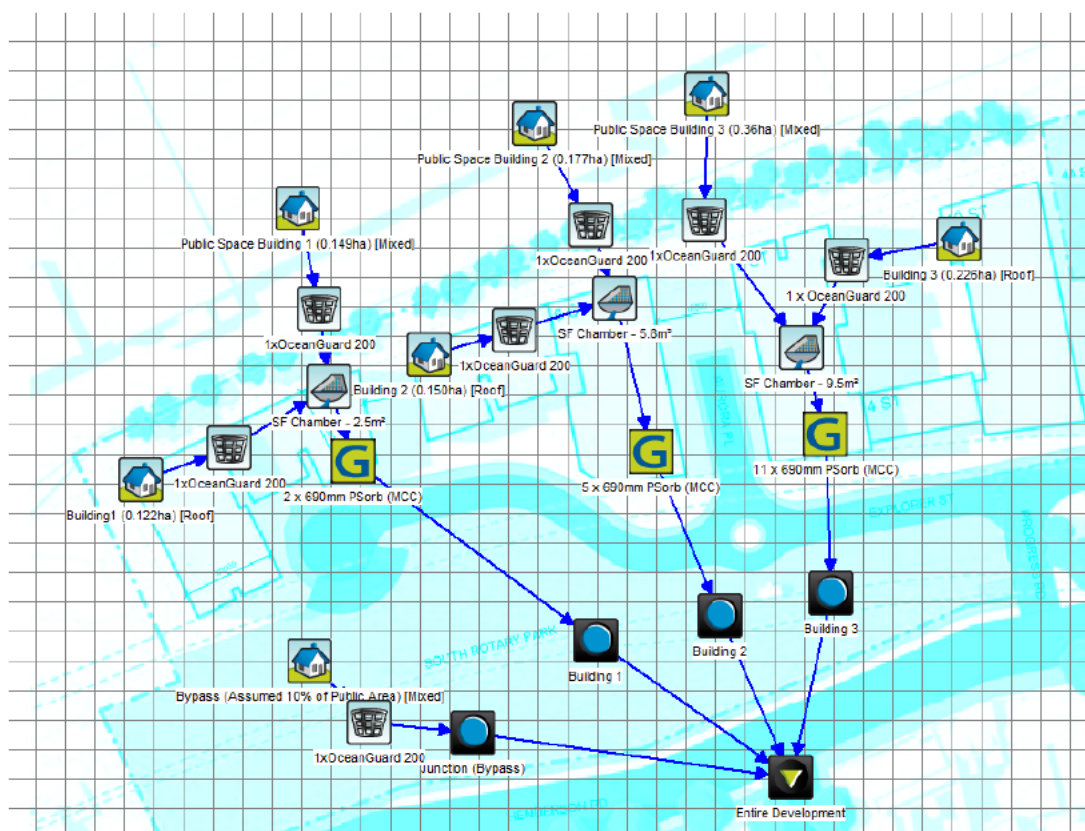
The assessments determined that the following proprietary products are to be incorporated within the proposed stormwater infrastructure:

**Table 5-2 Stormwater Products for Development**

Treatment
<b>Building 1</b> 2 x 690mm StormFilter cartridges and 2 x OceanGuard pit inserts to be installed within the on-site detention StormFilter chamber to aid in treating the captured site runoff
<b>Building 2</b> 5 x 690mm StormFilter cartridges and 2 x OceanGuard pit inserts to be installed within the on-site detention StormFilter chamber to aid in treating the captured site runoff
<b>Building 3</b> 11 x 690mm StormFilter cartridges and 2 x OceanGuard pit inserts to be installed within the on-site detention StormFilter chamber to aid in treating the captured site runoff
<b>Bypass</b> 1 x OceanGuard pit insert to be installed within the most downstream pit that will receive and treat stormwater that bypasses the OSD tank

The schematic layout of the proposed stormwater quality controls along with the tabulated MUSIC modelling results for pollutant load reduction are shown below:

**Figure 5-1 MUSIC Modelling Assessment**



Source: Mott MacDonald MUSIC water quality assessment 2023

**Table 5-3 MUSIC Model Results**

<b>Pollutant</b>	<b>Reduction Target</b>	<b>Reduction Achieved</b>
Gross Pollutant	90%	100%
Total Suspended Solids	85%	86.1%
Total Phosphorous	65%	65.8%
Total Nitrogen	45%	47.8%

## 6 Erosion & Sediment Control

The erosion and sediment control measures will be undertaken with reference to the Landcom Blue Book: Managing Urban Stormwater Soil for best practice through the construction phase to limit any sediments generated from the site from entering the existing stormwater network. As such, the following measures are to be undertaken as part of the proposed construction works:

- Sediment fence to be installed around the site perimeter to trap any sediment.
- Shaker grid/wash down facility to be installed at the site egress to limit any sediments from being carried outside of the construction site; and
- Stockpile location to be confirmed by contractor on-site during the construction phase and preferably located at the high point of the site.

