



**van der meer**

## **STORMWATER MANAGEMENT REPORT**


Proposed Storage Development  
9-13 Cook Street  
Forestville NSW 2087

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Job No:	SY182-126	

## REVISION STATUS

Revision	Description of Revision	Date	Issued By:
1	FOR APPROVAL	20 December 2018	Rod Burrough
2	FOR APPROVAL	14 January 2019	Rod Burrough
3	FOR APPROVAL	04 February 2019	Rod Burrough

Recipients are responsible for eliminating all superseded documents in their possession.

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## **1. Introduction**

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### **1.1 Background**

Van Der Meer Consulting has been commissioned by Trumen Norman Forestville to prepare a Water Quality Report to support a Development Application (DA) to the Northern Beaches Council for a proposed self-storage facility at 9-13 Cook Street, Forestville.

The scope of this report includes a comprehensive assessment of the stormwater management requirements for the proposed development. Accordingly, this report includes findings of the assessment and proposes a best practice stormwater management strategy.

The following information and documents were utilised in this investigation:

- Detailed Site Survey Plans
- Architectural plans defining proposed works and existing infrastructure
- Warringah Council On-site Stormwater Detention Technical Manual
- Warringah Council Water Sensitive Urban Design
- Northern Beaches Stormwater Control Policy
- Northern Beaches Council WSUD & MUSIC Modelling Guidelines 2016

### **1.2 Existing Site**

The site is within Northern Beaches Council LGA. It has frontage to Cook Street (see Figure 1.1). The site is currently used for industrial and commercial storage. Appendix C includes the survey for the existing site.

The site area is approximately 0.43 ha. It falls from east to west and currently drains to Cook Street.

On-site detention or water quality improvement devices are not currently in place.



Figure 1.1 Site Area

### 1.3 Proposed Works

The proposed development includes demolition of all existing structure and construction of a new storage building with three storeys. It is noted that the proposed development shall comprise the majority of the site limiting options for stormwater drainage and water improvement devices.

### 1.4 Key Issues

The key issues to be addressed in this report include:

- **Water Quantity** – Increases in impervious areas as a result of the development (such as roofs, driveways, etc) has the potential to increase stormwater flows from the site during storm events. To avoid impacting the site and downstream properties, the site stormwater system must be designed to safely convey flows through the site and within the capacity of the downstream drainage system.
- **Water Quality** – Urban developments have the potential to increase gross pollutants, sediments and nutrient concentrations in storm water runoff. To limit the impact on the downstream water quality, pollution control measures will be provided within the site's stormwater management system prior to discharging into the drainage network.

## 2. Objectives & Targets

The objective is to provide stormwater controls that ensure that the proposed development does not adversely impact on the quantity or quality of stormwater flows within, adjacent and downstream of the site.

The site-specific stormwater management and planning elements are to be designed and constructed in accordance with the following:

### Water Quantity

Guidelines: Warringah Council On-site Stormwater Detention Technical Specification

The proposed development increases the total impervious area of the existing site and therefore may increase the discharge rate to the downstream drainage network and waterways. The main objective is to achieve a natural water balance which seeks to approximate the pre-development site conditions to maintain existing conditions as well as controlling erosion and sediment removal.

### Water Quality

Guidelines: Northern Beaches Council WSUD & MUSIC Modelling Guidelines

The main objective for stormwater quality is to minimise the impacts on downstream water bodies. Northern Beaches Council has adopted a stormwater management policy that incorporates “best practice” principles of Water Sensitive Urban Design. The site specific water quality targets are outlined in Table 2.1.

**Table 2.1 Northern Beaches Council Pollution Reduction Targets**

Pollutant	Criteria
<b>Total Suspended Solids (kg/yr)</b>	85% reduction of the annual load
<b>Total Phosphorus (kg/yr)</b>	65% reduction of the annual load
<b>Total Nitrogen (kg/yr)</b>	45% reduction of the annual load
<b>Gross Pollutants (kg/yr)</b>	90% reduction of the annual load

### 3. Stormwater Quantity Control

#### 3.1 Proposed Drainage System

The drainage system for the proposed development will be designed to collect the majority of concentrated flows from impermeable surfaces such as access ways, parking areas and buildings. Where possible (and practical), runoff from pervious areas will also be collected.

The proposed stormwater management system for the development includes:

- A pit and pipe network to collect minor storm runoff
- Overland flow paths to carry major storms through the site
- One on-site detention (OSD) tanks with orifice and weir control

A reduced set of concept civil engineering drawings is included in Appendix A.

#### 3.2 On-Site Detention (OSD)

OSD is designed based on Warringah Council On-site Stormwater Detention Technical Specification. 350m<sup>2</sup> (8%) of the site area cannot be routed to the OSD system and has been treated as bypass. In accordance with the Full Computation Method, Permissible Site Discharge has been assessed as the state of nature site condition. Results of the DRAINS modelling are summarised in the following table

**Table 3.1 DRAINS Pre-Post Comparison**

ARI Event	Permissible Site Discharge (m <sup>3</sup> /s)	Post Development Discharge (m <sup>3</sup> /s)
5 year	0.117	0.117
20 year	0.168	0.153
100 year	0.24	0.194

Result of DRAINS analysis indicated that OSD provides sufficient flow reduction to ensure that the downstream peak post development discharge does not exceed the pre-development discharge for the worst case storm duration. 61m<sup>3</sup> of OSD with a 270 mm diameter orifice size will be provided for the development. Refer to Appendix A for details.

No Council stormwater pit exists adjacent to the site. Therefore a new pipe will be required to be installed in Cook Street to connect the site with the existing kerb inlet pit at the junction of Cook Street & Warringah Road. This is documented on the stormwater concept plan in Appendix A.



## 4. Water Quality Control

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### 4.1 Introduction

The quality of runoff from a catchment depends upon many factors such as land use, degree of urbanisation, population density, sanitation, waste disposal practices, landform, soil types, and climate. Pollutants typically transported by runoff include litter, sediment, nutrients, oil, grease, and heavy metals. Whilst all these pollutants have a negative impact on the receiving water quality, suspended solids and nutrients cause the highest detrimental impact to the environment

Also, soil erosion during the construction phase presents a potential risk to water quality. The primary risk occurs while soils are exposed during earthworks when suspended sediment and associated pollutants can be washed into downstream watercourses.

