



HJ CONSULT



Integrated Water Management Report - SSD-119545240

**40-76 William Street, Leichhardt NSW
2040**

DOCUMENT CONTROL DATA

TITLE	Integrated Water Management Report - 40-76 William Street, Leichhardt NSW 2040
AUTHOR	GJ
REVIEWER	SH
REFERENCE	25-1063
CLIENT	ANPRISA

DOCUMENT REVISION TABLE

REVISION	DESCRIPTION	DATE	AUTHORISED
A	Issued For Review	17-10-25	GJ
B	Issued For Approval	20-10-25	GJ
C	Issued For Approval	26-11-25	GJ
D	Issued For Approval	05-01-26	GJ

DISCLAIMER AND COPYRIGHT

Report Disclaimer: Haycock James Consulting Pty Ltd has prepared this report based on an agreed scope of work and acts in all professional matters as an advisor to the Client and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the civil engineering consulting profession.

Reports are commissioned by and prepared for the exclusive use of the Client. They are subject to and issued in accordance with the agreement between the Client and Haycock James Consulting Pty Ltd. Haycock James Consulting Pty Ltd is not responsible and will not be liable to any other person or organisation for or in relation to any matter dealt within this Report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in this report (including without limitation matters arising from any negligent act or omission of Haycock James Consulting Pty Ltd or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this Report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and obtain independent advice in relation to such matters.

Except where expressly stated, Haycock James Consulting Pty Ltd has not verified the validity, accuracy or comprehensiveness of any information supplied for this report.

Reports prepared by Haycock James Consulting Pty Ltd cannot be copied or reproduced in whole or part for any purpose without the prior written agreement of Haycock James Consulting Pty Ltd.

COPYRIGHT: The concepts and information contained in this document are the property of Haycock James Consulting Pty Ltd. Use or copying of this document in whole or in part without the written permission of Haycock James Consulting Pty Ltd constitutes an infringement of copyright.

Contents

1. Executive Summary.....	4
2. Introduction.....	5
3. Existing Site.....	5
3.1. Existing Conditions.....	5
3.2. Topography	6
3.3. Surface Water and Drainage Network.....	6
3.4. Impervious Area Versus Pervious Area	6
3.5. Flooding	7
4. Proposed Development.....	8
4.1. Stormwater Management Strategy	8
4.1.1. Pre. and Post Development Flows	9
4.1.2. On Site Detention.....	10
4.1.3. Proposed Stormwater Network.....	10
4.1.4. Legal Point of Discharge	11
4.1.5. Subject Site Overland Flow	12
5. Water Sensitive Urban Design	13
5.1. Rainwater Tank.....	13
5.2. WSUD Modelling - MUSIC Model	13
5.2.1. MUSIC Parameters.....	14
5.2.2. MUSIC Results	15
6. Stormwater System Maintenance	16
6.1. Ocean Protect Maintenance	16
6.2. Stormwater Network Maintenance	16
6.2.1. Inspection Frequency and Procedure	16
6.2.2. Maintenance Frequency and Procedure.....	17
6.2.3. Removal of Sediment, Debris or Litter from Pits.....	17
6.2.4. Removal of Sediment, Debris or Litter from Pipes	17
6.2.5. Reporting Requirements	18
7. Conclusion	19
Appendix A - Survey Drawings.....	20
Appendix B - Civil Drawings	21
Appendix C - Mott Macdonald Flood Report.....	22

1. Executive Summary

Haycock James Consulting Pty Ltd has been engaged by Anprisa to prepare an Integrated Water Management Plan for the Residential Flat Building Development located at 40-76 William Street, Leichhardt.

This report will support the delivery of the site as it will identify 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 that will be applied to the development of concept civil design documentation for the proposed development. The report is to be read in conjunction with the civil engineering plans within Appendix B.

This Integrated Water Management Plan Report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in support of a State Significant Development Application (SSDA) for the construction of a residential development, reference SSD-119545240.

This report addresses the Secretary's Environmental Assessment Requirements (SEARs) issued for the project, notably:

Table 1 - SEARS Declaration

Declaration		
Name	Glen James	
Qualifications	Bachelor Engineering Civil, NER, CPEng	
The undersigned declares that this Integrated Water Management Plan has been prepared in response to the following SEARs requirements issued for the Project on 5/05/2026 for SSD-119545240:		
SEARs item no.	SEARs Requirement	Relevant Section of this Report
11. Water Management	- Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater) - Demonstrate how the development complies with council's drainage requirements and identify proposed stormwater treatment and water quality management measures to minimise adverse environmental impacts	Section 4.1 Stormwater Management Strategy Section 4.1.2 On Site Detention Section 4 Water Sensitive Urban Design Section 4.1 Rainwater Tanks

Signed



Dated 17/10/2025

2. Introduction

Haycock James Consulting Pty Ltd has been commissioned by Anprisa to prepare an Integrated Water Management Report for the proposed redevelopment of 40-76 William, Leichhardt. The total site area is approximately 0.69 ha and the proposed development of a five-to-eleven storey residential flat buildings comprising:

- The demolition of existing structures including the partial retention and adaptive reuse of the existing industrial warehouse façade
- Construction of a residential flat building including 203 units, inclusive of 5% affordable housing
- Two basement levels
- Public domain works

This report is to ensure that the proposed development can meet the Inner West Council (formerly Leichhardt Council) DCP 2013, Appendix E - Water Guidelines.