## 7 Future Design Stages

The following stormwater items are to be confirmed in future design stages:

- Existing stormwater system connection point;
- Location of existing services;
- Final location of OSD tanks to ensure negligible impact of downstream tailwater level; and
- Relocation/protection of existing stormwater on site;
- Reuse water demand for the rainwater tank; and
- Exact location of the 1<sup>st</sup>/2<sup>nd</sup> reserve of tunnel.

An assessment of the drainage pipe through the 2<sup>nd</sup> reserve is also recommended. Additionally, hydraulic modelling of the proposed system is recommended for future design stages as it will allow for an in-depth assessment of the requirements of the proposed development, as well as how it needs to tie-in to the existing stormwater network.

## 8 Conclusion

This stormwater management report has been prepared for the development on Explorer Street and details how the development complies with City of Sydney requirements and standards for:

- Stormwater drainage system.
- Water Sensitive Urban Design; and
- Erosion and sediment control measures.

It should be noted that the current design is based on the architectural Design Report issued on the 30<sup>th</sup> of June 2023 (Rev 11.0) by WMK Architecture and Landscape Design Report issued on 28<sup>th</sup> June 2023 by Urbis. This report is to be read in conjunction with the civil drawing set issued, and separate flooding report also prepared by Mott MacDonald.

As demonstrated in the above report, the development complies with City of Sydney and Sydney Water requirements and standards. Additionally, water quality measurements and reduction targets meet City of Sydney requirements.

Since this is a preliminary assessment based on multiple concept development options, it is recommended that further modelling and design assessment for stormwater management is to be undertaken in future design stages. This further assessment will have the benefit of greater levels of survey data as discussed throughout this report.

## **A. Sydney Water Correspondence**

## Julalak Laokittichai

---

**From:** Stormwater <Stormwater@sydneywater.com.au>  
**Sent:** Thursday, 11 May 2023 3:08 PM  
**To:** Julalak Laokittichai  
**Cc:** Saeika Saiara; Boon Soo; Jason H Lee  
**Subject:** RE: [External] Explorer St - Revised PSD & OSD Enquiry

Julalak,

The On Site Detention requirements for the 12,618 square meters site at Explorer Street, Eveleigh, are as follows:

- On Site Detention 237 cubic meters
- Permissible Site Discharge 416 L/s

The approval for the On Site Detention would only be given as part of the Section 73 application for this development. The On Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On Site Detention in relation to the development
- Location of the On Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On Site Detention tank with all dimensions
- Orifice plate calculation

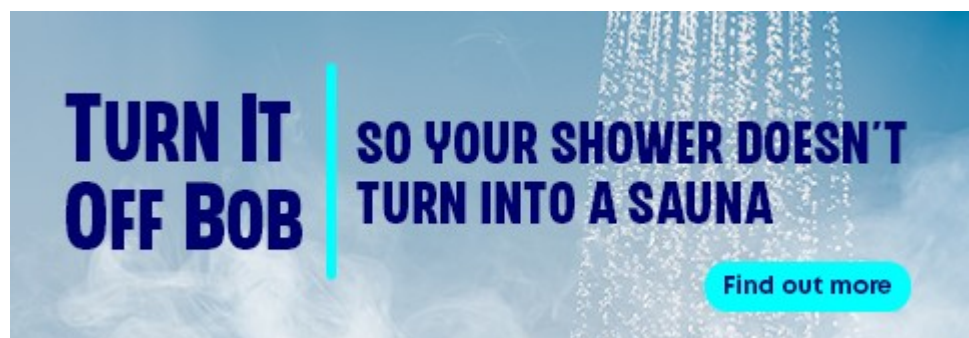
Best Regards

Planning and Technical

Business Development

Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150

Sydney  
**WATER**



Sydney Water acknowledges the traditional custodians of the waters and land on which we work, live and learn.