### 4.2 Water Quality Control Measures

The measures proposed for the redevelopment are summarised below:

#### Filter Cartridges

- *StormFilter* is a proprietary device containing multiple cartridge units in a single system, thereby suitable for larger catchments.
- An advantage of using *StormFilter* is that the cartridges come with various filtration media available to target site-specific pollutants.
- There will be 14 x 690mm Storm Filter cartridges within the OSD tank as detailed in the engineering drawings.

#### EnviroPod 200

- EnviroPod 200 filters will be placed at all proposed surface inlet pits within the proposed development.
- Testing at the University of South Australia Urban Water Resources Centre found that the EnviroPod unit retained all litter up to an approach flow of 100L/s. Allowing it to retain 100% of coarse sediment and gross pollutants as defined by the Victoria Stormwater Committee for particulate sizes ranging from 500 $\mu$  to 5000 $\mu$  for a 200 $\mu$ m sized sieve.
- EnviroPod 200 filters show removal of up to 97% Suspended Solids for particulate sizes in the range of 100-500 $\mu$  (Butler, Ockleston, Foster).



### Erosion & Sediment Control Plan

During construction, water quality control is achieved by deposition and trapping of silts and clays which often have nutrients such as phosphorus and nitrogen attached to their surfaces. Silt fences will be erected prior to construction to control sediment runoff. This will reduce and isolate sediments and particulate matter.

An Erosion and Sediment Control Plan has been provided in accordance with Landcom's "Managing Urban Stormwater – Soils and Construction (2004) and council Condition 41. This will ensure that a significant portion of sediments and attached nutrients can be contained on site during construction.

A copy of the preliminary Erosion and Sediment control plan is shown in Appendix A.

## **4.3 Water Quality Modelling**

### **4.3.1 MUSIC**

The effectiveness of the proposed water quality measures has been assessed using numerical modelling. Water quality modelling has been conducted using the software program MUSIC (Model for Urban Stormwater Improvement Conceptualisation). This program is used to establish the effectiveness of the water quality treatment proposed for the development site. MUSIC has been developed by the Cooperative Research Centre for Catchment Hydrology, and is designed as a planning tool for water quality treatment trains for catchment runoff. The program is able to model pollutant loads present in stormwater runoff from a catchment and assess the effectiveness of different treatment devices in terms of pollutant load reduction.

The rainfall data used was the six-minute time step from 1981 to 1985 from Sydney Observatory Rainfall Station.

Catchment characteristics were defined using a combination of roof areas and non-roof catchments with varying imperviousness ratios to replicate the catchment for the developed condition.

The MUSIC model layout is shown below.

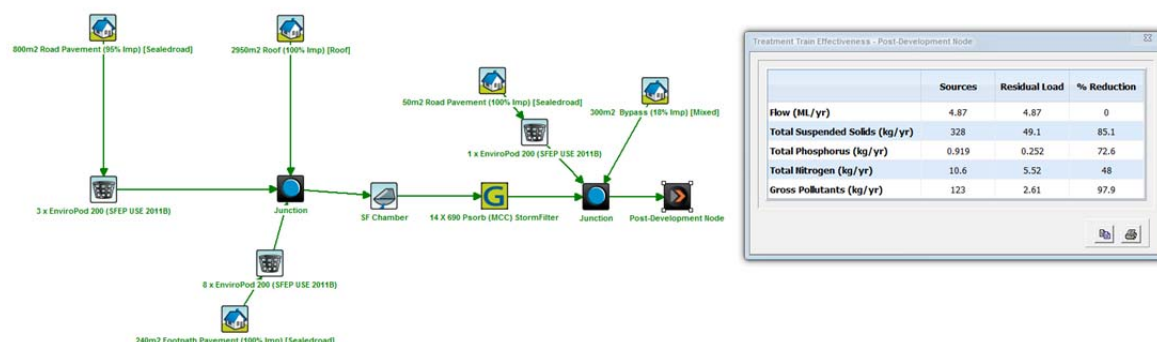


Figure 4.1 Water Quality Treatment Train Diagram

### 4.3.2 Land Use

Table 4.1 details the various land use areas for the proposed development.

Table 4.1 Land Use Areas

Land Use / Surface Type	Area (m2)
Building Roof	2,950
Impermeable/Pavement	1090
Landscaping	300
<b>Total</b>	<b>4,340</b>

### 4.3.3 Results

Table 4.2 below shows the calculated mean annual pollutant loads for the proposed site conditions before and after the implementation of the treatment devices.

Table 4.2 Summary of Treatment Train

	Total Suspended Solids (kg/yr)	Total Phosphorus (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutants (kg/yr)
<b>Pre-treatment</b>	322	0.915	10.6	123
<b>Post-treatment</b>	49.1	0.252	5.52	2.61

Northern Beaches Council WSUD & MUSIC Modelling Guideline 2016 outlines council's requirements for the reduction of pollutants from stormwater before it can be discharged from the site. These targets are listed in Table 4.3 below together with the percentage pollution reductions that will be achieved by the proposed treatment train.

**Table 4.3 Comparison of Pollutant Reduction Target vs. Achieved**

<b>Pollutant</b>	<b>Reduction Target</b>	<b>Reduction Achieved</b>	<b>Target Achieved</b>
<b>Total Suspended Solids (kg/yr)</b>	85%	85.1%	YES
<b>Total Phosphorus (kg/yr)</b>	65%	72.6%	YES
<b>Total Nitrogen (kg/yr)</b>	45%	48.0%	YES
<b>Gross Pollutants (kg/yr)</b>	90%	97.9%	YES

It is clear from the table above that the proposed water quality measures enable the reduction targets to be achieved for all key stormwater pollutants. Therefore, by implementing the proposed treatment train measures within the proposed development there will be no detrimental effect on the quality of stormwater running off from the site.

## 5. Recommendations

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The proposed development of the site could potentially lead to significant changes in water quantity and quality if a water sensitive urban design approach is not adopted as part of the development strategy.

The key strategies to be adopted for this development include the following:

1. A pit and pipe network to collect minor storm runoff from surface areas which will minimise nuisance flooding
2. Overland flow paths to carry major storms through and around the site without causing damage to property from flooding;
3. EnviroPods at nominated inlet pits will form part of the water quality treatment train, removing pollutants and nutrients that are detrimental to downstream waterways;
4. An on-site stormwater detention tank to maintain existing peak flows will be constructed. The tank will be fitted with 14 x 690 StormFilters to treat the water prior to it leaving the site.