3. Existing Site

The subject site is located approximately 6.5km south-west of the Sydney Central Business District and currently consists of multiple retail/light-industrial buildings on multiple lots (which will be consolidated as part of this application). The site is bounded by William Street (to the north), residential buildings and North Street (to the west), residential and light industrial buildings (to the east) and residential buildings (to the south) refer to the site survey contained under Appendix A for details.

3.1. Existing Conditions

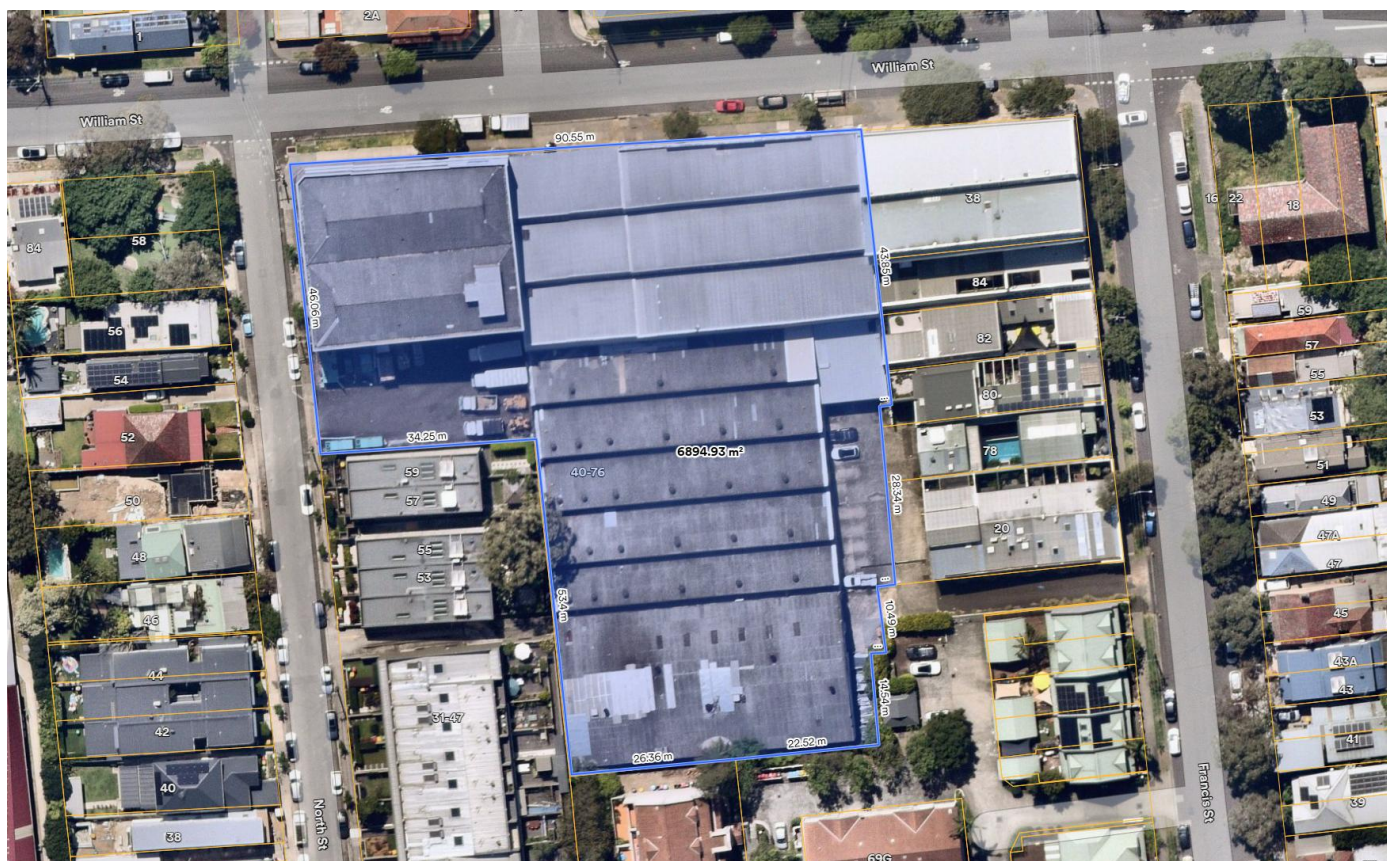


Figure 1: Location Plan (Source: Mosaic by Mecone)

The existing site consists of (refer to Figure 1 for details):

- Pavement hardstand shared with the residential buildings fronting Francis Street
- Pavement hardstand
- Various light-industrial buildings
- Vehicular crossings in North and William Street

3.2. Topography

The topography is undulating and generally falls from the south-western to the north-eastern boundary, with the high-point being the south-eastern corner of the site (RL 10.51 mAHD) and the low-point of the site being the northern boundary of the site, adjacent to the sag point within William Street (RL 7.73 mAHD) refer to Appendix A for details.

