

N Herman
60 - 62 Chisholm Rd
Avalon Beach NSW 2107
C/o Andy Lehman Design

16th Nov 2022

**60 – 62 CHISHOLM RD AVALON BEACH
ALTERATIONS / ADDITIONS
STORMWATER MANAGEMENT DESIGN
Job No 201206**

In reference to DA 2022/1399, Councils letter dated 8 November 2022 and the Stormwater Management Plan (SWMP 18 10 2022) issued by this office.

Water Management Referral –

- Runoff from the development retained at natural discharge rates with the implementation of onsite stormwater detention (as is Council policy).
- Sediment is controlled at the source with a conventional sediment trap /sump within the pit on the lower boundary collecting all development runoff.
- Stormwater quality is addressed, as per Table 4 ie temperature, salinity, chemical makeup and sediment loads, with the implementation of a *Oceanguard Pit Basket* by *Ocean Protect*. Noting there will be no variation in temperature, salinity, chemical makeup and sediment loads from this 'residential' development.

Development Engineer Referral -

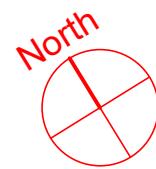
- Calculations for pre and post development, details of the bypass flows and flows from the OSD as shown for all storms, as per DRAINS software analysis on SW3 of the plans issued by BCE.
- The rock gabion in the road reserve has been deleted.
- The discharge point is along the driveway to the dish drain in Chisholm Ave.

Should further information regarding this matter be required please contact our office as outlined below.

Regards
BARRENJOEY CONSULTING ENGINEERS Pty Ltd

Per
Lucas Molloy (Director)
BE CPEng NER





Existing Residence
storm water management
as per existing conditions

PART SITE STORM WATER MANAGEMENT PLAN

~ 1:200

System to collect all carparking roof and turning area run off and be directed to an OSD tank. The OSD is to reduce peak off site flow rates to that of an un developed 'greenfields' site (refer DRAINS analysis SW3). Tank outlets are to be discharged to Chisholm Ave in a manner to mimic pre developed conditions and as not to adversely effect downstream properties. Runoff from the development is retained at natural discharge rates and sediments controlled at the source. Stormwater quality controlled by 'Oceanguard' screen by Ocean Protect.

Pittwater 21 DCP Section B5 Water Management Compliance -

B5.1 Water Management Plan

- storm water addressed within this plan, rainwater, grey water and waste water details by others as per industry standards

B5.4 Storm Water Harvesting

- refer BASIX certificate by others

B5.5 Rainwater Tanks

- not applicable

B5.6 Rainwater Tanks - Water Supply

- not applicable

B5.7 Storm Water Management Onsite Detention

- approx 206m² increase in impervious (hard) surfaces, using DRAINS software 1500l OSD storage required

B5.8 Stormwater Management Water Quality Low Density Residential

- pre screening to BASIX Rainwater Tank and SQID treatment system detailed within 450x450x450 Service Pit (inc Oceanguard screen)

B5.9 Stormwater Management Water Quality Other than Low Density Residential

- achieved using Oceanguard screen by Ocean Protect

B5.10 Stormwater Discharge into Public Drainage system

- discharge via dispersion (to mimic existing conditions)

B5.11 Stormwater Discharge into Waterways and Coastal areas

- not applicable

B5.12 Stormwater Drainage systems and Natural watercourse

- not applicable

B5.13 Development on Waterfront land

- not applicable

B5.14 Stormwater Drainage Easements

- not applicable

Detailed drainage is to be sized for Construction Certificate submission / Tender documentation by the contracting builder / plumber to NCC and Australian Standards. Indicates down pipe / rain water head location tbc, Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

