

### 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 90mm 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 outlet 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 prior 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.

### STORMWATER MANAGEMENT PLAN

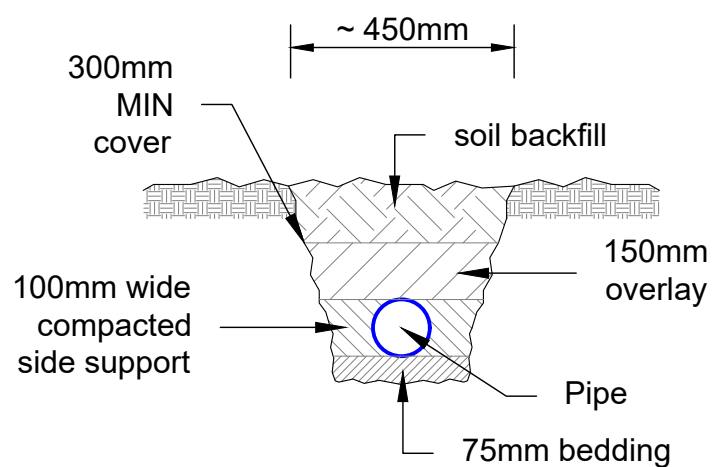
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All new drainage including gutters, dps, pipes etc are to be sized and installed to AS3500.3 requirements by a licensed plumber with the outlet to the on site dispersion system.  
dp + rwh - down pipe + rain water head

Note - residence structure to be suspended above ngls for potential floodwater ingress