3.3. Surface Water and Drainage Network

Based upon the existing site survey (Appendix A) prepared by 'Total Surveying Solutions', the existing overland flow path is generally from the southern boundary to the northern boundary of the site, refer to Appendix A for details.

Based upon the site survey, there is an underground stormwater network within the existing site, draining the residential sites to the south-east of the site to William Street to the north. All stormwater collected on the existing roof structure, is collected via box gutters and discharged to the surrounding kerb and gutter via kerb adaptors.

3.4. Impervious Area Versus Pervious Area

Based upon the existing site survey (Appendix A) prepared by Total Surveying Solutions dated 26th June 2025, the existing site consists of 100% impervious area (blue) for the 0.69 ha site, refer to Figure 2 for details.

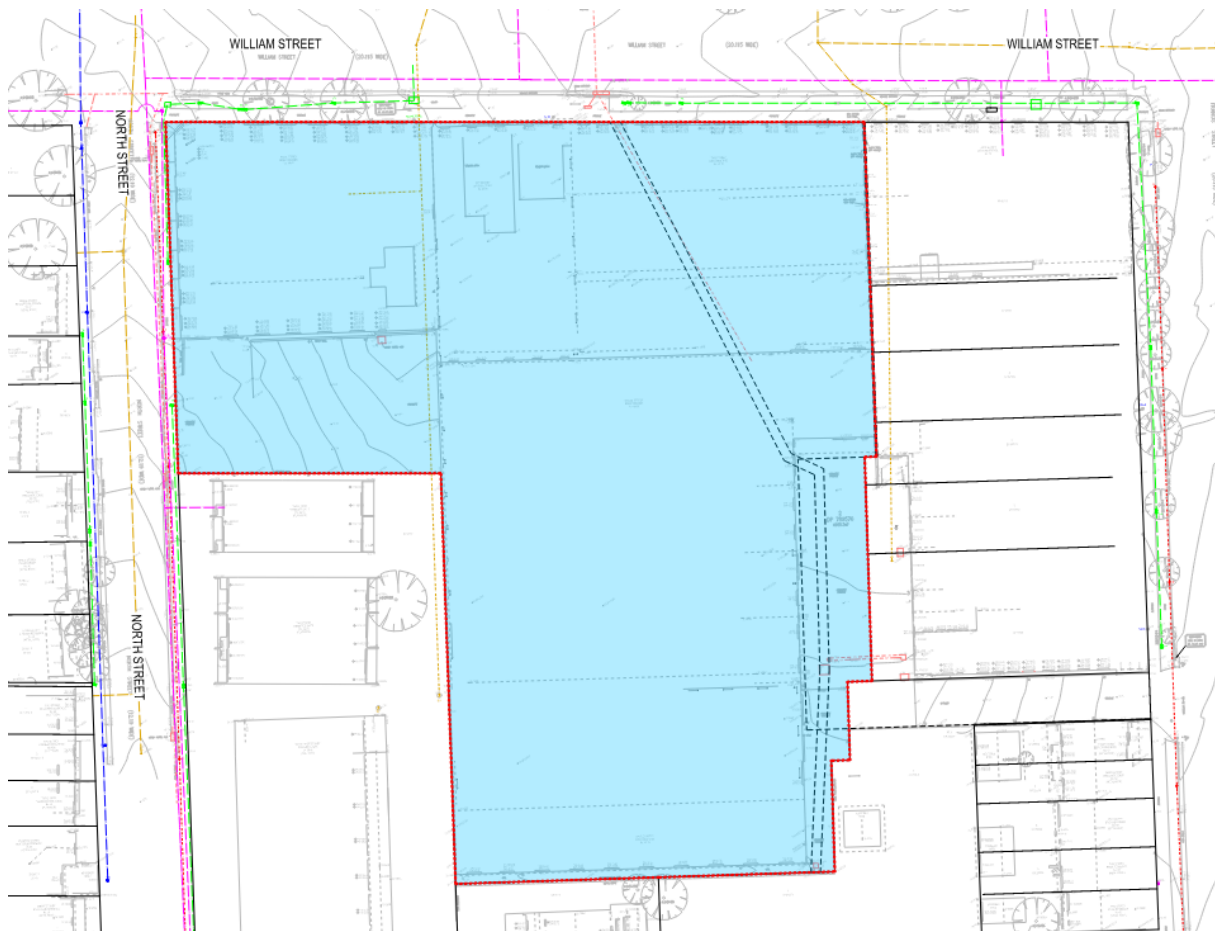


Figure 2: Impervious area versus Pervious area

3.5. Flooding

Refer to Appendix C Flood Report by Mott Macdonald for information regarding the flooding constraints on the development.