The results from the investigations and modelling for this project, which have been summarised in this report, indicate that the development with the proposed WSUD strategy and management can provide a safe and ecologically sustainable environment.

## 6. References

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- Warringah Council On-site Stormwater Detention Technical Specification
- Northern Beaches Council WSUD & MUSIC Modelling Guideline 2016
- “Australian Runoff Quality – A Guide to Water Sensitive Urban Design”, Engineers Australia (2006)
- “Australian Rainfall and Runoff – A Guide to Flood Estimation”, Institute of Engineers, Australia (2016)
- eWater – MUSIC Version 6.3






## **Appendix A – Civil Engineering Plans**

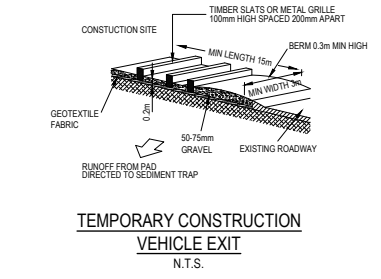
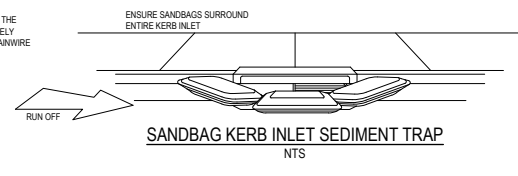
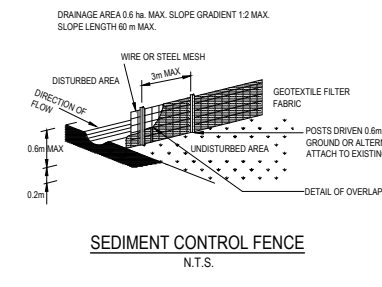
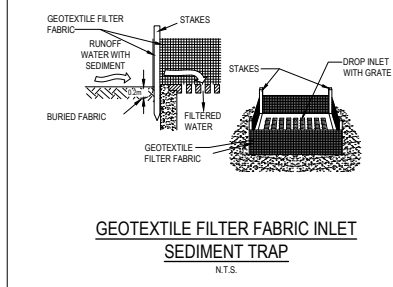
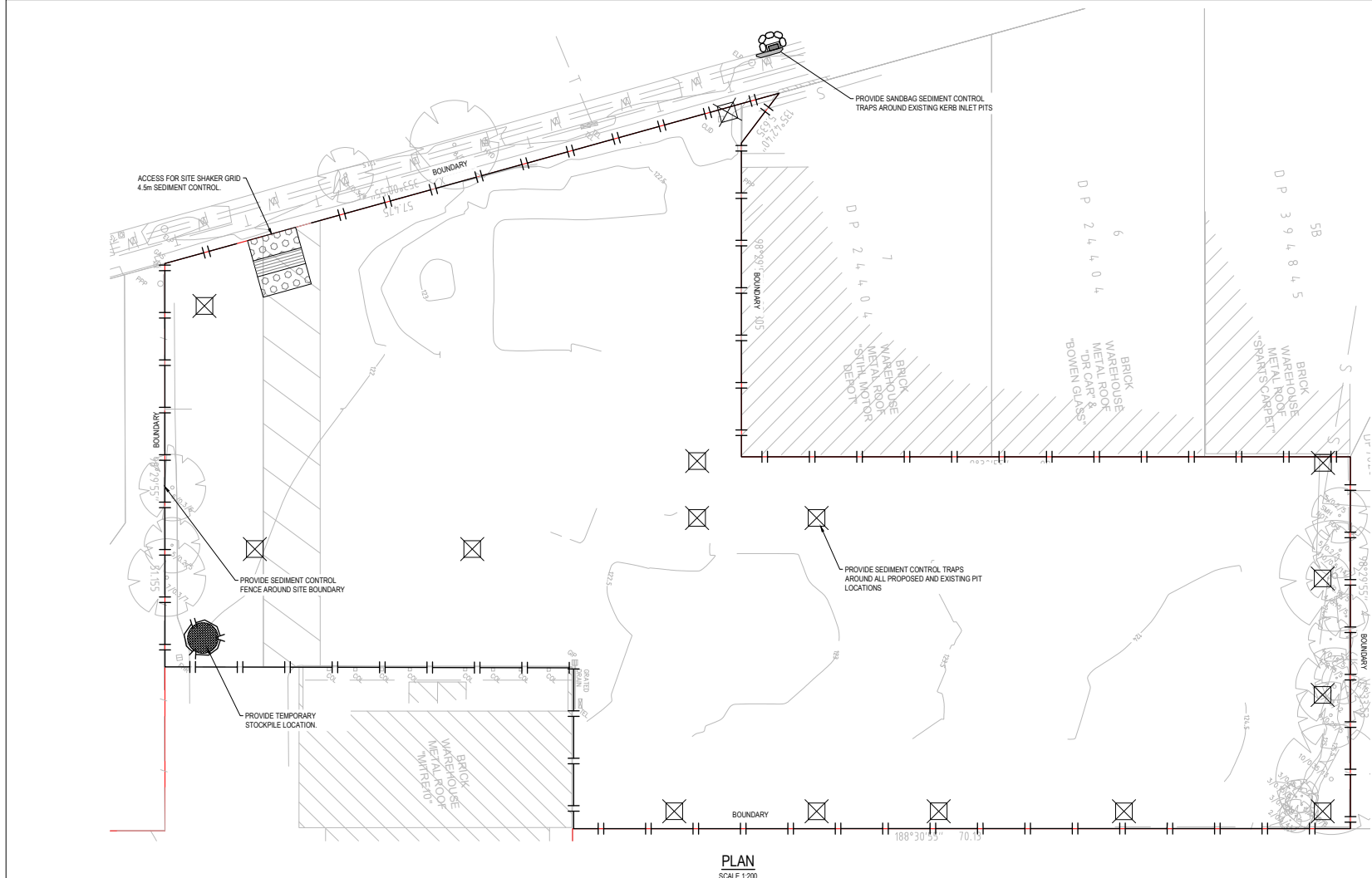
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EROSION AND SEDIMENT NOTES

- B1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS SHOWN
- B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT COUNCIL'S APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS'.
- B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL IS TO BE RESPIREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY. (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPIREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.
- B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM DEVICES SUCH THAT NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL.
- B5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.
- B6. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.
- B7. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENTS ARE REVEGETATED OR PAVED.
- B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.
- B9. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL :  
A) DOWNPIPES CONNECTED  
B) PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER
- B10. SILT FENCE MAINTENANCE INSPECTION TO BE CARRIED OUT EVERY 3 MONTHS AND AFTER EACH RAINFALL EVENT.
- B11. EROSION & SEDIMENT CONTROL SIGNAGE AVAILABLE FROM COUNCIL MUST BE ATTACHED TO THE MOST PROMINENT AVAILABLE STRUCTURE AND BE VISIBLE AT ALL TIMES WHEN ENTERING THE SITE FOR THE DURATION OF CONSTRUCTION.