NOTE - NO ON SITE DETENTION REQUIRED AS DISPOSAL DIRECTLY TO CAREEL CREEK

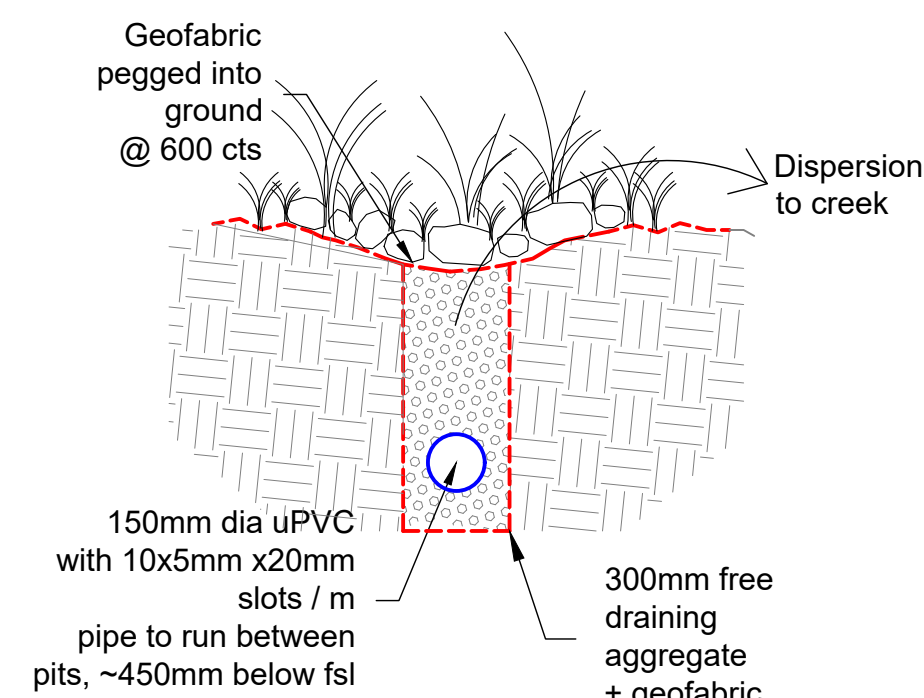
GENERAL STORMWATER QUALITY REQUIREMENTS ACHIEVED UTILIZING BIOSWALE



**TYPICAL PIPE & TRENCH DETAIL**

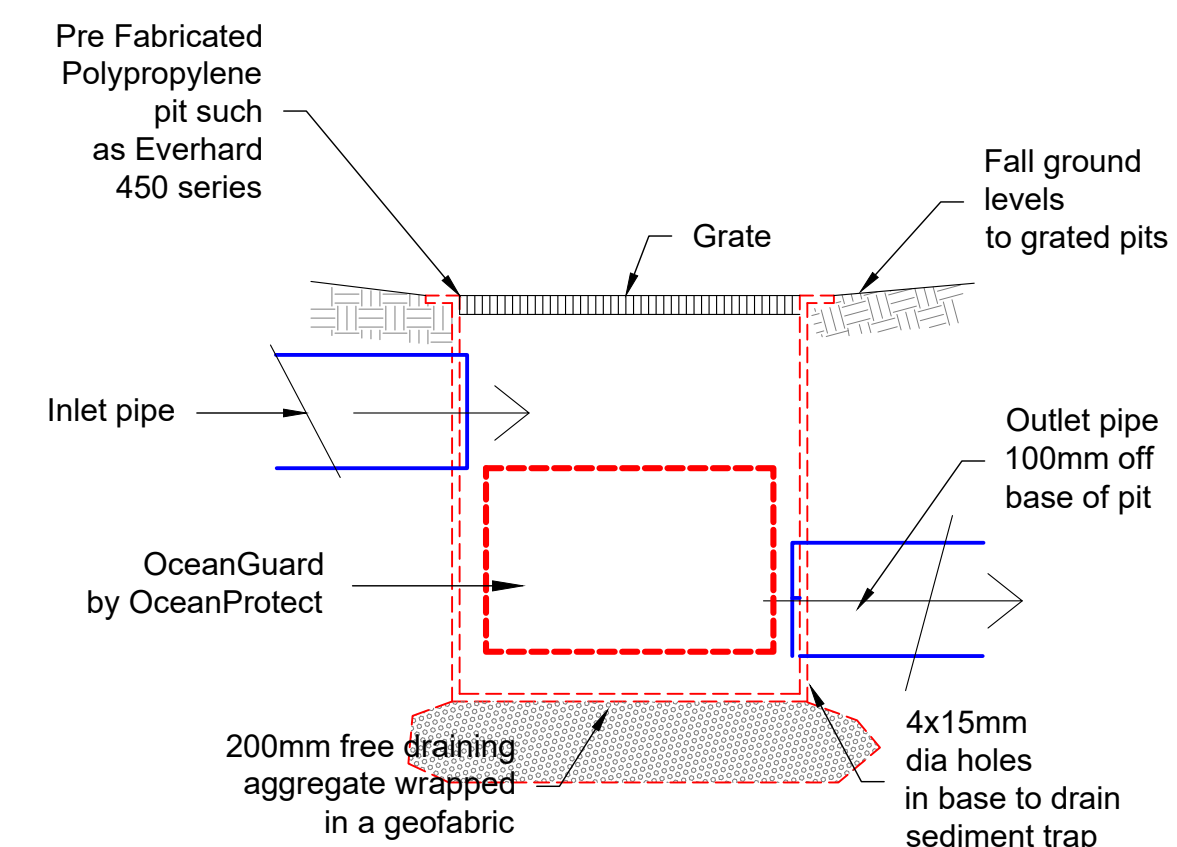
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Note -  
Bedding / overlay to be -  
a) sand, free from rock, hard or sharp objects  
b) max 14mm crushed rock or gravel  
c) the excavated material free of rock, hard or sharp objects and broken up with no soil lumps > 75mm dia



**DISPERSION TRENCH DETAIL**

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**TYPICAL PIT DETAIL**

NTS

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DA-A	30. 11. 2023	BioRetention data added

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PROJECT:  
**PROPOSED NEW RESIDENCE  
12A JOHN STREET  
AVALON**

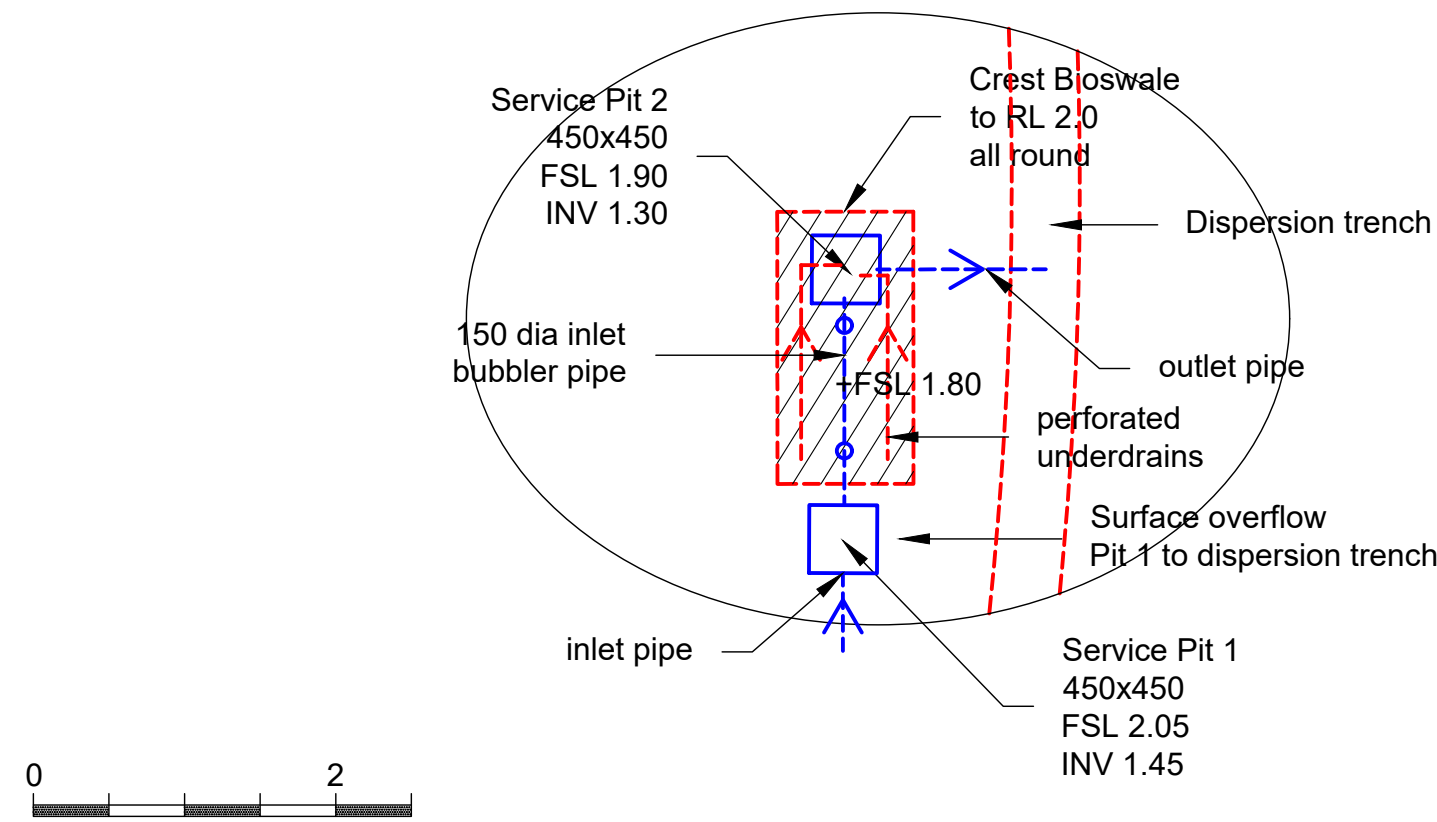
DRAWING :  
**STORMWATER MANAGEMENT  
& ASSETS PLAN**