4. Proposed Development

The proposed development comprises 5 buildings located on a common podium and with 2-levels of basement.

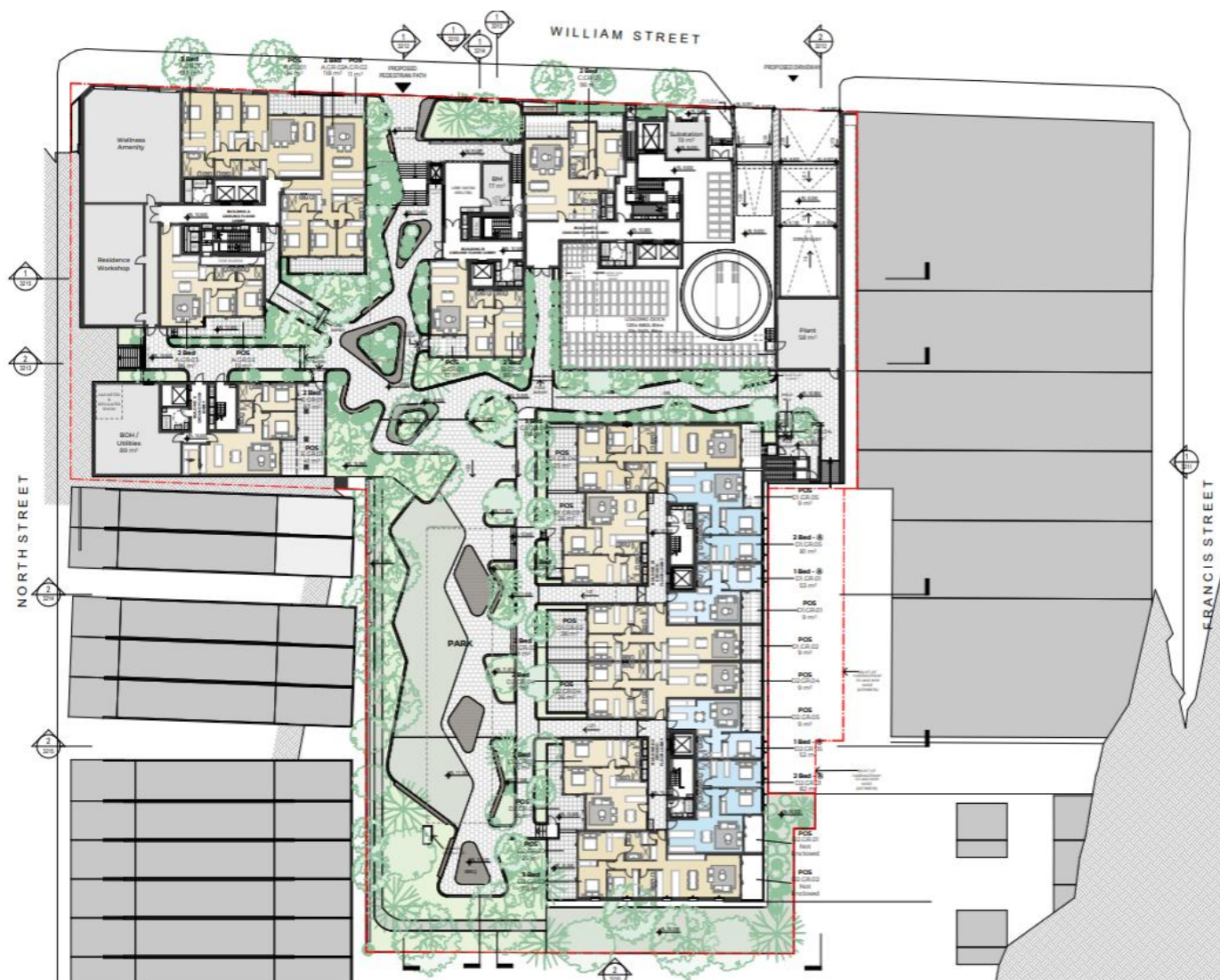


Figure 3: Proposed Ground Floor Plan (Source - Woods Bagot)

4.1. Stormwater Management Strategy

This Proposed Stormwater Management Strategy has been designed to generally follow the existing natural features of the site and to maintain the existing overland flow principle.

All proposed stormwater drainage from the development will be designed in accordance with Inner West Council (formerly Leichhardt Council) DCP 2013 Appendix E - Water Guidelines.

The proposed stormwater strategy is to direct a large portion of the roof water into the 10 kL rainwater tank, with overflow directed to the proposed in-line On Site Detention (OSD) tank located under the proposed ground floor. The OSD outlet will connect into the site's Legal Point of Discharge within William, refer to section 4.1.4 for details.

Due to the site's position within the catchment and it being impacted by overland flow in the 1% AEP and higher

storm events, the stormwater generated will be directed to the OSD tank and function as flood storage once the stormwater network is at capacity to ensure compliance with the relevant controls, refer to Figure 4 for details.

