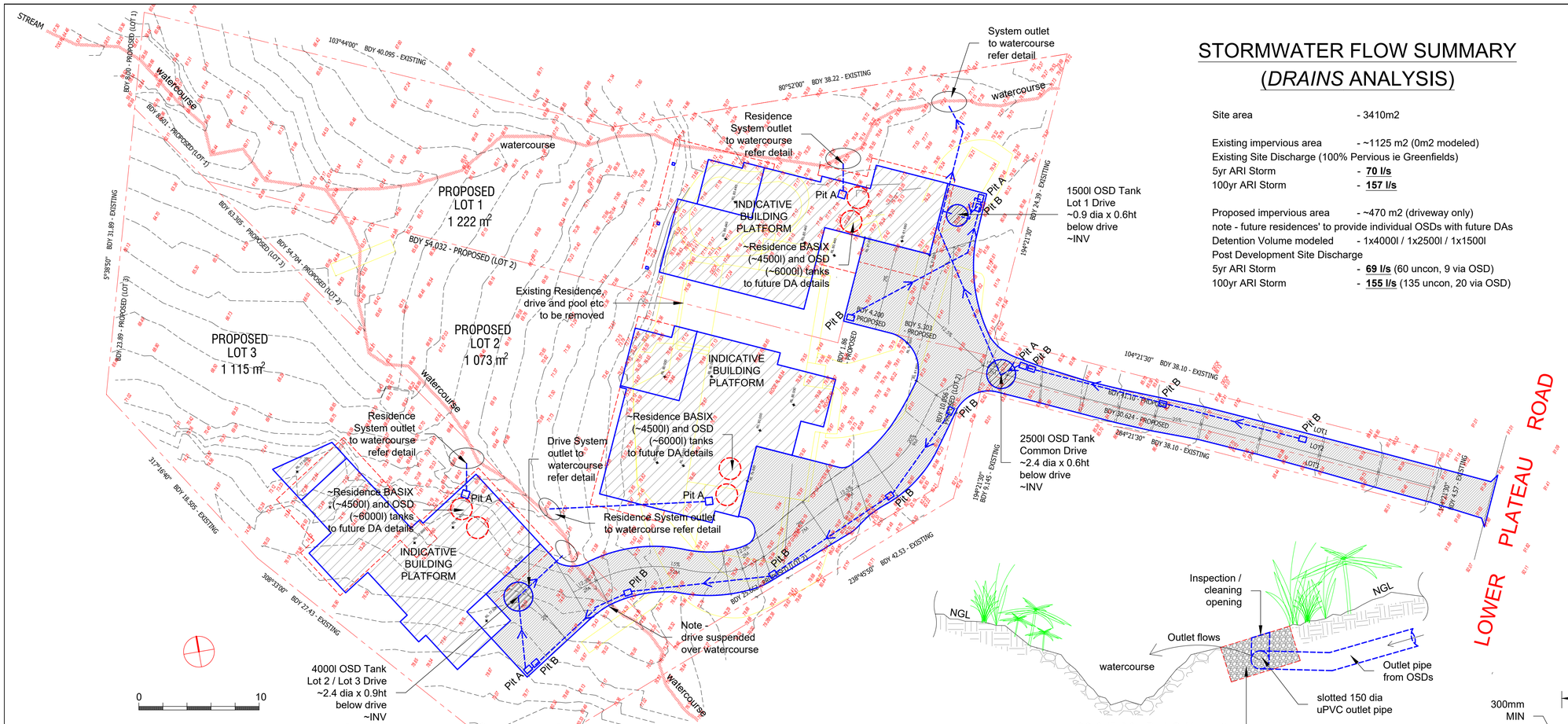


STORMWATER MANAGEMENT PLAN

~ 1:200

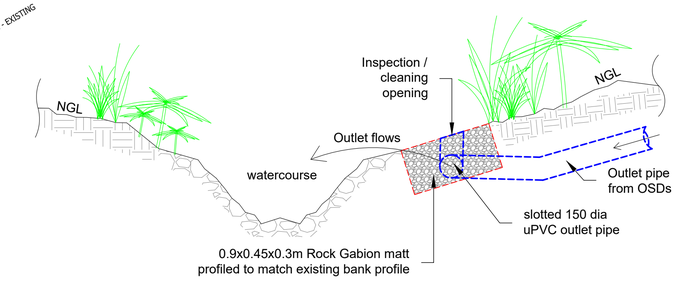
Hatching indicates proposed subdivision driveway extents.Refer to plans by *Gartner Trovato Architects* for proposed subdivision details.
All driveway runoff to be collected and directed to OSD systems. note - future residences' to provide individual OSDs with future DAs.
All new drainage including gutters, dps, pipes etc are to be sized and installed to AS3500.3 requirements by a licensed plumber.
Trunk drainage pipes shown above to be 150mm dia uPVC uno. All collected drainage is to be directed to a gross pollutant / oil / grease / sediment collection Pit A before discharging to the OSD / existing watercourses.

STORMWATER FLOW SUMMARY (*DRAINS* ANALYSIS)

Site area	- 3410m2
Existing impervious area	- ~1125 m2 (0m2 modeled)
Existing Site Discharge (100% Pervious ie Greenfields)	
5yr ARI Storm	- **70 l/s**
100yr ARI Storm	- **157 l/s**
Proposed impervious area	- ~470 m2 (driveway only)
note - future residences' to provide individual OSDs with future DAs	
Detention Volume modeled	- 1x4000l / 1x2500l / 1x1500l
Post Development Site Discharge	
5yr ARI Storm	- **69 l/s** (60 uncon, 9 via OSD)
100yr ARI Storm	- **155 l/s** (135 uncon, 20 via OSD)

STORMWATER NOTES