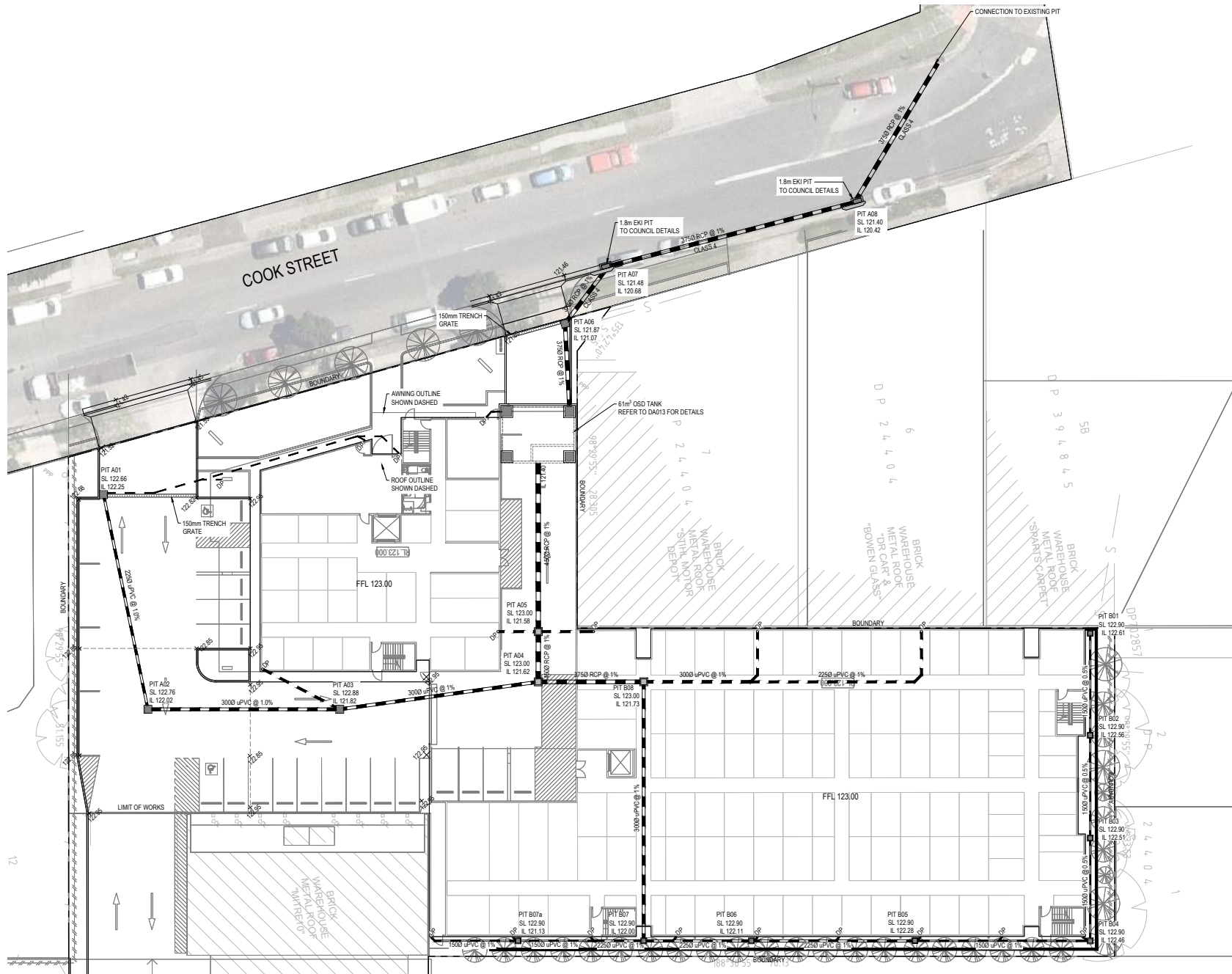
LEGEND

-  -STORMWATER SEDIMENT TRAPS AT ALL PROPOSED PIT INLETS
-  -SEDIMENT CONTROL FOR ACCESS AREA
-  - SEDIMENT CONTROL FENCE
-  -STOCKPILE AREA
-  -SANDBAG KERB INLET SEDIMENT TRAP






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													NATIONAL TRUST CENTRE, UPPER FORT STREET		9-13 COOK STREET		NOT TO BE USED FOR CONSTRUCTION	
													OBSERVATORY HILL, MILLERS POINT NSW 2000		FORESTVILLE			
													ARCHITECT		DRAWING TITLE		DRAWING NO.	
															EROSION AND SEDIMENT CONTROL		SY182-126	
																	DATE	
																	DEC 2018	
																	SHEET SIZE	
																	A1	
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																	C	





## LEGEND

-  STORMWATER PIT  
REFER DWG DA013 FOR DETAILS
-  STORMWATER PIPE  
REFER DWG DA013 FOR DETAILS
-  DOWNPIPE CONNECTION  
1500 U.N.O.