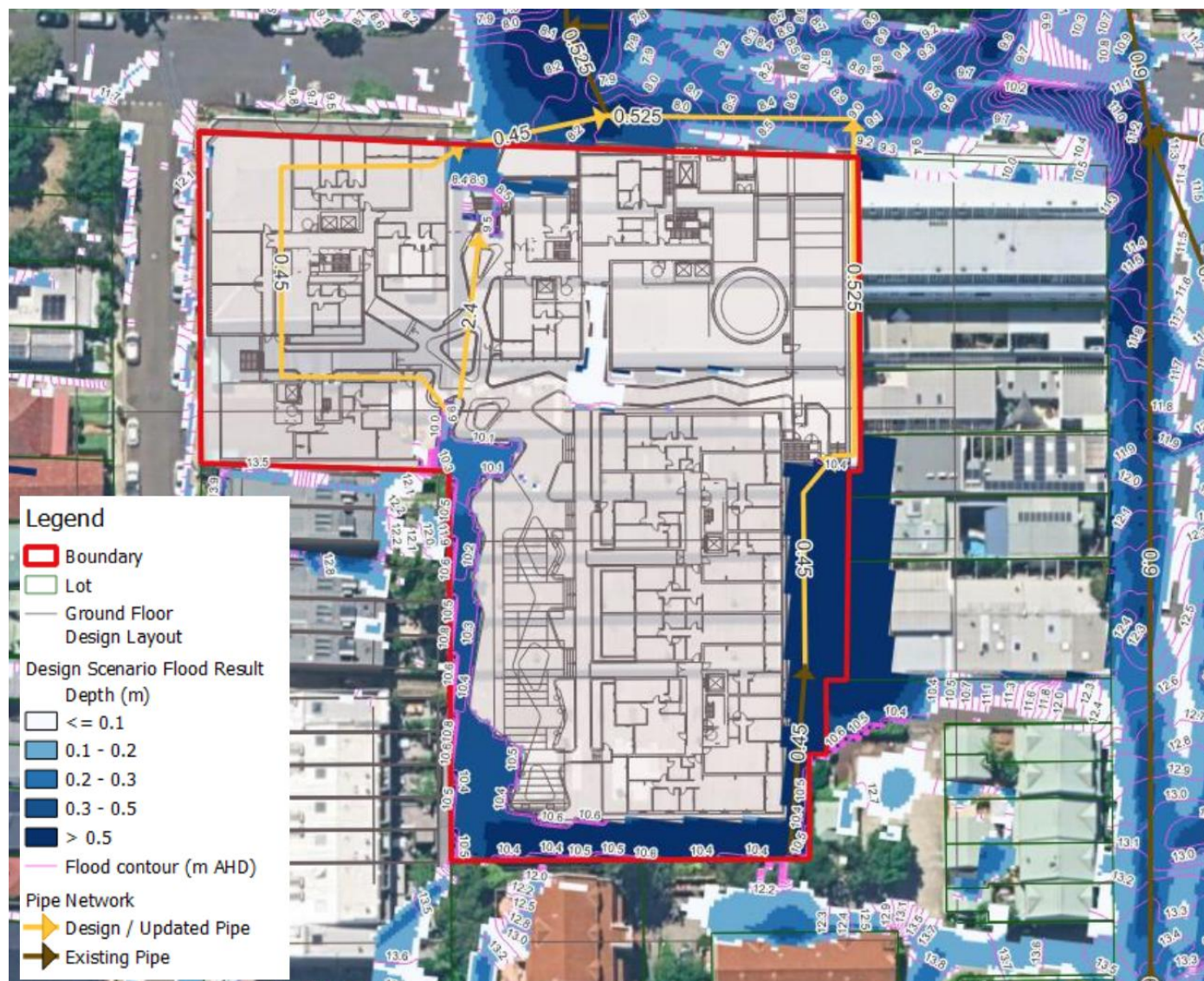


Figure 4: Proposed 1% AEP Depth and Extents (Source - Mott MacDonald)

Refer to the Civil Drawings in Appendix B for layout and details for the proposed stormwater network across the site.

Stormwater generated within the proposed site will be treated to Inner West Council water quality treatment targets using proprietary treatment device. This is discussed further in Section 5 'Water Sensitive Urban Design of this report.

4.1.1. Pre. and Post Development Flows

As per the Inner West Council (formerly Leichhardt Council) DCP 2013, Appendix E - Water Guidelines, the post-development 1% AEP stormwater flows are not to exceed the rate of runoff for 20% AEP pre-development flows, refer to Figure 1 for details.

An ILSAX (DRAINS) model has been prepared to accurately analyse the proposed stormwater system connection to the extended stormwater system, which will be constructed as part of this application within Redmond Street

Table 1 - Site Discharges

Pre. VS Post. Site Stormwater Discharge		
AEP	PRE Development Flow (m ³ /s)	POST Development Flow (m ³ /s)
20%	0.236	0.135
5%	0.316	0.170
1%	0.407	0.201

As per Table 1 above, analysis of the design storm event in DRAINS software indicates that the post development peak flows are less than the pre-development flows for the storms nominated.