Job No :  
**18100523-12A**  
Document Certification  
Barrenjoey Consulting Engineers pty ltd  
per  
**Lucas Molloy** MEA OPNG NGR Director

Drawing No  
**SW1<sub>DA-A</sub>**

A1





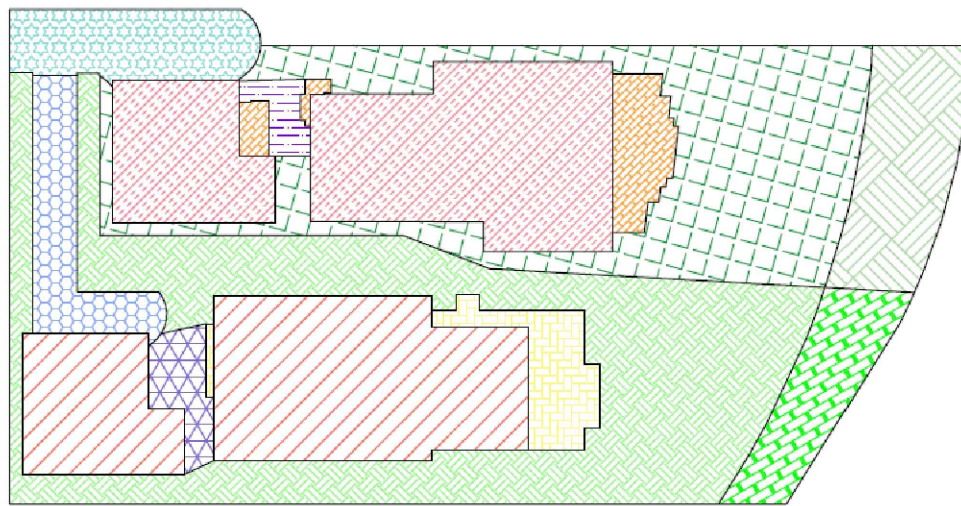
## 2.0m2 BIORETENTION SYSTEM PLAN

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## WSUD SITE AREA BREAK-UP

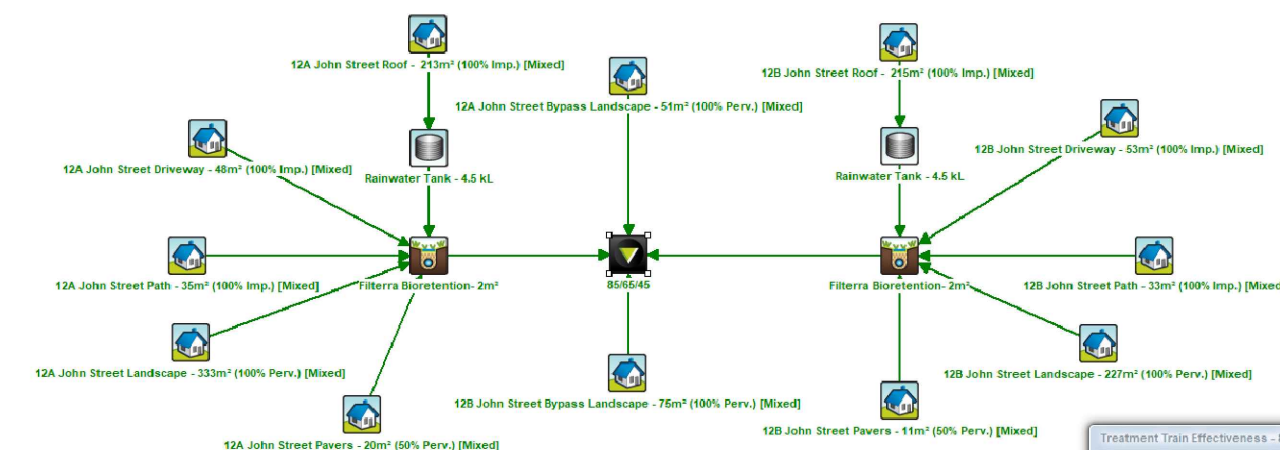
12A & 12B John Street, Avalon

November 29, 2023



**12A JOHN STREET**  
 ROOF: 213m<sup>2</sup>  
 DRIVEWAY: 48m<sup>2</sup>  
 LANDSCAPE: 333m<sup>2</sup>  
 PATH: 35m<sup>2</sup>  
 PAVERS: 20m<sup>2</sup>  
 BYPASS LANDSCAPE: 51m<sup>2</sup>  
 TOTAL AREA: 700m<sup>2</sup>