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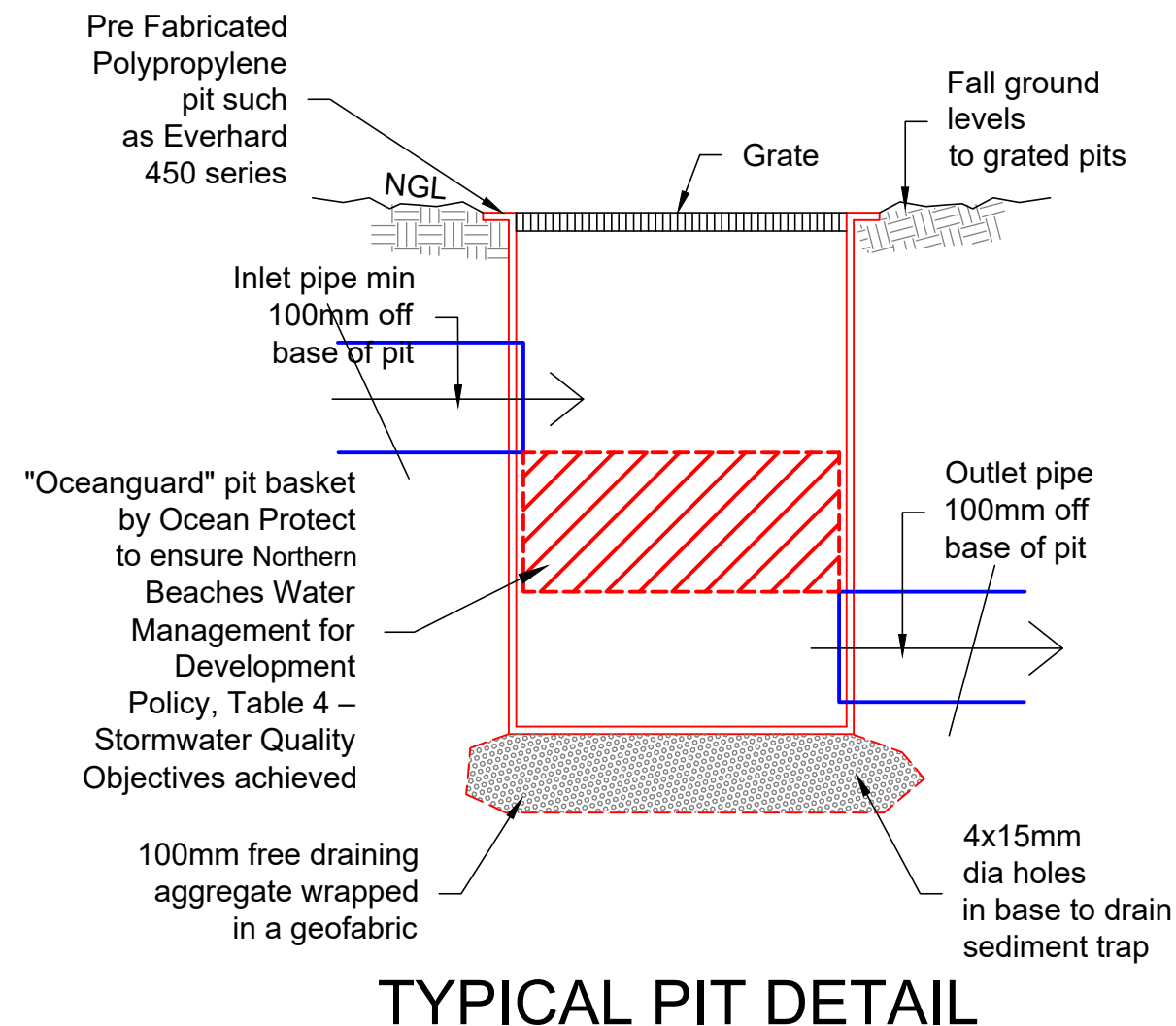
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PROJECT:
PROPOSED
ALTERATIONS & ADDITIONS
60 – 62 CHISHOLM AVE
AVALON BEACH
for ~ N. HERMAN

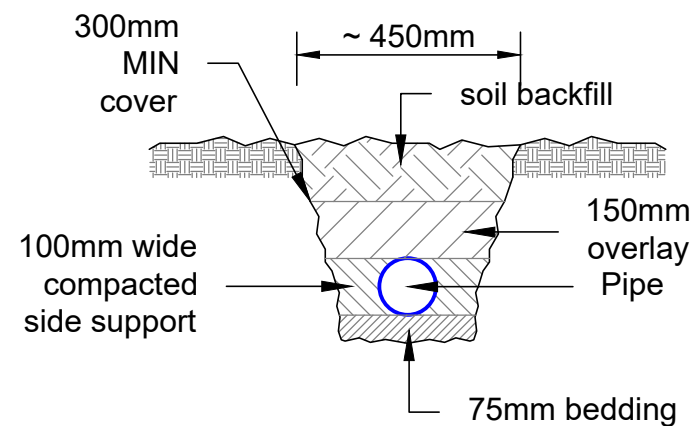
DRAWING :
SITE STORM WATER
MANAGEMENT PLAN