4.1.2. On Site Detention

As per the Inner West Council (formerly Leichhardt Council) DCP 2013, Appendix E - Water Guidelines, the post-development 1% AEP stormwater flows are not to exceed the rate of runoff for 20% AEP pre-development flows, refer to Figure 1 for details.

Table 2 - OSD Tank Details

OSD Tank Details				
Contributing Catchment to Tank (ha)	OSD Volume (Min.) (m ³)	Low-Flow Outlet	Emergency Weir (m)	Emergency Outlet
0.64	279	290mm Orifice Plate	9.29m AHD	Overflow Weir/Pit Surge

4.1.3. Proposed Stormwater Network

Refer to Figure 5 below for the proposed stormwater network layout and Figure 6 for the proposed 1% AEP results.

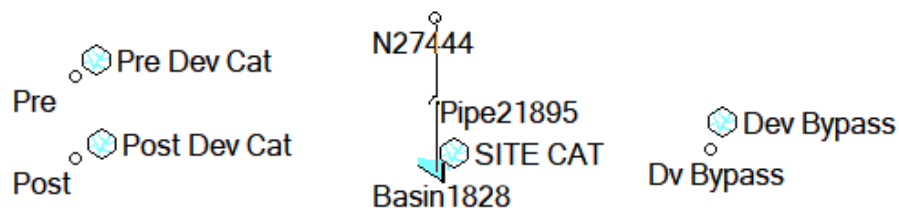


Figure 5: Proposed Stormwater Network and Catchment Areas

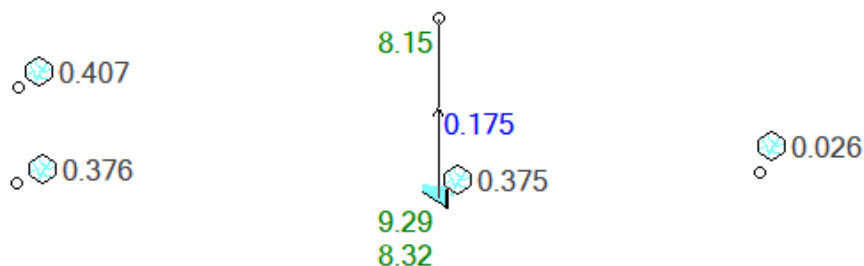


Figure 6: Proposed 1% AEP Stormwater Discharge

4.1.4. Legal Point of Discharge

The proposed Legal Point of Discharge for the subject site will be the existing underground stormwater system within William Street operated by Inner West Council. This system will be augmented/extended to the subject site as part of the works proposed under this application, refer to Appendix B for details.

The existing subsurface drainage network on site will be augmented by the proposed internal drainage system (sizing to be confirmed during detailed design) to convey the 20%/1% AEP storm events to the Legal Point of Discharge via the proposed OSD/Rainwater tank, refer to the Civil drawings within Appendix B for details.

4.1.5. Subject Site Overland Flow

Overland flows generated in the case of stormwater system failure will be directed to William via stormwater pit surcharge located along the northern boundary of the site.

5. Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and to achieve more sustainable forms of urban development.

As such, Proprietary treatment devices will treat the water to satisfy the water quality requirements. These devices have been modelled as Ocean Protect Stormfilters and Oceanguards.

By utilising these treatment devices, stormwater draining from the development will meet the required water quality treatment rates before discharge into the existing stormwater network within Redmond Street.

A summary of the required number and position of the treatment devices is indicated within the stormwater drainage plans within Appendix B. Refer to Figure 7 for a summary of the MUSIC model undertaken to meet to the Sydney Water treatment rates.