**From:** Julalak Laokittichai <Julalak.Laokittichai@mottmac.com>  
**Sent:** Thursday, 11 May 2023 9:32 AM  
**To:** Stormwater <Stormwater@sydneywater.com.au>  
**Cc:** Saeika Saiara <Saeika.Saiara@mottmac.com>; Boon Soo <Boon.Soo@mottmac.com>; Jason H Lee <jason.h.lee@mottmac.com>  
**Subject:** RE: [External] Explorer St - Revised PSD & OSD Enquiry

Hi,

Thank you for sending these values through. We are currently reviewing an option where the residential development is contained to the north of Explorer St (see below) and Rotary Park is left untouched. Could you please provide us with updated OSD and PSD values? Please see updated details below:



**Pre-Development Scenario:** In the pre-development scenario, the land is occupied by houses, paved surfaces, and pervious backyards.

- Total Site Area: 12618m<sup>2</sup>
- Approximate percentage of the pervious area: 30%
- Approximate percentage of impervious area: 70%

**Proposed Development:** The proposed development will be comprised of new multistorey buildings and public spaces (assumed all impervious).

- Total Site Area: 12618m<sup>2</sup>
- Approximate percentage of the pervious area: 0%
- Approximate percentage of impervious area: 100%

Please let me know if require any further information.

Sincerely,

**Julalak Laokittichai**

Pronouns: she, her, hers  
Civil Engineer

---

**From:** Stormwater <Stormwater@sydneywater.com.au>  
**Sent:** Tuesday, 9 May 2023 9:49 AM  
**To:** Julalak Laokittichai <Julalak.Laokittichai@mottmac.com>  
**Cc:** Saeika Saiara <Saeika.Saiara@mottmac.com>; Boon Soo <Boon.Soo@mottmac.com>; Jason H Lee <jason.h.lee@mottmac.com>  
**Subject:** RE: [External] Explorer St - Revised PSD & OSD Enquiry

Julalak,

As the road reserve would be Council Road, you only need to provide On Site Detention for the 20,040 square meters site area

The On Site Detention requirements for the 20,040 square meters site at Explorer Street, Eveleigh, are as follows:

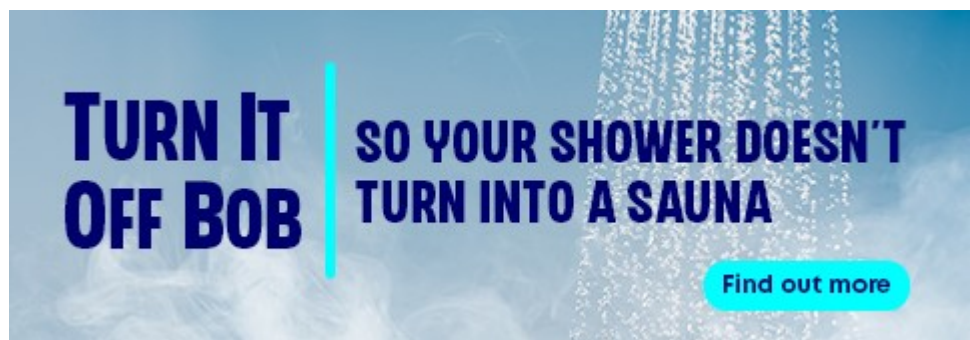
- On Site Detention 370 cubic meters
- Permissible Site Discharge 636 L/s

The approval for the On Site Detention would only be given as part of the Section 73 application for this development. The On Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On Site Detention in relation to the development
- Location of the On Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On Site Detention tank with all dimensions
- Orifice plate calculation

Best Regards

Planning and Technical  
Business Development  
Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150



---

**From:** Julalak Laokittichai <[Julalak.Laokittichai@mottmac.com](mailto:Julalak.Laokittichai@mottmac.com)>  
**Sent:** Monday, 8 May 2023 4:33 PM  
**To:** Stormwater <[Stormwater@sydneywater.com.au](mailto:Stormwater@sydneywater.com.au)>  
**Cc:** Saeika Saiara <[Saeika.Saiara@mottmac.com](mailto:Saeika.Saiara@mottmac.com)>; Boon Soo <[Boon.Soo@mottmac.com](mailto:Boon.Soo@mottmac.com)>; Jason H Lee

<[jason.h.lee@mottmac.com](mailto:jason.h.lee@mottmac.com)>

**Subject:** RE: [External] Explorer St - Revised PSD & OSD Enquiry

Hi,

The road reserve within the property boundary will remain as a Council road. Please let me know if you need any other information.

