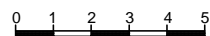




All drainage including gutters, dps, pipes etc are to be installed by a licensed plumber in accordance with industry standards. Roof area run-off is to be directed to the 5000l BASIX tank located on the Basement Level, operational details by others. Overflow from the BASIX tank, all other roof area run-off and collected surface run-off from the front of the site for a total of 200m<sup>2</sup> is to be directed to the 12000l OSD Tank located on the Basement Level. The OSD system has been designed/modeled in accordance with Pittwaer 21DCP Section B5.7 for an increase in impervious area of 200m<sup>2</sup>. The OSD outlet is to be directed to the onsite dispersion system to be located and laid in accordance with the Geotechnical and Civil consultants recommendation which are to be assessed during construction during rainfall events. The proposed Home Office foundations are to be taken to sound stable rock and designed to resist the effects of ground / surface water flows . Trunk drainage lines shown on this plan to be 150mm dia uPVC. Roof drainage to be sized during construction by the contracting plumber for the 1% AEP design storm event.



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PROPOSED  
ALTERATIONS & ADDITIONS  
74 NARRABEEN PARK PARADE  
WARRIEWOOD  
for ~ HARLEY FAMILY

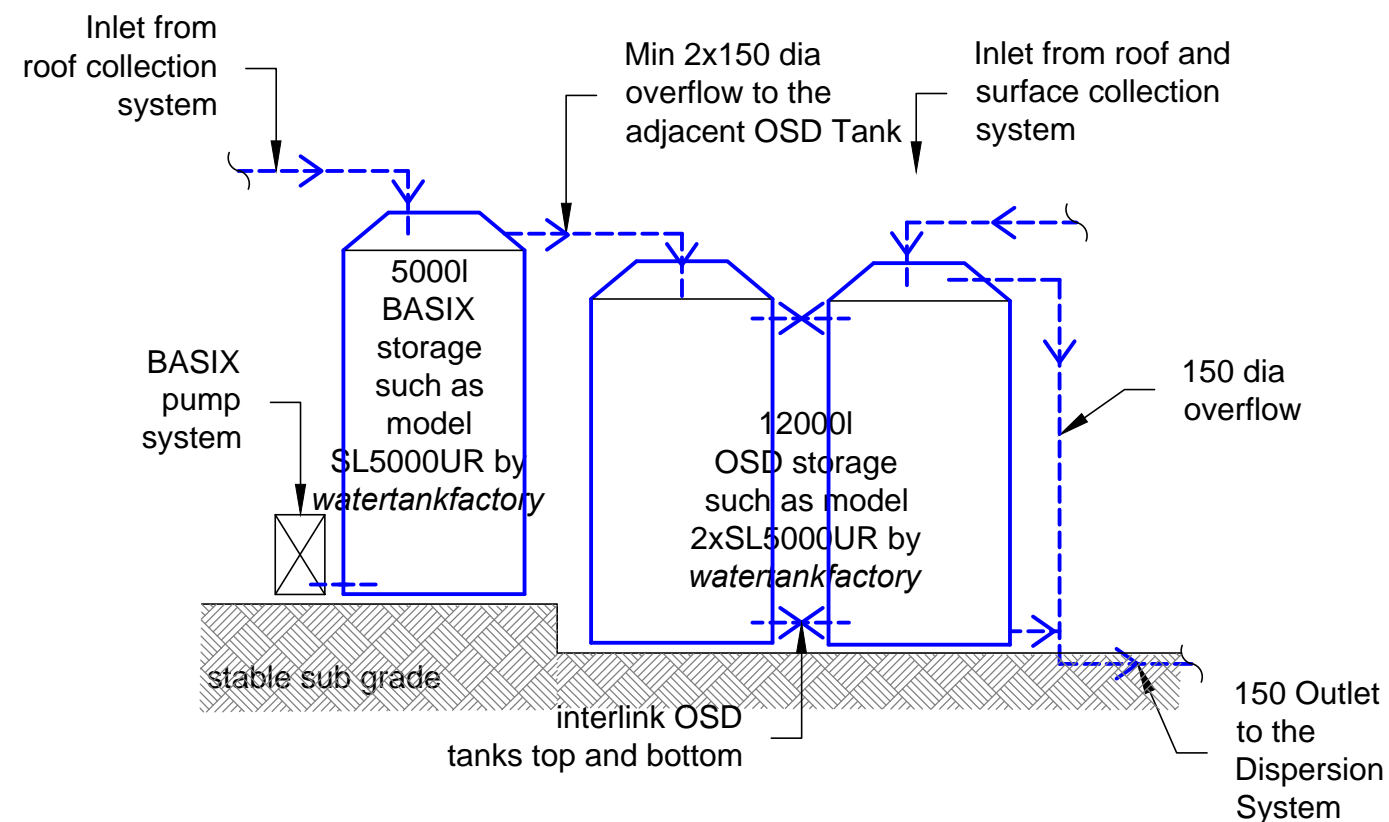
# STORMWATER MANAGEMENT PLAN

150310A

SW1<sub>A</sub>

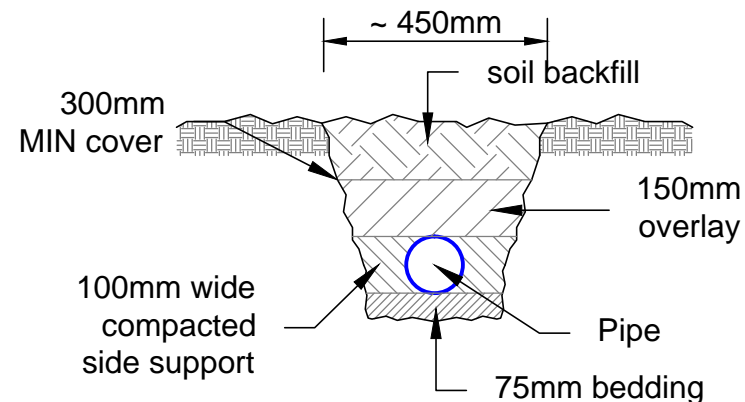
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per  
Lucas Molloy MIEA CPEng NPER Director