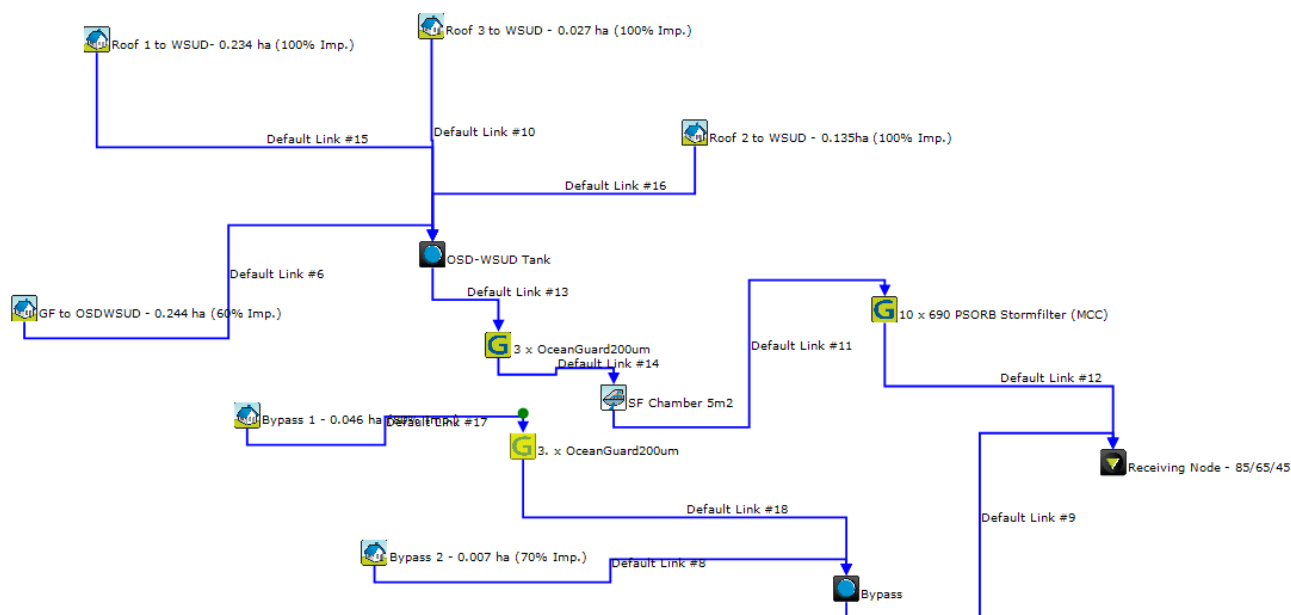


Figure 6: MUSIC Model Setup

5.1. Rainwater Tank

It is proposed to utilise a rainwater tank on site to minimise the potable water demand for the development. It is proposed to connect a percentage of the roof to the rainwater tank located adjacent the OSD tank on Basement One, constructed in-line with the OSD tank. Refer to MUSIC catchment plan within Appendix B for details and in accordance with the proposed BASIX for the development.

The proposed 75 kL rainwater tank will service the following, as per BASIX (minimum rainwater tank size is 40 kL to achieve BASIX compliance):

- Irrigation for landscaping inside the property boundary (0.4 kL/year/m^2) $1,573 \text{m}^2$
- Contributing catchment of 756m^2 from Buildings A and E

5.2. WSUD Modelling – MUSIC Model

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC X) was used to evaluate pollutants loads from the site.

A conceptual view of the MUSIC model used in this report can be seen in Figure 6 above.

5.2.1. MUSIC Parameters

MUSIC model source node parameters for this site included rainfall-runoff, base-flow concentration and storm-flow concentration parameters. The parameters used for the catchment area(s) can be seen in Table 3 and 4 below

Table 3 - Rainfall-Runoff Parameters Urban Mixed/Roof Catchment Area

Parameter	Unit	Figure
Rainfall Threshold	mm/day	1.50
Soil Storage Capacity	mm	17.00
Initial Storage	% of Capacity	30.00
Field Capacity	mm	70.00
Infiltration Capacity Coefficient	a	180.00
Infiltration Capacity Coefficient	b	3.00
Initial Depth (Ground Water)	mm	10.00
Daily Recharge Rate	%	25.00
Daily Baseflow Rate	%	25.00
Daily Seepage Rate	%	0.00

Table 4 - Stormwater Quality Parameters

Land Use	Storm Flow						Base Flow					
	TSS		TP		TN		TSS		TP		TN	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
(All values expressed as log ₁₀ mg/l)												
Urban Mixed	2.15	0.32	0.60	0.25	0.30	0.19	1.20	0.17	-0.85	0.19	0.11	0.12

5.2.2. MUSIC Results

MUSIC modelling results presented as mean annual loads at the receiving node indicate that adopted target reductions are achieved, as shown in Table 5.

Table 5 - Pollutant Reduction

Pollutant Reductions				
Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Flow (ML/year)	5.988	5.988	0.00	N/A
Total Suspended Solids	434.9	60.57	86.07	80
Total Phosphorus	9.073	3.344	63.15	60
Total Nitrogen	12.93	6.327	51.07	45
Gross Pollutants	162.30	1.334	99.18	90

6. Stormwater System Maintenance

6.1. Ocean Protect Maintenance

The maintenance frequency of the Ocean Protect Stormfilter and Oceanguard is dependent upon several factors:

- Catchment area
- Surrounding land use
- Vegetation type
- Traffic loading
- Rainfall patterns

It is recommended that during the first year of operation the units should be monitored monthly, with maintenance as required.

Additional monitoring should be conducted following moderate to extreme rainfall events when preceding months have had little to no rainfall. This monitoring is considered necessary to accommodate for higher volumes of runoff generated during major rainfall events. It is anticipated greater accumulation of surface contamination during low rainfall periods and to ensure that the units have not been damaged due to high pipe velocities.

Upon completion of the WSUD maintenance the monitoring/maintenance checklist is to be completed and kept for records, as per Ocean Protect manufacturers guidelines.