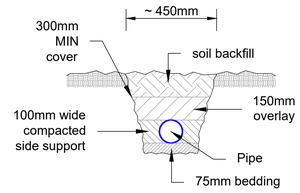
1. All roof collection components (ie gutters / DPs etc)are to be located / sized by the Developments Hydraulic Consultant for a 5% AEP event capacity.
2. All Trunk Drainage pipes, as shown on this plan are to be minimum of 150mm dia uno.
3. All pipes to be uPVC to AS 1254:2002.
4. All pipes to be laid 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. Thrust blocks to be installed to the trunk drainage pipes in accordance with AS 3500.3:2003.
7. All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
8. 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 oulet pipe .
9. All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
10. All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x600mm with step irons).
11. All works are to be inspected and certified by the Principle Certifying Authority prioir to backfilling.
12. 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.
13. The system is too be flushed and cleaned of all sediment and debris annually.
14. The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
15. 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.
16. 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.



OUTLET SYSTEM

NTS

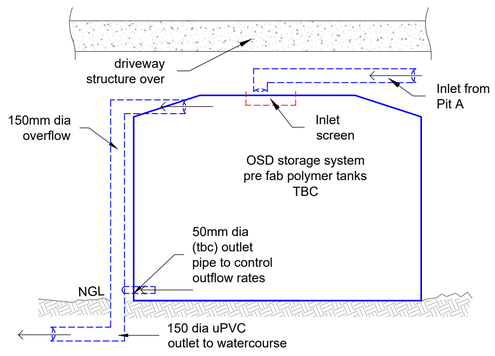
LOCATION (TBC) ONTO STABLE WATERCOURSE BANK