## WARNING

**BEWARE OF UNDERGROUND SERVICES**  
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

### REVISIONS:

NO.	REVISION DESCRIPTION	DATE
C	PRELIMINARY	YK 04.02.2019
B	PRELIMINARY	BK 14.01.2019
A	PRELIMINARY	BK 20.12.2018

### SCALE BAR



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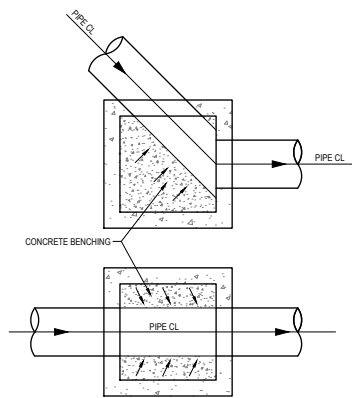
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9-13 COOK STREET  
FORESTVILLE

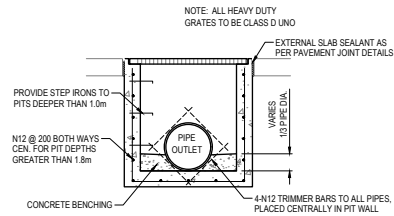
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DRAWING STATUS  
**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

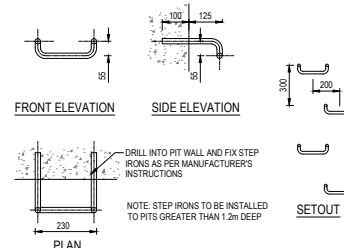
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JOB NO. SY182-126	DRAWING NO. DA012	SHEET SIZE A1
		REVISION C



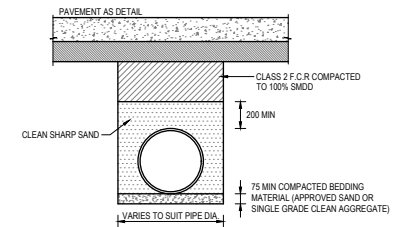
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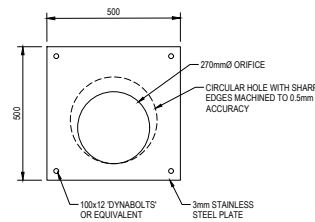
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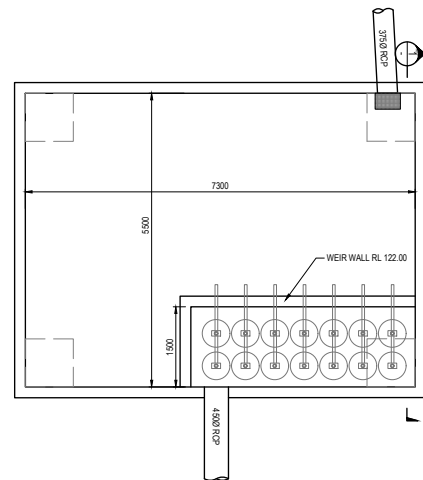
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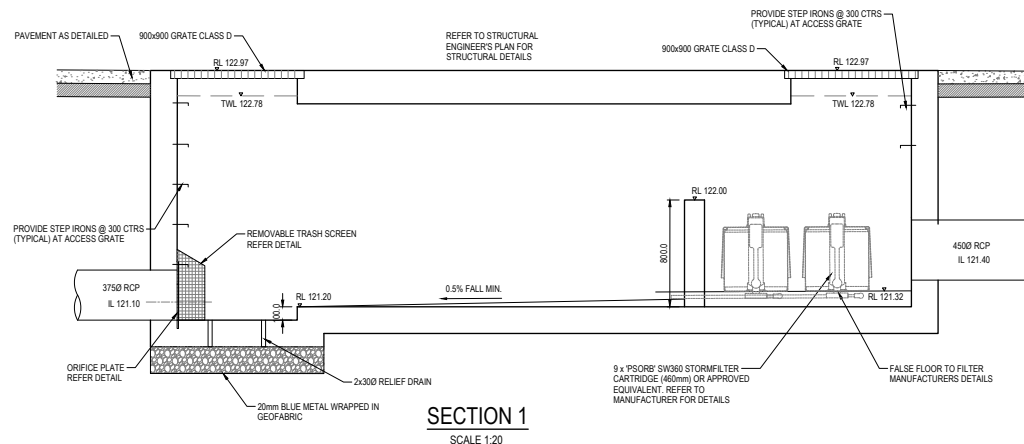
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**ORIFICE PLATE DETAIL**  
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**OSD TANK PLAN**  
SCALE 1:50



**SECTION 1**  
SCALE 1:20

REVISIONS:		
NO.	REVISION DESCRIPTION	DATE
8	PRELIMINARY	YK 04.02.2019
7	PRELIMINARY	BK 20.12.2018

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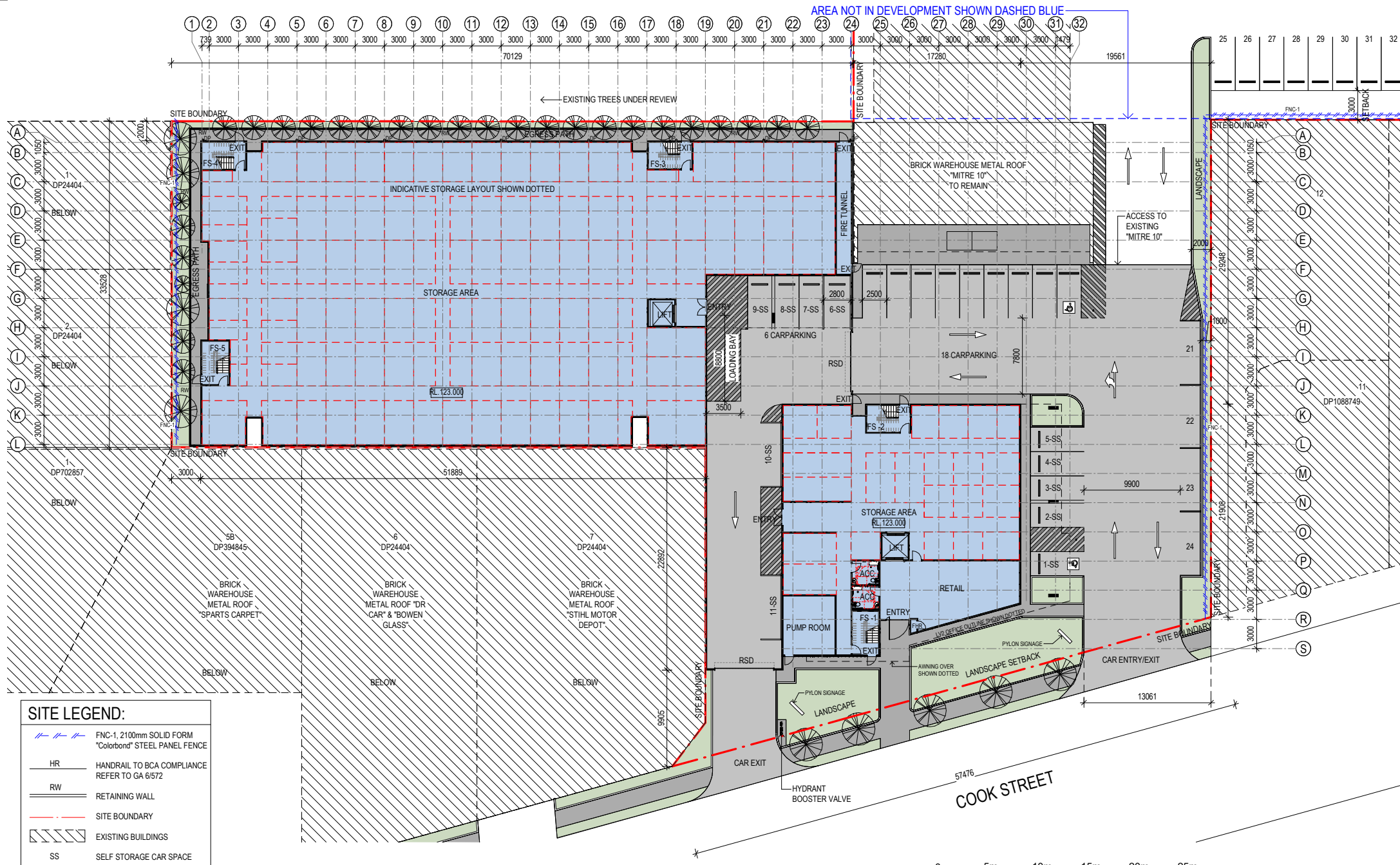
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ARCHITECT	-