Table 6 - Stormfilters Maintenance

Unit	Inspection/Minor Maintenance (Months)	Major Maintenance (Times/Year)
Stormfilters/Oceanguards	6 (and after major storms)	12 (expect in case of a spill)

6.2. Stormwater Network Maintenance

6.2.1. Inspection Frequency and Procedure

The pit and pipe network shall be inspected at intervals after all major storm event and not exceeding twelve (12) months. Inspections should be undertaken by suitably qualified persons with an understanding and experience in the operation of similar systems with the requisite qualifications.

Inspections should be undertaken as a minimum after every rainfall events

- Check that all grates, covers and lintels are in sound condition and are undamaged. Any signs of deterioration should be noted for repairs to be undertaken
- Check all pits/forebays for accumulation of sediment, debris or litter
- If pits are found to be affected by sediment, debris or litter, an assessment should be made as to whether the upstream and downstream pipes require cleaning
- Inspect outlet headwall and ensure it is in a sound, undamaged condition
- Inspect upflow pits and ensure it is in a sound, undamaged condition
- Check the area immediately surrounding the outlet headwall for signs of scour and/or sediment collection. If evidence of scour is found, rock lining or similar scour protection may need to be installed or replaced. The accumulation of sediment at the headwall may be an indication of system problems further upstream and additional investigations should be undertaken.

6.2.2. Maintenance Frequency and Procedure

Maintenance of the pit and pipe system should be undertaken as required following the above inspections. Typical maintenance procedures that would need to be undertaken include

- Remove sediment, debris and litter from pits including lintels as required
- Remove sediment or other foreign material from pipes.

6.2.3. Removal of Sediment, Debris or Litter from Pits

Should sediment, debris or litter be detected within the stormwater pits, it is important that the foreign material be removed to ensure proper operation of the system.

- Do not undertake maintenance works during periods of rain or when rain is likely
- Set up warning signs and/or tape around the works to inform the public-by that maintenance works are in progress and to stay clear. Traffic controls/temporary fencing are to be installed in accordance with AS1742 and Council requirements as required
- Open all grates and covers to ensure access is gained to all chambers of the pit
- Remove any large debris or litter manually and dispose of off-site
- If possible, remove the accumulated sediment manually and dispose of off-site
- If manual sediment removal is not possible, sediment will need to be removed by a vacuum truck and disposed of off-site
- Following removal of the foreign material, the condition of the pit internally and any weir or diversion structure should be noted. Any damaged structure should be repaired
- At the completion of the work the access grates and covers should be closed ensuring that all locking devices are securely in place
- Remove all warning signage on completion of the works.

6.2.4. Removal of Sediment, Debris or Litter from Pipes

Should sediment, debris or litter be detected within the stormwater pipes, it is important that the foreign material be removed to ensure proper operation of the system.

- Do not undertake maintenance works during periods of rain or when rain is likely
- Set up warning signs and/or tape around the works to inform the public-by that maintenance works are in progress and to stay clear. Traffic controls/temporary fencing are to be installed in accordance with AS1742 and Council requirements as required
- The removal of any foreign material is to be undertaken in stages with each stage clearing only a single reach of pipe
- Open all grates and covers to ensure clear access is gained to upstream and downstream pipes
- Using a timber board or similar means, block off the outlet pipe from the downstream pit to prevent sediment from discharging further down the system
- At the upstream pit, use pressurised water or a similar method to flush the accumulated material to the downstream pit. Note that non-potable water may be suitable for this purpose
- Using a vacuum truck or similar method to collect the flushing water and associated foreign material from the downstream pit
- Repeat the above steps for downstream reaches of the pipe network
- At the completion of the work the access grates and covers should be closed ensuring that all locking devices are securely in place
- Remove all warning signage on completion of the works.

Other non-routine maintenance operations that may need to be undertaken include

- Repair or replacement of pit grates and covers
- Repair of damaged weirs or other diversion structures
- Rectification or addition of scour protection at the outlet headwalls or up-flow pits

6.2.5. Reporting Requirements

These reports should be kept on file as a record of when inspections were undertaken and what conditions were found on site.

Table 7 - Stormwater Network Maintenance to be Completed

Inspected Item	Y	N	Action/Comments
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			
Pit grates and lids in sound, undamaged condition? Pits free from accumulated sediment, debris or litter? Pipes unaffected by sediment accumulation or other foreign materials? Weirs and other diversion devices free from damage/debris? Headwall in sound, undamaged condition? Area around headwall free from sediment and/or scour?			

7. Conclusion

This report identifies an overall stormwater management strategy for the proposed development of 40-76 William Street, Leichhardt. This strategy is preliminary only and is subject to detailed design and feedback from the relevant authorities.

Stormwater is to be managed on site by implementation of the following measures:

- On Site Detention (OSD) Tank
- Water Sensitive Urban Design (WSUD) measures
- Rainwater Tank

Appendix A - Survey Drawings

Appendix B - Civil Drawings

Appendix C - Mott Macdonald Flood Report