**12B JOHN STREET**  
 ROOF: 215m<sup>2</sup>  
 DRIVEWAY: 53m<sup>2</sup>  
 LANDSCAPE: 227m<sup>2</sup>  
 PATH: 33m<sup>2</sup>  
 PAVERS: 11m<sup>2</sup>  
 BYPASS LANDSCAPE: 75m<sup>2</sup>  
 TOTAL AREA: 614m<sup>2</sup>



	Sources	Roadload	% Reduction
Flow (ML/yr)	1.08	0.934	13.3
Total Suspended Solids (kg/yr)	77.1	3.99	94.8
Total Phosphorus (kg/yr)	0.228	0.0284	87.5
Total Nitrogen (kg/yr)	3.1	0.632	79
Gross Pollutants (kg/yr)	10.2	9	100

## MUSIC MODEL SUMMARY

by OCEAN PROTECT MUSIC Version 6.3.0

Rainfall Station 66062 Sydney Observatory Hill, 6 Minute Time Step 1981 To 1985

utilizing modified % impervious area, rainfall threshold, soil properties & pollutant concentration

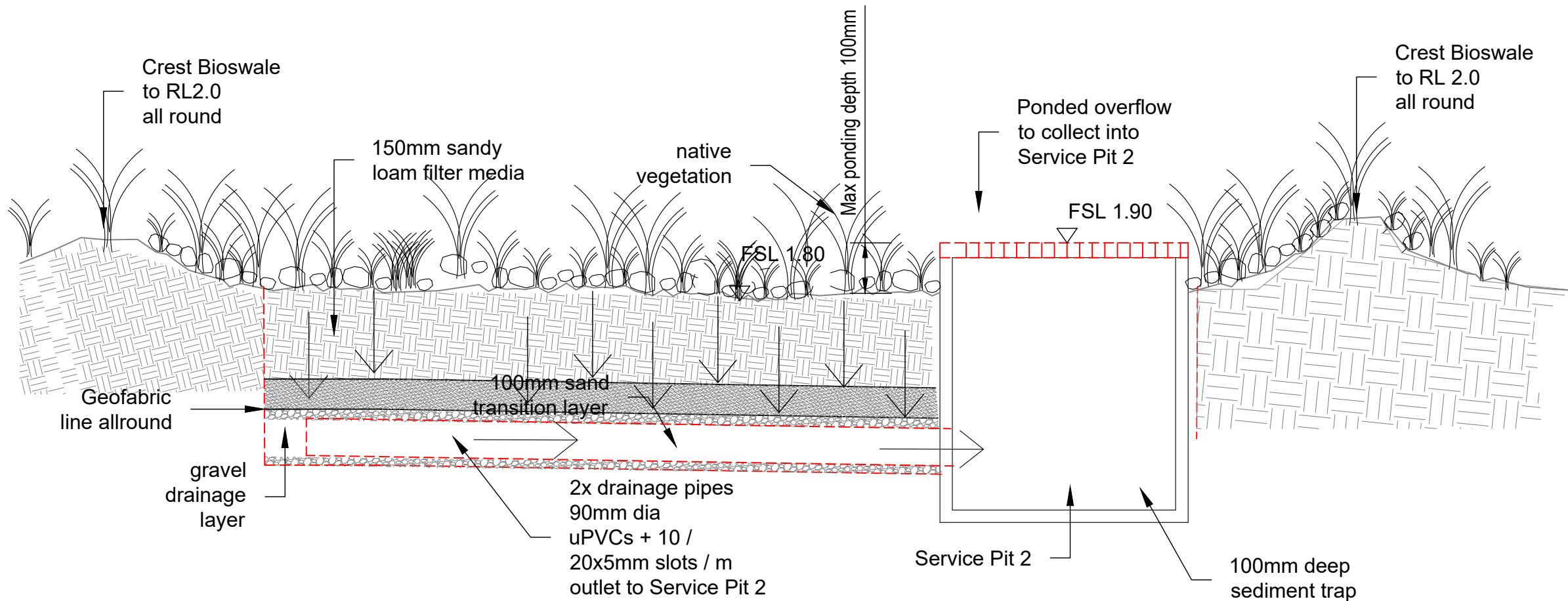
No drainage routing between nodes.