MARCH '19



## INDICATIVE BASIX / OSD SYSTEM LAYOUT

~ 1:50

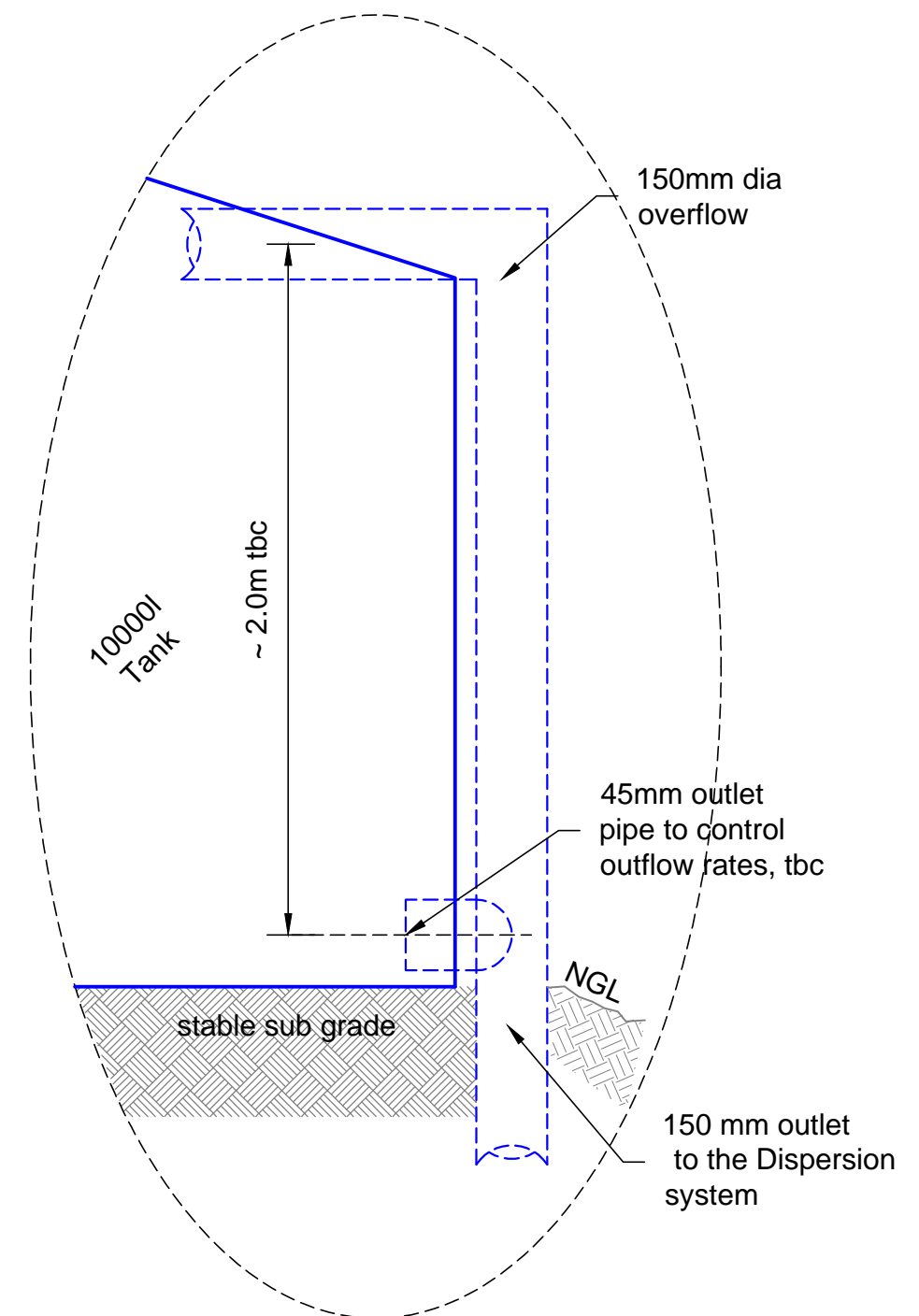


## TYPICAL PIPE & TRENCH DETAIL

~ 1 : 20

Bedding / overlay to be -

- sand, free from rock, hard or sharp objects
- max 14mm crushed rock or gravel
- the excavated material free of rock, hard or sharp objects and broken up with no soil lumps > 75mm dia



## OSD CONTROL SYSTEM DETAIL

1:10

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DRAWING :

STORMWATER MANAGEMENT  
 DETAILING 1

Job No :

**150310A**

Drawing No :