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DRAWING TITLE	DRAINAGE DETAILS

DRAWING STATUS	<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION
PROJECT LEADER	RJB
DESIGNER	NT
DRAWN/UPDATER	BK
SCALE	AS SHOWN
DATE	DEC 2018
SHEET SIZE	A1
JOB No.	SY182-126
DRAWING No.	DA013
REVISION	B

## Appendix B – Architect's Plan

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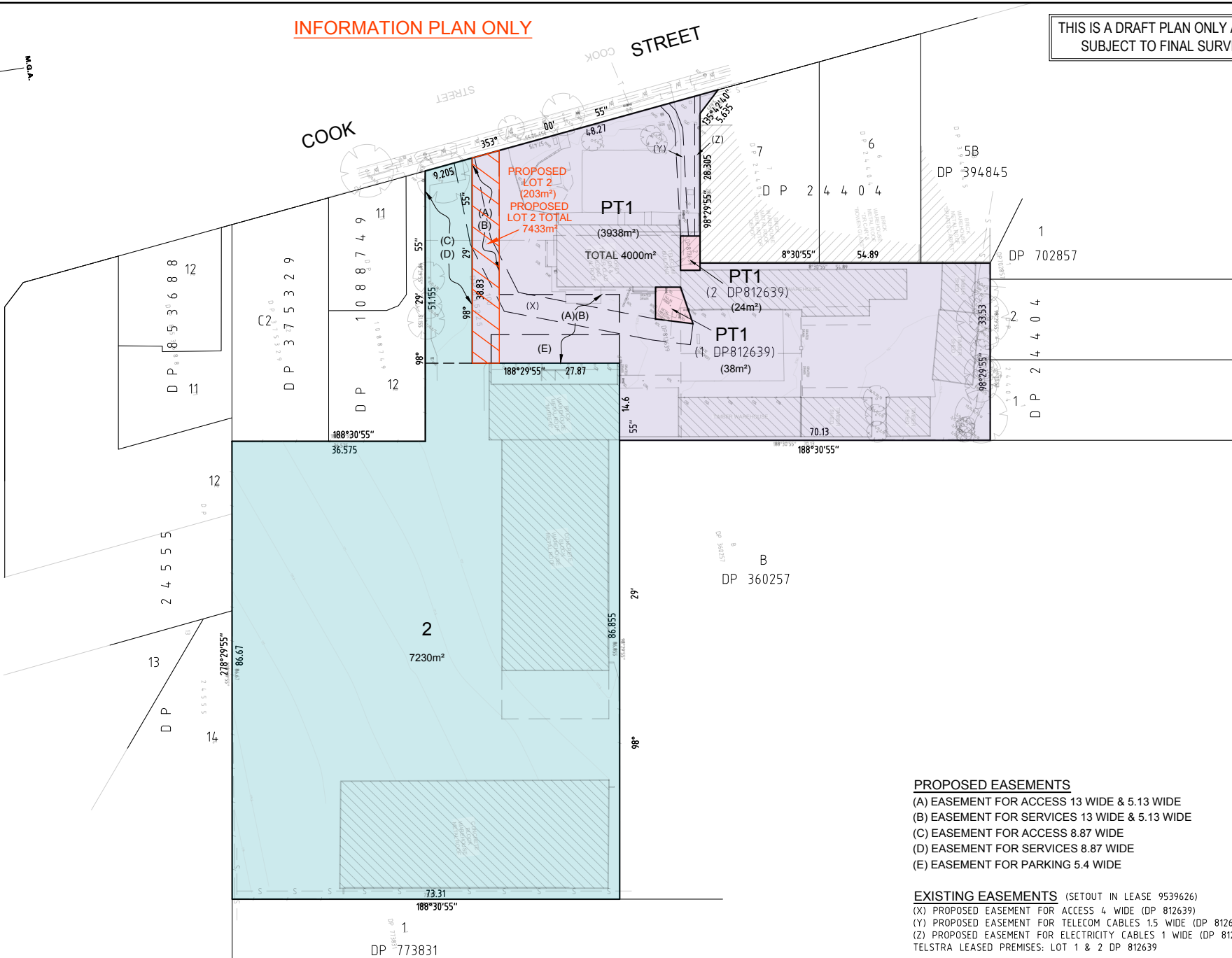
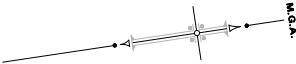


## Appendix C – Site Survey

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INFORMATION PLAN ONLY

THIS IS A DRAFT PLAN ONLY AND IS  
SUBJECT TO FINAL SURVEY




PROPOSED EASEMENTS

- (A) EASEMENT FOR ACCESS 13 WIDE & 5.13 WIDE
- (B) EASEMENT FOR SERVICES 13 WIDE & 5.13 WIDE
- (C) EASEMENT FOR ACCESS 8.87 WIDE
- (D) EASEMENT FOR SERVICES 8.87 WIDE
- (E) EASEMENT FOR PARKING 5.4 WIDE

EXISTING EASEMENTS (SETOUT IN LEASE 9539626)