85% Total Suspended Solids Reduction

65% Total Phosphorus Reduction

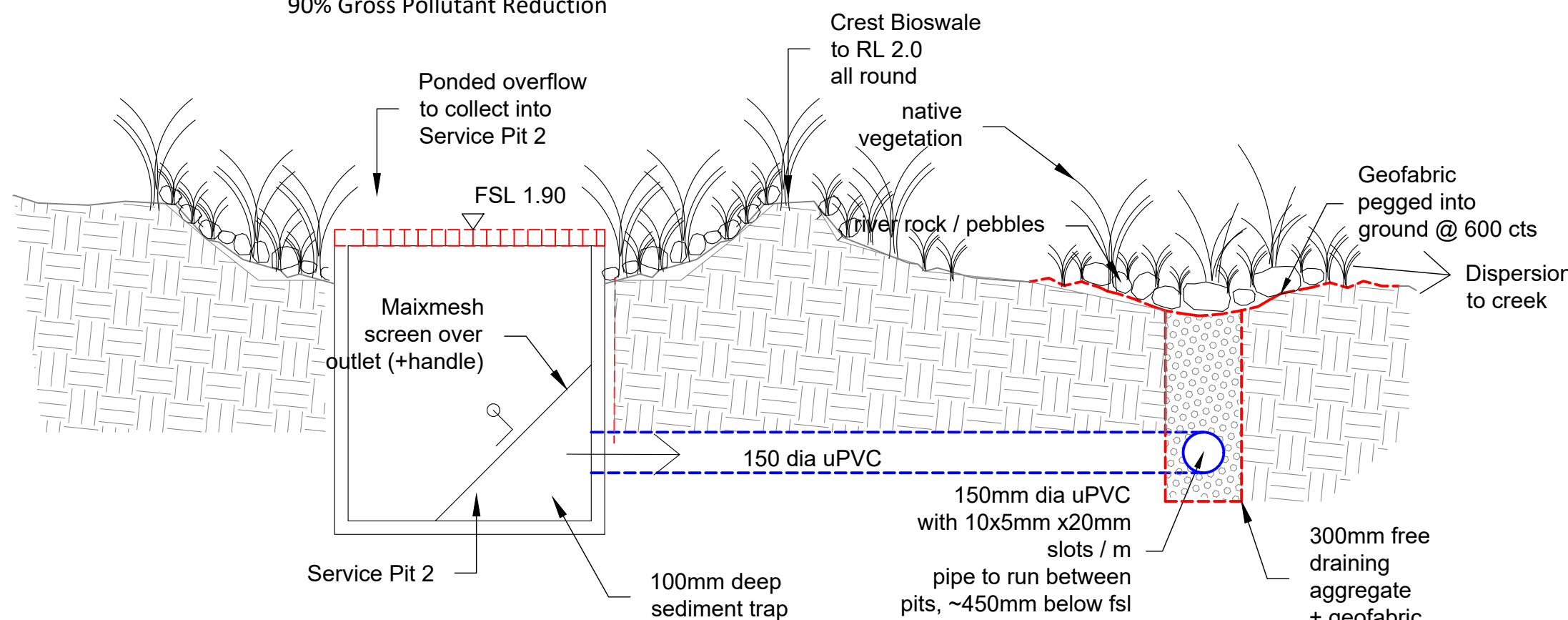
45% Total Nitrogen Reduction

90% Gross Pollutant Reduction



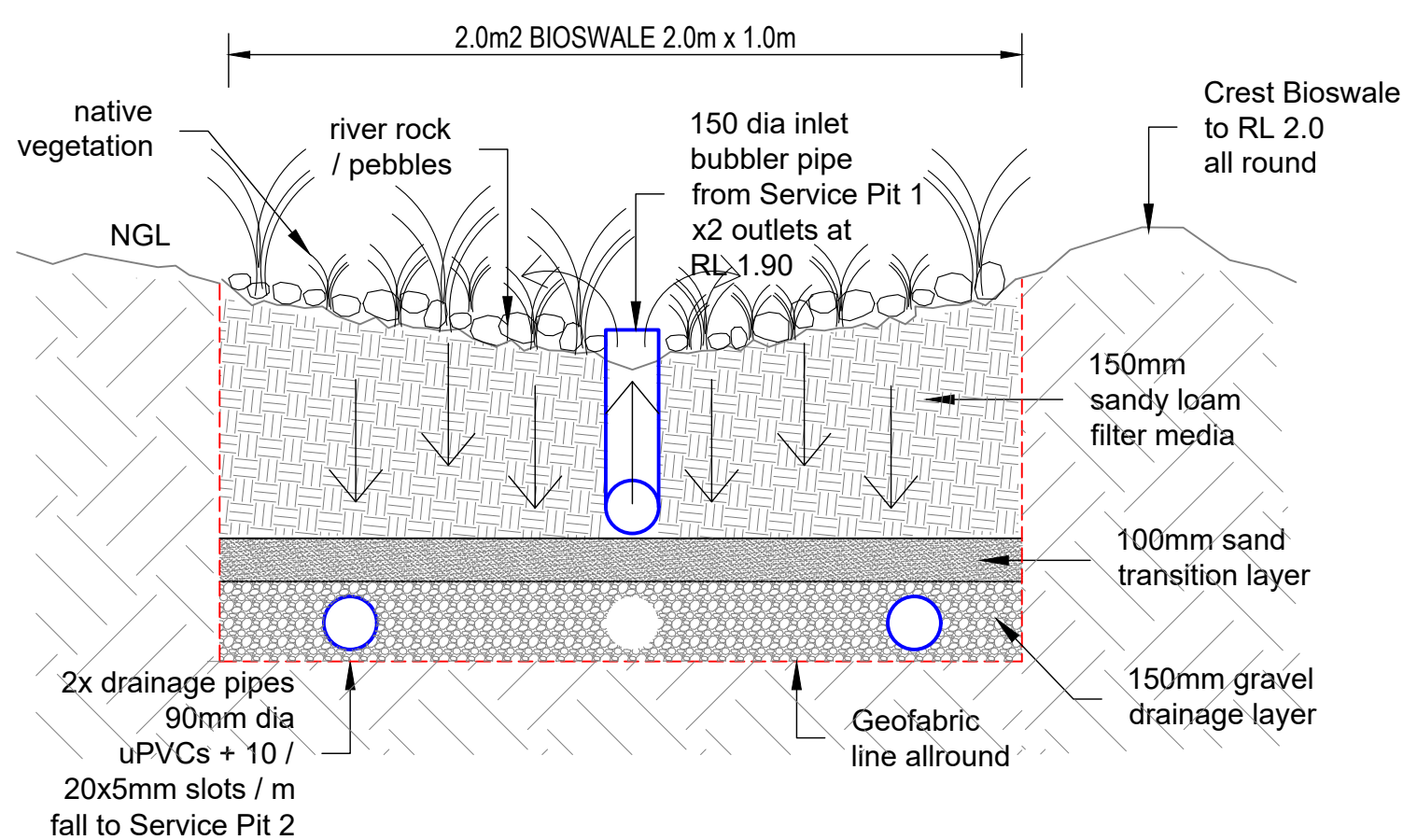
## BIOSWALE LONG SECTION

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## BIOSWALE OUTLET / DISPERSION TRENCH DETAIL

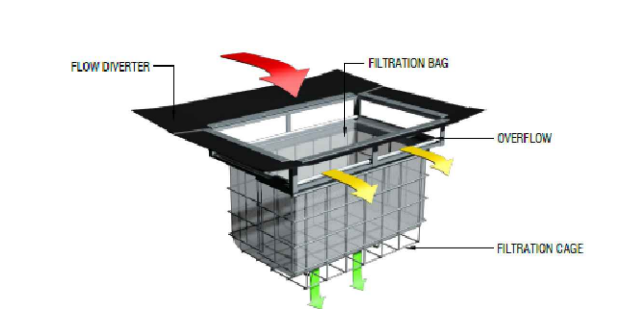