**SW2**

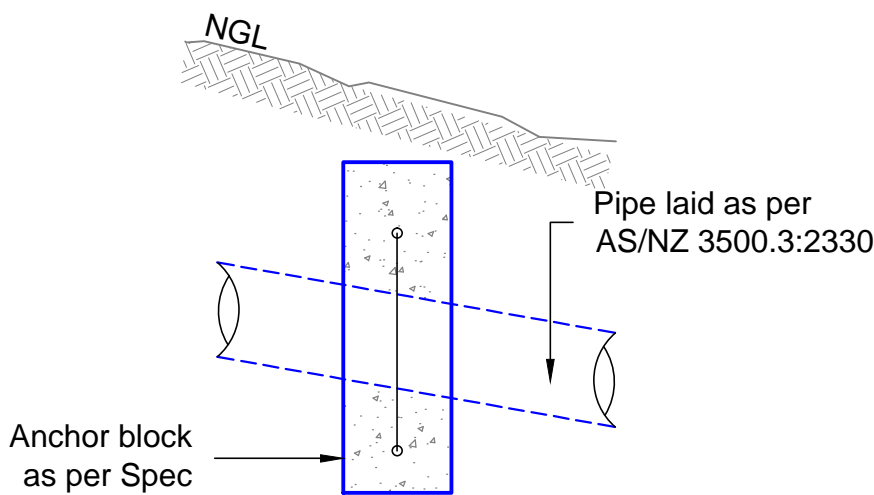
Document Certification

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MARCH '19

# STORMWATER NOTES

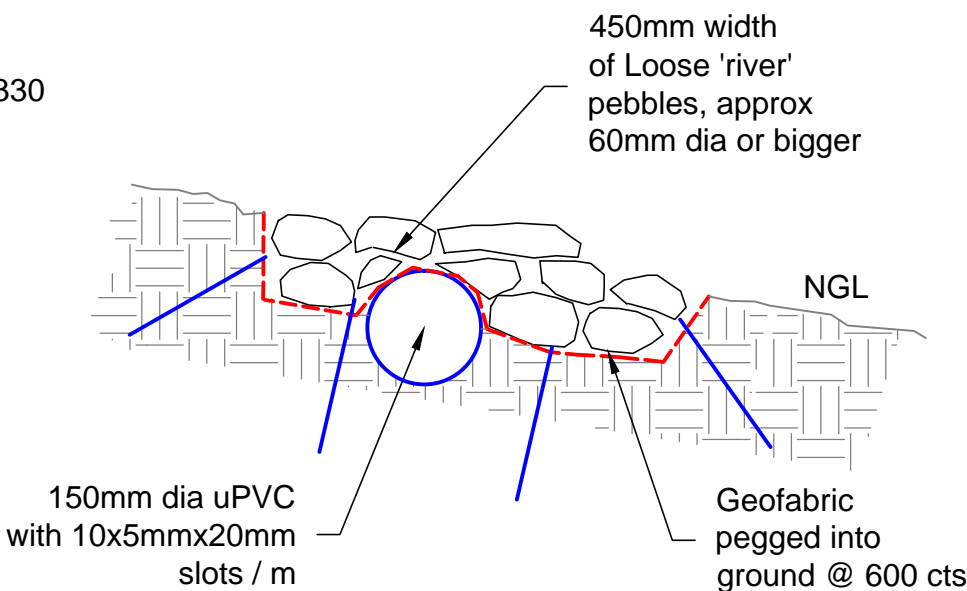
- 1. All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments contracting Plumber for a **1% AEP** event capacity.
- 2. IO indicates inspection opening.
- 3. All pipes to be uPVC to AS 1254:2002.
- 4. All pipes to be laid at the grade required to match pit invert levels.
- 5. All pipes to be installed and laid in accordance with AS 3500.3:2003.
- 6. All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
- 7. All pits are to be proprietary uv resistant polypropylene or similar unless noted (approved by the Engineer )and are to include a min 50mm sediment trap in the base and a maximesh screen laid at 45' across the pit to protect the outlet pipe .
- 8. All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
- 9. All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x900mm with step irons).
- 10. All works are to be inspected and certified by the Principle Certifying Authority prior to backfilling.
- 11. All works requiring certification by the Engineer will require a works as executed survey prepared by a registered Surveyor detailing all levels etc as on the Engineering plans.
- 12. The system is too be flushed and cleaned of all sediment and debris annually.
- 13. The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
- 14. To ensure the system's ability to function is maintained it is to be inspected and certified as operating effectively by a licensed plumber every 5 years, and a engineer every 20yrs.