Sincerely,

**Julalak Laokittichai**

Pronouns: she, her, hers

Civil Engineer

---

**From:** Stormwater <[Stormwater@sydneywater.com.au](mailto:Stormwater@sydneywater.com.au)>

**Sent:** Monday, 8 May 2023 4:05 PM

**To:** Julalak Laokittichai <[Julalak.Laokittichai@mottmac.com](mailto:Julalak.Laokittichai@mottmac.com)>

**Cc:** Saeika Saiara <[Saeika.Saiara@mottmac.com](mailto:Saeika.Saiara@mottmac.com)>; Boon Soo <[Boon.Soo@mottmac.com](mailto:Boon.Soo@mottmac.com)>; Jason H Lee <[jason.h.lee@mottmac.com](mailto:jason.h.lee@mottmac.com)>

**Subject:** RE: [External] Explorer St - Revised PSD & OSD Enquiry

Julalak,

When you say total site area inclusive of “road reserve” area, we need to assume that “road reserve” is private and exclusively for private use. In other words, it has not been dedicated to public.

If the future use of “road reserve” is not dedicated to the public (will not own and manage by Council or other public authority) and remain as a private property, then you cannot exclude the road reserve for On Site Detention requirements, irrespective of whether you carry out or do not carry out any work on road reserve

Please let us know that the “road reserve” within your property boundary would be remained as private road or would be dedicated to Council or other public authority such as RTA (Road and Traffic Authority) at the end of your construction work.

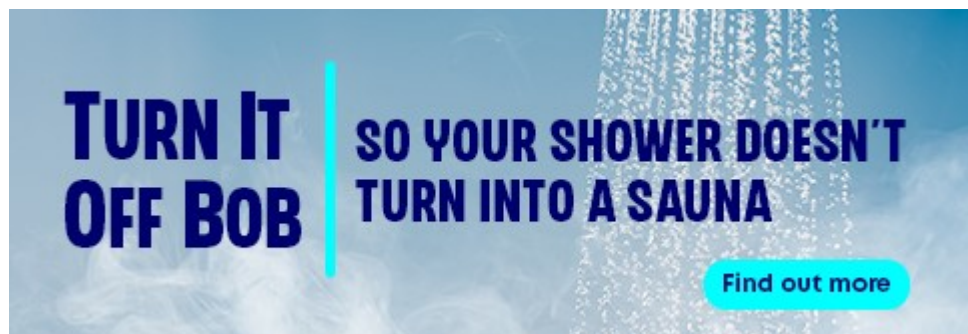
Best Regards

Planning and Technical

Business Development

Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150

Sydney  
**WATER**





Sydney Water acknowledges the traditional custodians of the waters and land on which we work, live and learn.

From: Julalak Laokittichai <[Julalak.Laokittichai@mottmac.com](mailto:Julalak.Laokittichai@mottmac.com)>

Sent: Monday, 8 May 2023 2:15 PM

To: Jeya Jeyadevan <[JEYA.JEYADEVAN@sydneywater.com.au](mailto:JEYA.JEYADEVAN@sydneywater.com.au)>; Stormwater <[Stormwater@sydneywater.com.au](mailto:Stormwater@sydneywater.com.au)>

Cc: Saeika Saiara <[Saeika.Saiara@mottmac.com](mailto:Saeika.Saiara@mottmac.com)>; Boon Soo <[Boon.Soo@mottmac.com](mailto:Boon.Soo@mottmac.com)>; Jason H Lee <[jason.h.lee@mottmac.com](mailto:jason.h.lee@mottmac.com)>

Subject: [External] Explorer St - Revised PSD & OSD Enquiry

**CAUTION:** This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Sydney Water Team,

I am working on the development of Explorer Street, Eveleigh with Saeika Saiara, who has previously enquired about the minimum OSD volume and maximum PSD required for this development. Could you please provide updated OSD and PSD values based on the revised areas/details below:

Existing Site Area:



**Pre-Development Scenario:** In the pre-development scenario, the land is occupied by houses, paved surfaces, and pervious backyards.