- (X) PROPOSED EASEMENT FOR ACCESS 4 WIDE (DP 812639)
- (Y) PROPOSED EASEMENT FOR TELECOM CABLES 1.5 WIDE (DP 812639)
- (Z) PROPOSED EASEMENT FOR ELECTRICITY CABLES 1 WIDE (DP 812639)
- TELSTRA LEASED PREMISES: LOT 1 & 2 DP 812639

<div><div>SURVEYOR</div><div>Name: GLENN HARRIS COX</div><div>Date of Survey: ....., 2018</div><div>Surveyor's Reference: 50471 002DP</div></div>	<div>PLAN OF SUBDIVISION OF LOT 100 DP 615225</div>	<div>LGA: NORTHERN BEACHES</div> <div>Locality : FORESTVILLE</div> <div>Reduction Ratio 1: 500</div> <div>Lengths are in metres.</div>	<div><div>Registered</div><div></div><div>LOCKLEY</div><div>Registered Surveyors NSW</div><div>www.lts.com.au</div></div>	<div>DP DRAFT</div> <div>ISSUE FOR REVIEW: 24/09/18</div>
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## Appendix D – Water Quality Device Details

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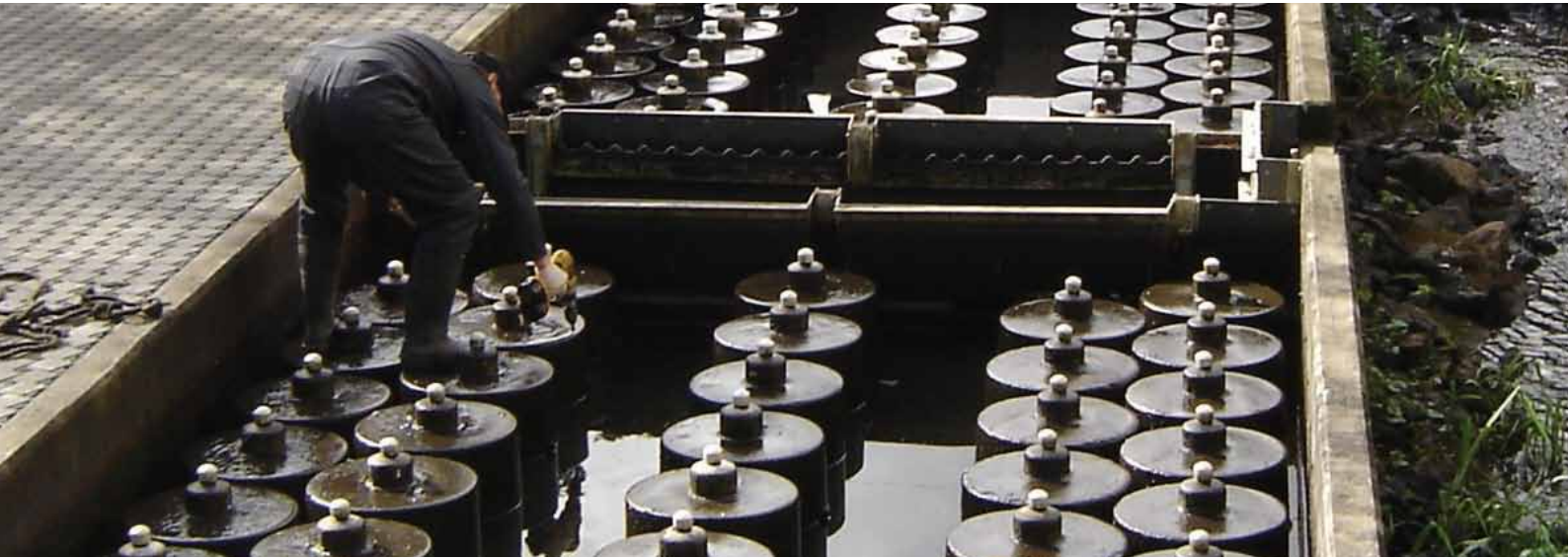


# SFEP Treatment Train

Screening and enhanced filtration treatment in series

Our waterways. Our future.

Stormwater360  
AUSTRALIA



## Screening and enhanced filtration treatment in series

Most consent authorities within Australia have established targets for the removal of pollutants including debris, coarse and fine sediments, and soluble nutrients from stormwater runoff before it is discharged into urban catchments. In general each pollutant is removed from the water column using a specific physical, chemical or biological process. Arranging these processes in sequence provides a “treatment train” approach that addresses and treats the whole spectrum of stormwater pollutants.

In order to meet these demands, Stormwater360 provides the StormFilter and EnviroPod (SFEP) as a series of products within a treatment train. The EnviroPod filter is a gully pit insert designed to be easily retrofitted into new and existing stormwater gully pits, requiring no construction and no land take. Located at the source of stormwater contaminants the EnviroPod filter has an interchangeable and reusable bag with 200 micron pore size. The EnviroPod (gully pit basket) is designed to remove gross pollutants, coarse sediment and associated pollutants (hydrocarbons, metals and nutrients) at high flows and is typically located within each gully inlet pit. The EnviroPod filter also holds captured material dry thereby reducing the amount of nutrient leachate from the organic material stored within the bag.

StormFilter operates at a much lower flow rate than the EnviroPod insert – this is necessary in order to achieve extremely high levels of removal efficiency of fine and soluble contaminants. StormFilter cartridges are located typically within a concrete storage structure with the type and media determined by configuration and design. The StormFilter technology is designed to remove both particulate bound and soluble pollutants, and is located near the outlet of the catchment. The SFEP StormFilter technology utilises Stormwater360’s patented ZPG media blend containing both zeolite and carbon. This blend specifically targets ammonium and soluble organic nitrogen typically found within stormwater flows and any nitrogen leachate from organic material held upstream within the EnviroPod filters. The ability of the StormFilter cartridge to retain nitrogen is further enhanced as the captured material is again stored dry reducing the amount of nutrient leachate.



The SFEP Treatment Train has undergone an extensive peer-reviewed field evaluation program conducted under local conditions that demonstrates reductions in nutrients (including soluble), which meet current best practice guidelines.