Job No :
201206
Drawing No :
SW1

Document Certification
Barrenjoey Consulting Engineers pty ltd
per
Lucas Molloy MIEA CPEng NER Director



NTS



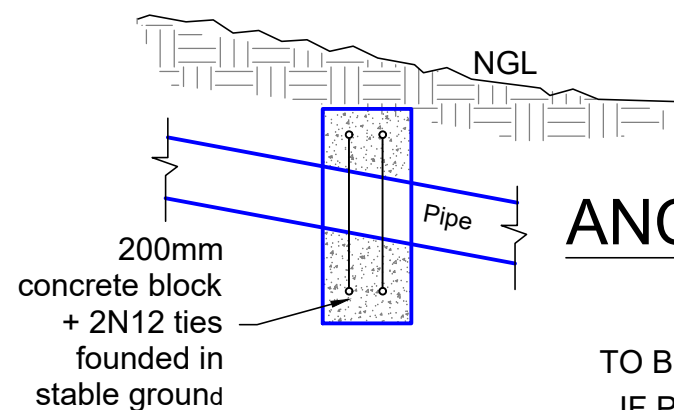
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Note -
Bedding / overlay to be -
a) sand, free from rock, hard or sharp objects
b) max 14mm crushed rock or gravel
c) the excavated material free of rock, hard or sharp objects and broken up with no soil lumps > 75mm dia



Table 4 – Stormwater Quality Objectives

Criteria	Objectives
Stormwater Quality	Stormwater quality (temperature, salinity, chemical makeup and sediment loads) discharging from the development shall not impact the receiving waters. Reference shall be made to local data if available, including the Warringah Creek Management Study and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC), or other widely accepted guidelines. Stormwater and other drainage shall not be discharged into saltmarsh.
Sediment	Disturbance to stream and wetland sediments is to be minimised by regulated discharge of stormwater and dissipation of flows at discharge locations. Runoff from the development must be retained at natural discharge rates and sediments controlled at the source.
Hydrology	Stormwater and groundwater flow is to mimic natural conditions and ensure a dispersed pattern of flow, avoiding centralised or concentrated discharge points into the wetland or waterway. Natural flow regimes must be retained. The reduction or increase in flows, alteration in seasonality of flows, changes to the frequency, duration, magnitude, timing, predictability and variability of flow events, altering surface and subsurface water levels and changing the rate of rise or fall of water levels must be avoided.



TO BE INSTALLED AT 6m CTS
IF PIPE SLOPE > 1V TO 5H

STORMWATER NOTES

1. All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments contracting Plumber for a **5% AEP** event capacity.
2. Trunk lines shown on plan to be 150mm dia uPVC.
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.
16. Flows from upstream properties entering the site are to be monitored during construction and diverted about the OSD system / residence etc as required.