- Total Site Area (Inclusive of road reserve area): 23,000m<sup>2</sup>
- Total Site Area (Not inclusive of road reserve area): 20040m<sup>2</sup>
- Approximate percentage of the pervious area: 40%

- Approximate percentage of impervious area: 60%

**Proposed Development:** The proposed development will be comprised of new multistorey buildings and new landscaping areas. Please note that the development does not include works within the road reserve – this will remain as is post-development.

- Total Site Area (Inclusive of road reserve area): 23,000m<sup>2</sup>
- Total Site Area (Not inclusive of road reserve area): 20040m<sup>2</sup>
- Approximate percentage of the pervious area: 30%
- Approximate percentage of impervious area: 70%

Please note that for the proposed development scenario, the percentage of pervious and impervious areas are based on the site area not including the road reserve as no works are proposed in that area.

Please let me know if you require any further information.

Sincerely,

**Julalak Laokittichai**

Pronouns: she, her, hers

Civil Engineer

julalak.laokittichai@mottmac.com



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## **B. Stormwater Management Plan**



### LEGEND

#### OPTION 6 STORMWATER PLAN

- PROPOSED SITE BOUNDARY
- PROPOSED BASEMENT EXTENTS
- EXISTING ROAD
- PROPOSED BUILDING
- EXISTING STORMWATER PIT
- SW PROPOSED STORMWATER PIPE
- SW EXISTING STORMWATER LINE
- PROPOSED STORMWATER PIT
- PROPOSED JUNCTION PIT
- PROPOSED DOWNPIPE
- PROPOSED RAINWATER TANK
- PROPOSED OSD TANK
- DIRECTION OF FLOW
- ← INDICATIVE OVERLAND FLOW PATH
- PROPOSED SWALE

#### NOTES:

BELOW GROUND OSD TANK TO CONNECT TO NEAREST STREET DRAINAGE SYSTEM.  
LOCATION OF OSD TANKS AND RAINWATER TANKS ARE INDICATIVE AND TO BE COORDINATED / CONFIRMED DURING DESIGN STAGE.

BELOW GROUND OSD SUBJECT TO:

- EXISTING STREET DRAINAGE PIT DEPTH AND TAILWATER CONDITION
- EXISTING SERVICES CLEARANCE

DETAILED SURVEY AND INFORMATION REQUIRED DURING NEXT PHASE OF DEVELOPMENT TO CONFIRM BELOW GROUND ARRANGEMENT.

ALL PROPOSED STORMWATER NETWORKS TO BE DESIGNED IN ACCORDANCE WITH CITY OF SYDNEY COUNCIL REQUIREMENTS.

DEPTH AND LOCATION OF EXISTING COS COUNCIL STORMWATER NETWORK TO BE DETERMINED AND REROUTED ACCORDINGLY.