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

TYPICAL PIPE & TRENCH DETAIL

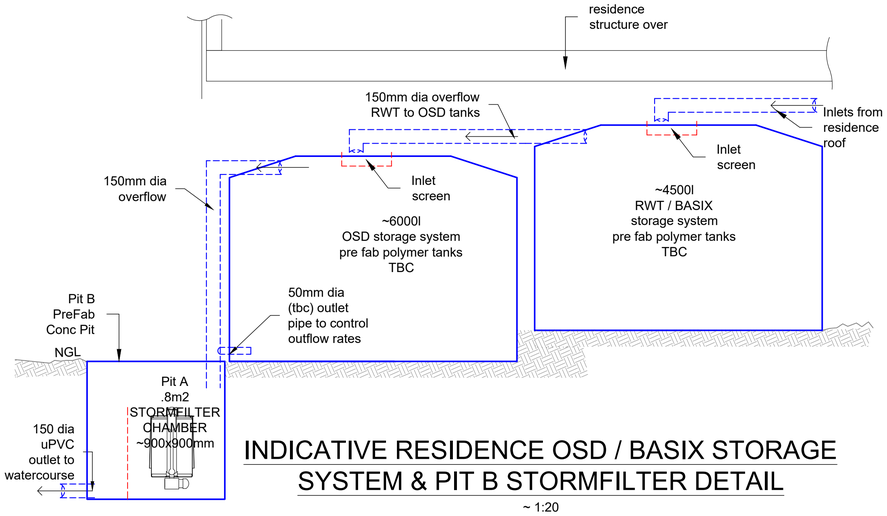
~ 1 : 20



INDICATIVE DRVEWAY OSD / STORAGE TANK SYSTEM / CONTROL DETAIL

~ 1:20

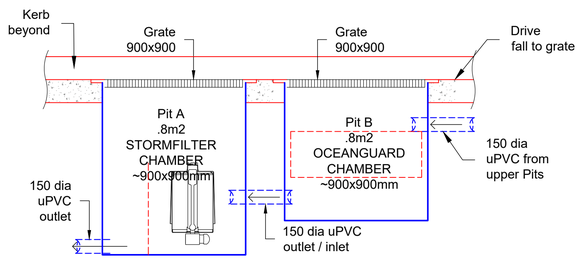
DETAILING TO BE FINALIZED WITH CC DOCUMENTS



INDICATIVE RESIDENCE OSD / BASIX STORAGE SYSTEM & PIT B STORMFILTER DETAIL

~ 1:20

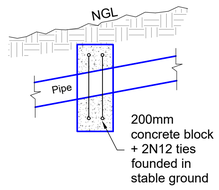
DETAILING TO BE FINALIZED WITH CC DOCUMENTS



DRIVEWAY PITS A and B - OCEANGUARD / STORMFILTER PIT DETAIL

NTS

(to include service/maintenance schedule)



ANCHOR BLOCK DETAIL

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

A1

ISSUE:		
PrelimA	23. 07. 2024	Issued for comment
PrelimB	31. 07. 2024	Issued for comment

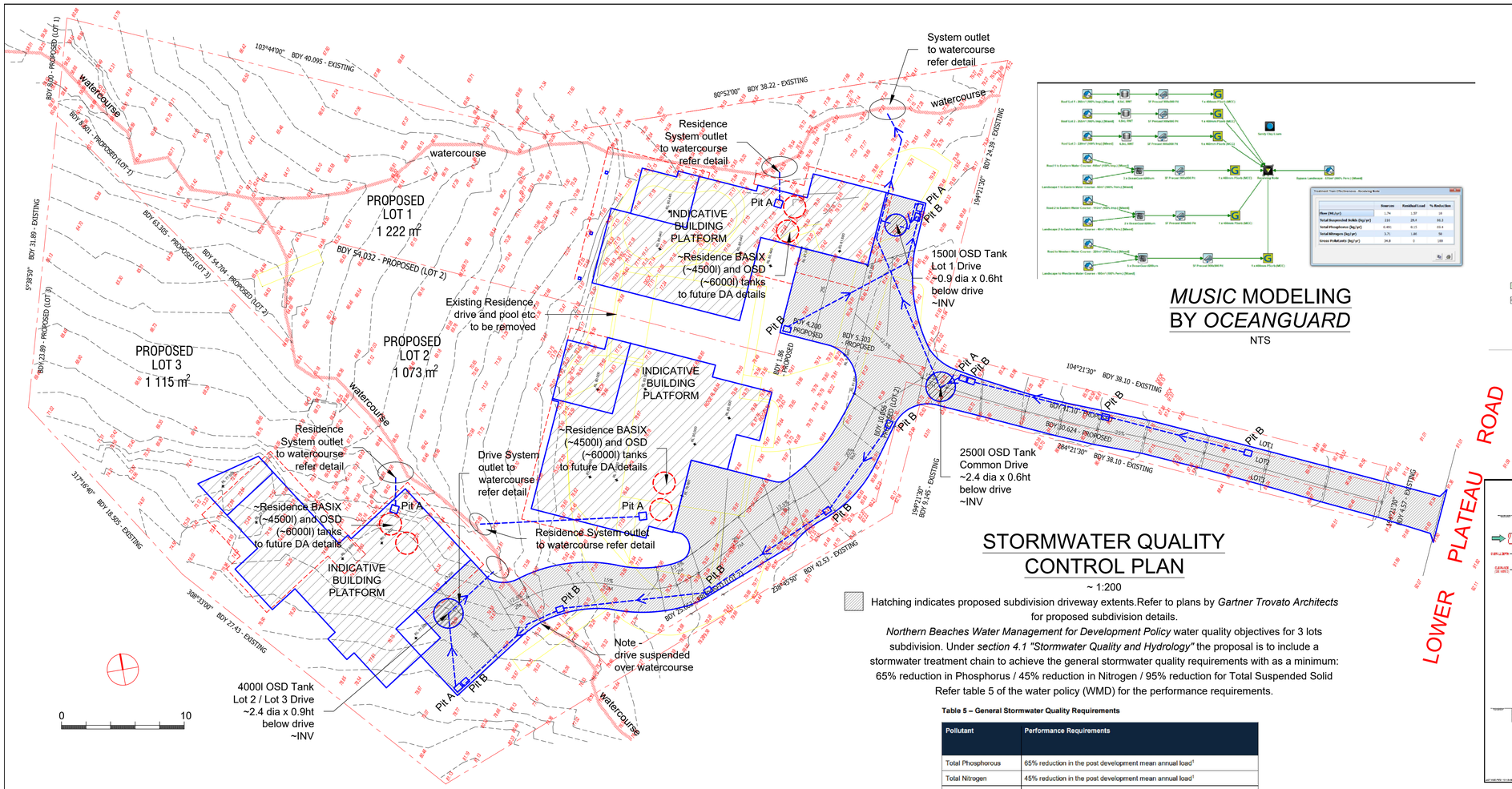
Barrenjoey Consulting Engineers pty ltd
Stormwater Structural Civil
PO Box 672
Avalon NSW 2107
M: 0418 620 330
E: lucasbce@bigpond.com
ABN: 13124694917
ACN: 124694917