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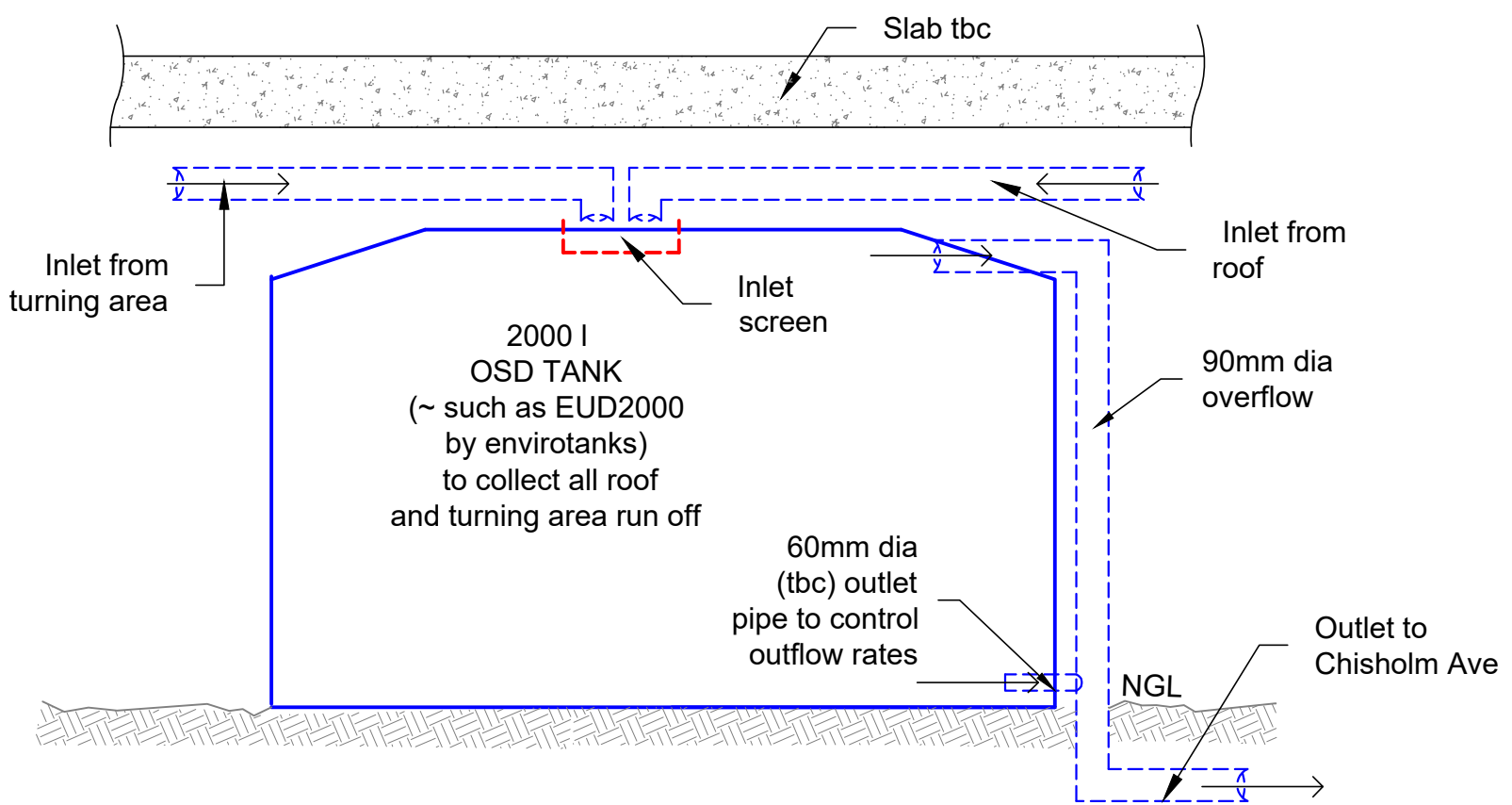
DRAWING :
SITE STORM WATER
MANAGEMENT
DETAILING 1

Job No :
201206
Drawing No :
SW2

Document Certification
Barrenjoey Consulting Engineers Pty Ltd
per
Lucas Molloy MIEA CPEng NER Director

ONSITE DETENTION REPORT
(DRAINS ANALYSIS)

Development area	- 206 m2
Existing impervious area	- 0 m2
Proposed impervious area	- 206 m2
Area modeled to OSD	- 106 m2
Detention Volume modeled	- 1500l
Existing Site Discharge	
5yr ARI Storm	- 9 l/s
100yr ARI Storm	- 14 l/s
Post Development Site Discharge	
5yr ARI Storm	- 9 l/s TOTAL (4 l/s via OSD, 5 l/s driveway)
100yr ARI Storm	- 13 l/s TOTAL (6 l/s via OSD, 7 l/s driveway)



OSD / STORAGE TANK SYSTEM
/ CONTROL DETAIL

~ 1:20

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DRAWING :

SITE STORM WATER
MANAGEMENT
DETAILING 2

Job No : 201206	Drawing No : SW3
Document Certification Barrenjoey Consulting Engineers pty ltd per Lucas Molloy MIEA CPEng NER Director	