SAFE OVERLAND FLOW PATH TO CATER FOR THE MAJOR STORM OF 1% AEP

ALL INTERNAL BUILDING DRAINAGE TO BE COORDINATED BY HYDRAULIC CONSULTANT

PROVIDE OCEAN PROTECT STORMFILTER CARTRIDGES OR EQUIVALENT, DETAILS TO BE PROVIDED BY THE MANUFACTURER

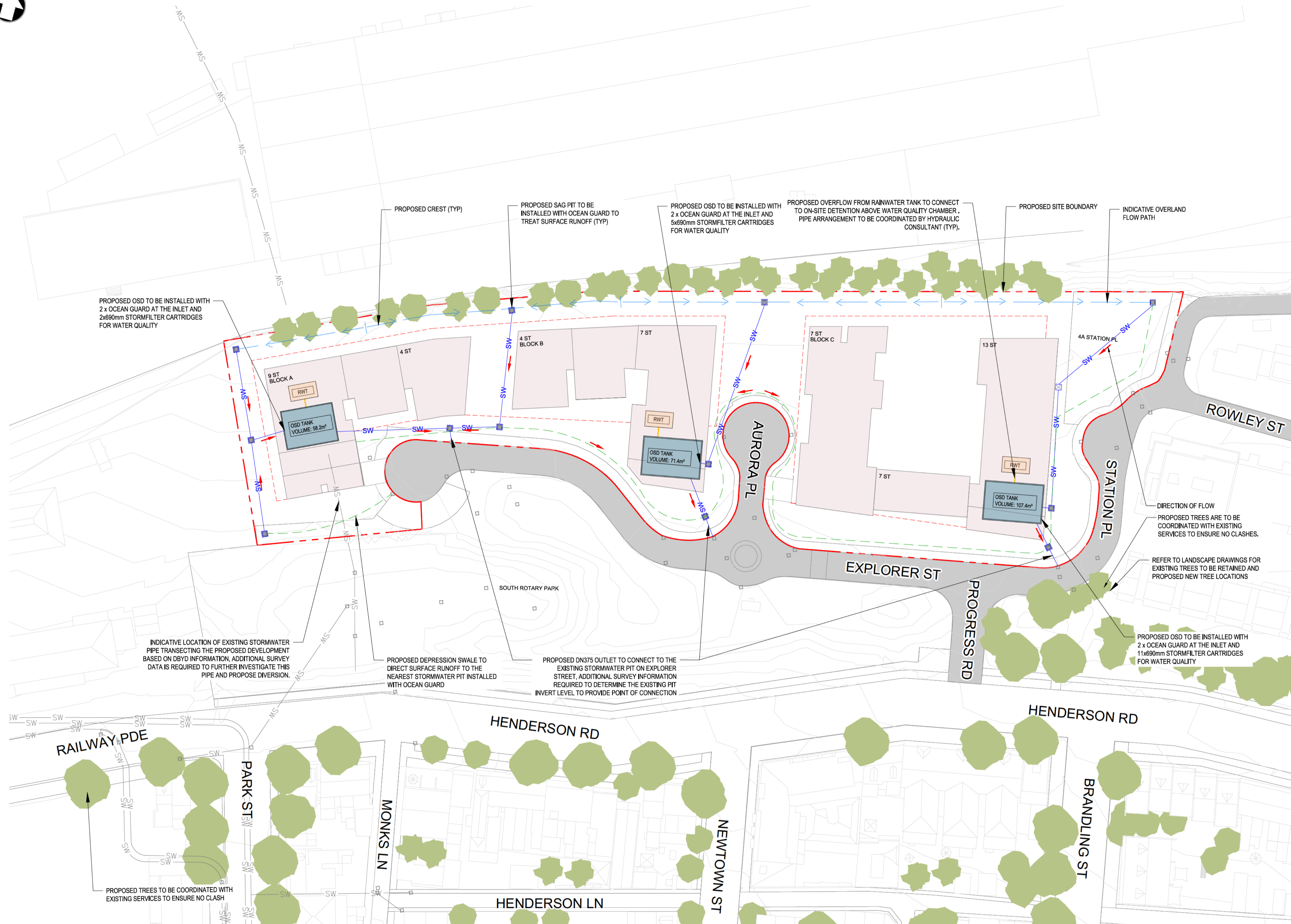
OCEAN GUARD TO BE INSTALLED IN ALL STORMWATER PITS WITHIN THE DEVELOPMENT SITE FOR WATER QUALITY

ANY PROPOSED TREES LOCATED WITHIN THE PROPOSED STORMWATER NETWORK TO BE CAPPED TO ENSURE THE ROOTS ARE NOT ENCRANCHING THE STORMWATER PITS.

SYDNEY WATER OSD REQUIREMENTS:

- TOTAL SITE OSD SIZE: 237m<sup>3</sup>
- PSD: 416 L/s

(ABOVE VALUES ARE BASED ON SITE AREA OF 12618m<sup>2</sup>, NOT INCLUSIVE OF ROAD RESERVE AND ROTARY PARK. OSD NOT REQUIRED FOR ROAD RESERVE AREA SINCE IT IS A COUNCIL ROAD AND NOT WITHIN THE PROPOSED SITE EXTENT)



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	Level 10, 383 Kent Street Sydney, NSW 2000 Australia NSW 1230, Australia PO Box Q1678, QVB Sydney T +61 (0)2 9098 6800 www.mottmac.com	P2 28/07/2023 FINAL P1 26/05/2023 ISSUE FOR INFORMATION	SS JM SS JM	SCALE 1:500 	CLIENT 	TITLE Explorer Street Everleigh, NSW 1430 Stormwater Preferred Option	DRAWING INFORMATION Drawn: J.Garbo Designed: J.Laokittichai Checked: S.Saiara Approved: J.Mail	Revision: P2 Status FINAL Security: STD
	Rev Date Description Ch'k'd App'd	DRAWING NUMBER 426320-MMD-DA-XX-DRG-C-001						