PROJECT:
PROPOSED SUB DIVISION
377 LOWER PLATEAU RD
BILGOLA PLATEAU

DRAWING :
STORMWATER MANAGEMENT PLAN & DETAILING

Job No : 211203
Drawing No SW1 SUBPreLimB

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



STORMWATER QUALITY CONTROL PLAN

~ 1:200

Hatching indicates proposed subdivision driveway extents.Refer to plans by *Gartner Trovato Architects* for proposed subdivision details.

Northern Beaches Water Management for Development Policy water quality objectives for 3 lots subdivision. Under *section 4.1 "Stormwater Quality and Hydrology"* the proposal is to include a stormwater treatment chain to achieve the general stormwater quality requirements with as a minimum: 65% reduction in Phosphorus / 45% reduction in Nitrogen / 95% reduction for Total Suspended Solid Refer table 5 of the water policy (WMD) for the performance requirements.

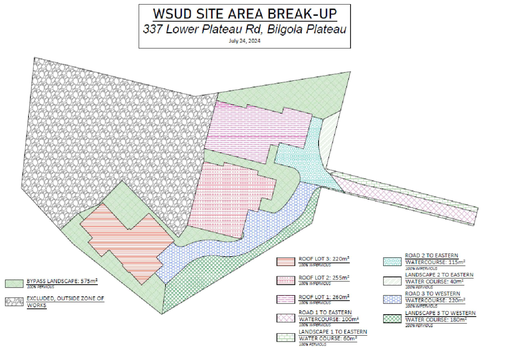
Table 5 – General Stormwater Quality Requirements

Pollutant	Performance Requirements
Total Phosphorous	65% reduction in the post development mean annual load[1]
Total Nitrogen	45% reduction in the post development mean annual load[1]
Total Suspended Solids	85% reduction in the post development mean annual load[1]
Gross Pollutants	90% reduction in the post development mean annual load[1] (for pollutants greater than 5mm in diameter)
pH	6.5 - 8.5
Hydrology	The post-development peak discharge must not exceed the pre-development peak discharge for flows up to the 50% AEP

[1]The percentage reduction in the post development mean annual loads are relative to the loads from the proposed development without treatment applied.