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## BIORETENTION SYSTEM CROSS SECTION

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PLAN ID	MAXIMUM PIT PLAN DIMENSIONS
1	400mm x 400mm
2	600mm x 600mm
3	900mm x 900mm
4	1200mm x 1200mm



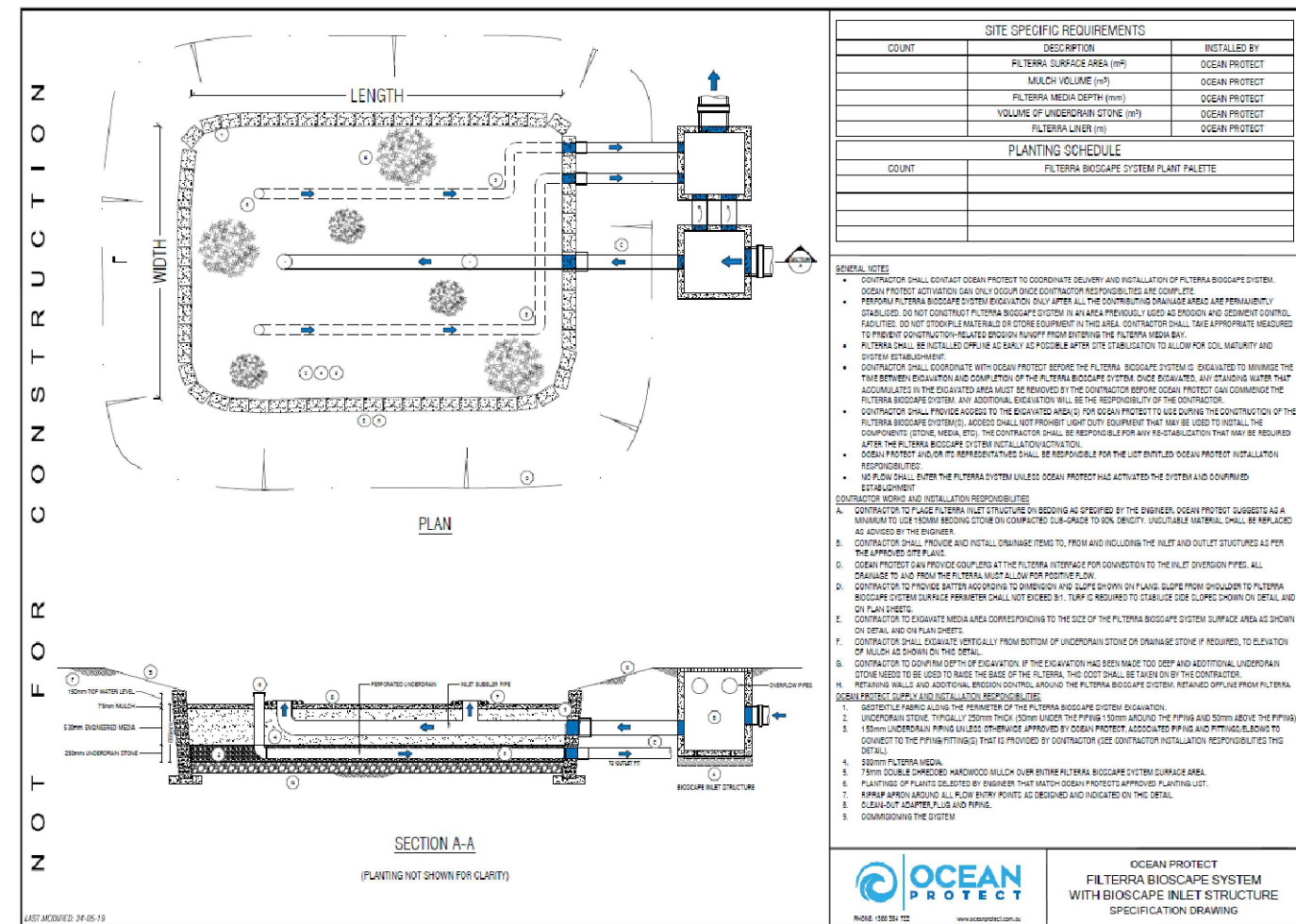
DEPTH ID	BAG DEPTH	OVERALL DEPTH
1	175	275
2	200	450
3	400	700