- 15. All existing predevelopment catchment area run-off conditions exiting the site are to be maintained with no run-off flows being diverted from the predevelopment condition.



**ANCHOR BLOCK  
DETAIL**  
nts

AS/NZ3500.3:2003 Excerpt  
8.10 ANCHOR BLOCKS  
Where the gradient of a site stormwater drain exceeds 1:5, anchor blocks shall be installed—  
(a) at the bend or junction at the top and bottom of the inclined site stormwater drain (see Figure 8.10); and  
(b) at intervals not exceeding 3 m.

Anchor blocks for such drains shall be of reinforced concrete—  
(i) with a thickness of not less than 150 mm;  
(ii) with steel reinforcement for such drains of nominal sizes—  
(A) DN 100 or DN 150, two bars of not less than 10 mm diameter bent to a radius of about 200 mm or 250 mm, respectively and placed as shown in Figure 8.10.  
(B) greater than DN 150, shall be designed by a suitably qualified competent person;



**DISPERSION SYSTEM  
DETAIL**  
NTS

NOTE - TO BE LAID HORIZONTALLY (add 50mm fall to pipe from center io to end/edge io) ALONG THE NATURAL CONTOUR OF THE SITE WITH THE LOCATION, DEPTH AND EXTENT TO BE APPROVED BY THE GEOTECHNICAL CONSULTANT. ENCASE PIPE WITH MASS CONCRETE THRUST / STABILIZING BLOCKS ALONG LENGTH AT 5m CTS

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DRAWING :  
**STORMWATER MANAGEMENT  
DETAILING 2**

Job No :  
**150310A**  
Drawing No :  
**SW3**  
Document Certification  
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