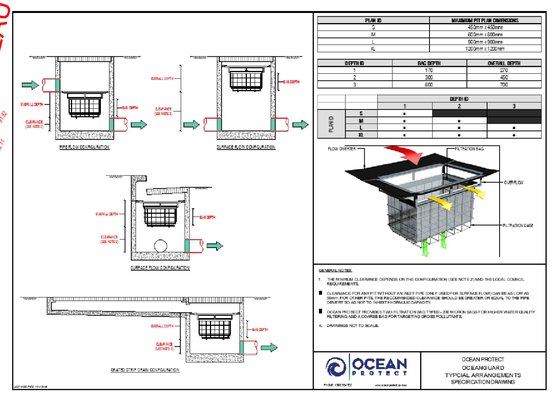
MUSIC MODELING BY *OCEANGUARD*

NTS



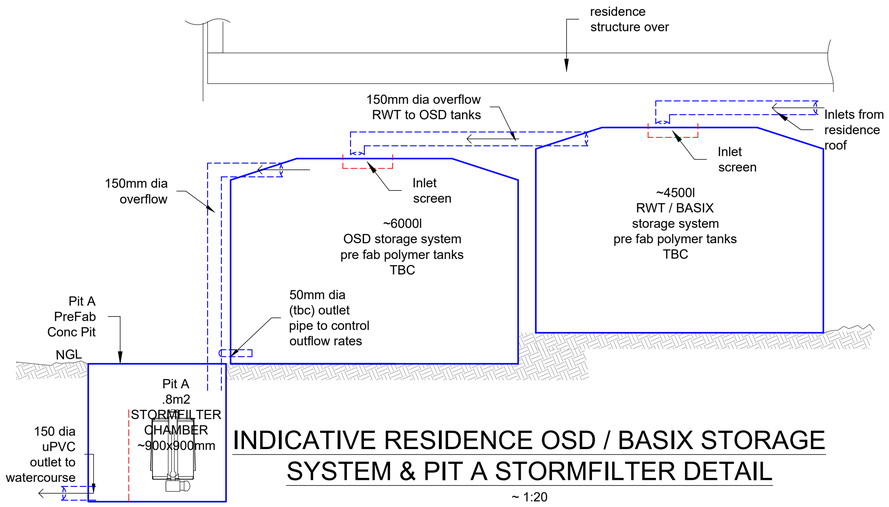
MUSIC MODELING SITE BREAK UP BY *OCEANGUARD*

NTS



PIT B - TYPICAL DRIVEWAY COLLECTION PIT DETAIL - 600x600

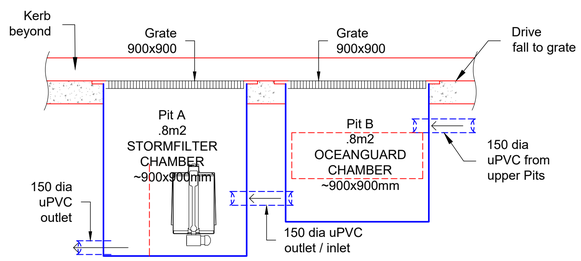
NTS



INDICATIVE RESIDENCE OSD / BASIX STORAGE SYSTEM & PIT A STORMFILTER DETAIL

~ 1:20

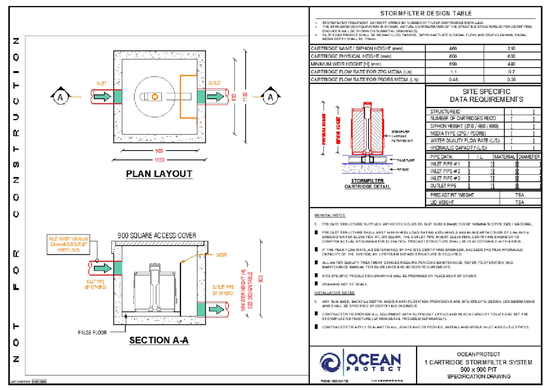
DETAILING TO BE FINALIZED WITH CC DOCUMENTS



DRIVEWAY PITS A and B - OCEANGUARD / STORMFILTER PIT DETAIL

NTS

(to include service/maintenance schedule)



PIT A - STORMFILTER PIT DETAIL

NTS

(to include service/maintenance schedule)

A1

ISSUE:		
Prelim	31. 07. 2024	Issued for comment

Barrenjoey Consulting Engineers pty ltd
Stormwater Structural Civil
PO Box 672
Avalon NSW 2107
M: 0418 620 330
E: lucasbce@bigpond.com
ABN: 13124694917
ACN: 124694917

PROJECT:

PROPOSED SUB DIVISION
377 LOWER PLATEAU RD
BILGOLA PLATEAU

DRAWING :

STORM WATER QUALITY
CONTROL PLAN & DETAILING

Job No : 211203

Drawing No SW2 SUBPreLim

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