DEPTH ID	1	2	3
1	*	*	*
2	*	*	*
3	*	*	*

GENERAL NOTES

- THE MINIMUM CLEARANCE DEPENDS ON THE CONFIGURATION (SEE NOTE 2) AND THE LOCAL COUNCIL REQUIREMENTS.
- CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW CANALS) AS LOW AS 100mm FOR 100mm DIA. FOR 150mm DIA. PIPES, THE MINIMUM CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE DIAMETER TO MAINTAIN THE REQUIRED CAPACITY.
- OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES: 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING AND A COARSE BAG FOR TARGETING GROSS POLLUTANTS.
- OVERSIGHT NOT TO SCALE.

OCEAN PROTECT OCEANGUARD TYPICAL ARRANGEMENTS SPECIFICATION DRAWING



## FILTERRA BIOSCAPE SYSTEM

by OCEAN PROTECT

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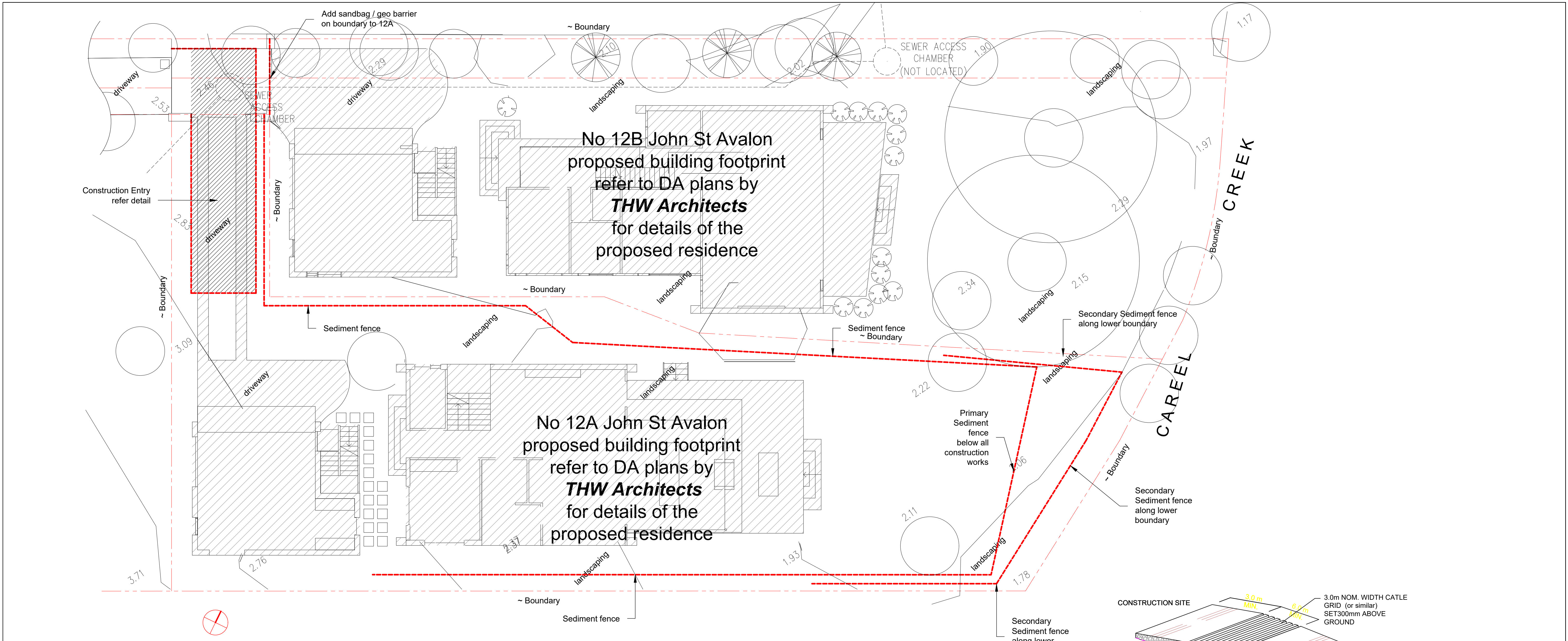
DRAWING :  
 STORMWATER MANAGEMENT  
 BIOSWALE PLANS & DETAIL

Job No :  
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 Document Certification  
 Barrenjoey Consulting Engineers Pty Ltd  
 per  
 Lucas Molloy MEA OPEN NER Director