## Features and benefits

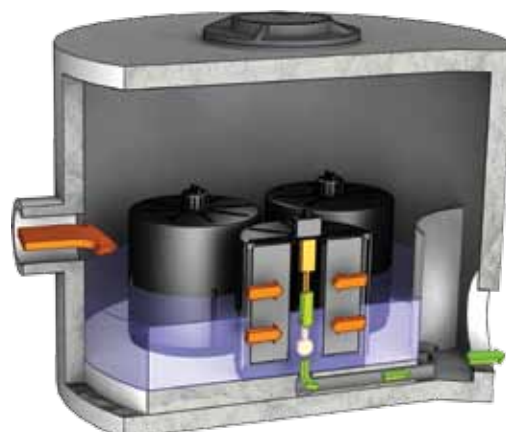
- Turnkey solution – modelling, design, supply and service/maintenance contracts available
- Immediate activation – no need for system “maturity”; starts treating stormwater after filters and cartridges are installed
- Field proven technologies – installations within local conditions for 10 years
- Field proven removal capability – performance data peer reviewed and published in a scientific journal
- Cost effective – comparative cost to traditional vegetated systems
- Simple, cost effective and recognised maintenance practices
- Increases development yield – can be located under carparks and roads. Reduces the need for batters or special maintenance access which further decrease development yield
- Multiple configurations available – meets site specific needs
- Ideal solution for infield developments – can be housed close to building footings, pavements and embankments. Reduces the need for ancillary structures such as retaining walls
- Flexible payment options – system can be supplied with zero capital cost up-front on a service inclusive lease with flexible payment options

## Screening

Multiple EnviroPods would be required for a typical site



## Enhanced Filtration





## Comprehensive Strategic Pollutant Removal Sequence

### Gross Pollutants

- Majority of flows treated by EnviroPod with all debris removed from stormwater and held dry, reducing nutrient leachate.

### Coarse Sediment

- Majority of flows treated by EnviroPod whilst removing most sediment above 100µm.
- Significantly reduces load and maintenance costs on StormFilter system downstream.

### Fine Sediment

- Custom or specific lower flows treated, targeting particles down to 10µm.
- Cartridge back-flush prevents surface clogging avoiding unnecessary maintenance.
- Pollutants stored dry reducing nitrogen leachate.

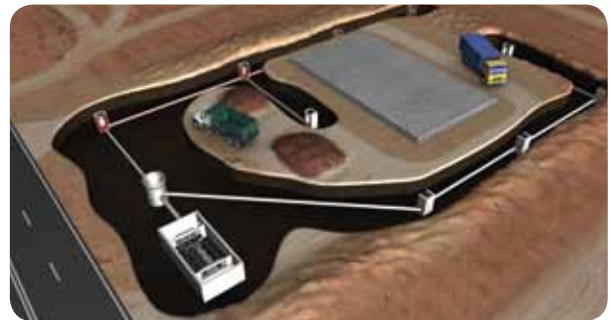
### Soluble Pollutants

- Enhanced filtration by chemical processes (e.g. cation exchange, absorption and adsorption) deep within the cartridge away from the initial screening surface of the StormFilter cartridge.

## How to use your SFEP Treatment Train?



Typical site with Biofiltration



SFEP Treatment Train



Screening EnviroPod – located with each gully pit



Enhanced filtration through StormFilter



SFEP can provide additional car parks



SFEP can maximise building platforms and increase development yields

## Designing and configuring your SFEP system

From 2006 the SFEP system was evaluated within the field over four years through extensive testing protocols undertaken by or in conjunction with some of Australia's leading universities. This field data is used as the basis from modelling the SFEP in system in order to obtain a cost effective and succinct SFEP system. Stormwater360 recommends and uses the widely endorsed Model for Urban Stormwater Improvement Conceptualisation (MUSIC) which makes it easy for sizing the correct StormFilter system for your site. Stormwater360 provide an obligation free design service completed by our qualified engineering team. Simply go to [www.stormwater360.com.au](http://www.stormwater360.com.au) and complete the design request form and send it back to Stormwater360. We will then provide you with a cost effective design containing the quantity and type of components required to meet your water quality goals together with a quotation, product drawing and MUSIC (\*.sqz) file. Conversely, register your details at [www.stormwater360.com.au](http://www.stormwater360.com.au) where you can download the MUSIC treatment nodes for the SFEP products in order to complete your own design. Other details such as drawings, specifications and maintenance manuals can also be downloaded for integration into your project's documentation. Regardless of the design approach, your friendly Stormwater360 engineering team is always available for assistance.

Stormwater360 can also work with you to integrate your EnviroPod and StormFilter systems into your project. For example, once the MUSIC design is finalised, Stormwater360 can provide guidance on the appropriate cartridge size and quantity for your project and then provide site specific AutoCAD drawings for pre-cast gully pit, manhole, vault or detention type StormFilter systems to specifically suit the needs of your project.

## Maintaining your SFEP system

Like your motor vehicle, every stormwater improvement device needs maintenance to operate as efficiently as the day it was installed. Stormwater360 document the GPS location of every SFEP system. Stormwater360 also provide their qualified technicians, within 12 months from the installation of the system, to inspect the SFEP system. This inspection is invaluable in confirming the system's maintenance frequency and can provide the owner of the system with ways in which they can potentially reduce future maintenance frequency intervals. Again this service is complimentary for all purchasers of the SFEP technology.

Maintenance of the SFEP is straight-forward and cost effective. Essentially all filter bags and StormFilter components are washable and reusable. Cleaning of both the EnviroPod and StormFilter systems requires washing of the components, removal of spent StormFilter filtration media and disposal of the stored contaminants. As both systems drain dry, only the water used in the cleaning process needs to be disposed of, thus reducing the costs of waste tipping. For detailed information on SFEP maintenance contact Stormwater360.



# Next steps

## Learn more

For more detailed technical information about Stormwater360 products and solutions, visit [www.stormwater360.com.au](http://www.stormwater360.com.au)

## Connect with us

With more than 12 years experience in developing, installing and maintaining innovative and efficient site-specific stormwater management solutions, Stormwater360's highly qualified engineers and consultants can assist you with every aspect of your stormwater project.

Whether it's an initial in-house technical presentation, a request to inspect and clean your existing facility, or assistance with designing a specific stormwater management solution for your site, simply complete the enquiry form at [stormwater360.com.au](http://stormwater360.com.au) or call **1300 354 722** to speak to a Stormwater360 consultant.

## Start a project

If you are ready to begin a project, our engineering team will provide you with everything you need, from a free preliminary design to MUSIC modelling, CAD drawings to maintenance frequency and associated costs schedules. To find out more, simply visit [www.stormwater360.com.au/custom-solutions](http://www.stormwater360.com.au/custom-solutions) and complete the Design Information Request form.

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