Drawing No  
 SW2DA-A

A1

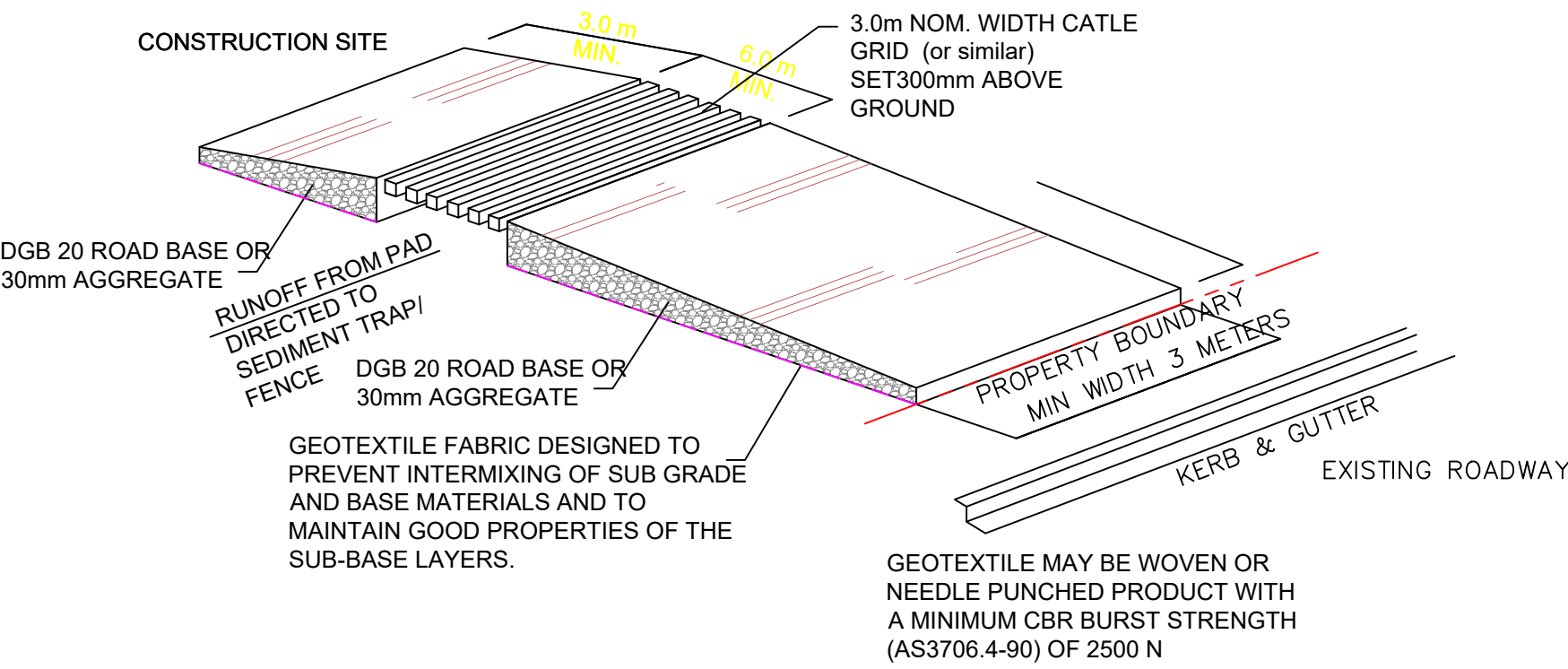




SEDIMENT & EROSION CONTROL PLAN

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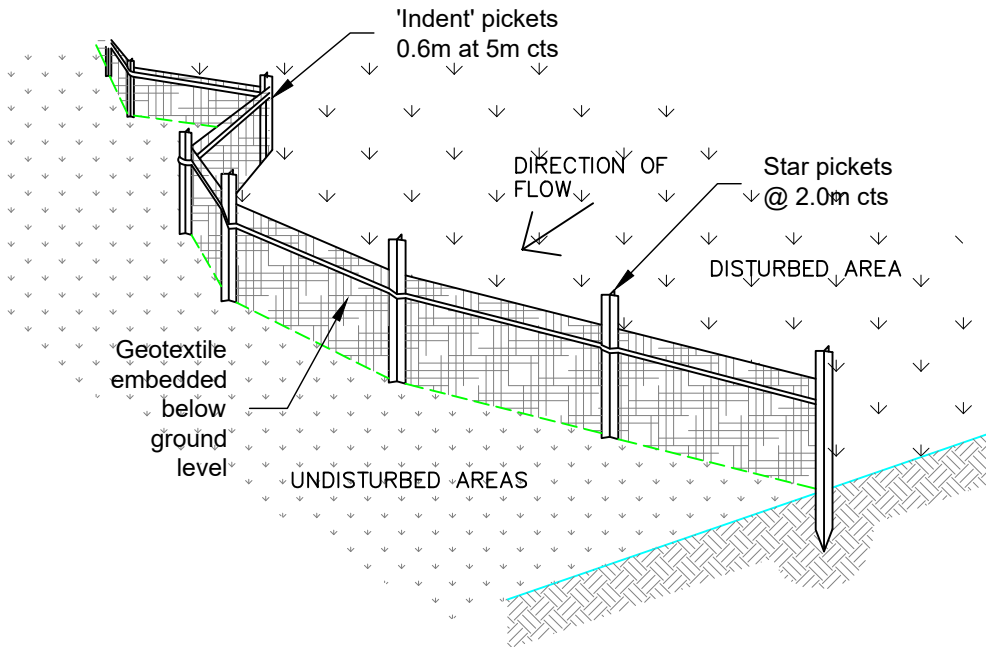
All excavation works to be carried out in a safe building manner in accordance with NCC and industry standards etc.  
Sediment and erosion control measures to be installed before any excavation works and monitored / improved continually to prevent sediment leaving the site, including immediate cleaning of spillage etc from vehicles leaving the property.  
All material stock piles to be protected from rainfall and runoff at all times.



TEMPORARY CONSTRUCTION ACCESS  
SEDIMENT TRAP

NOTES:

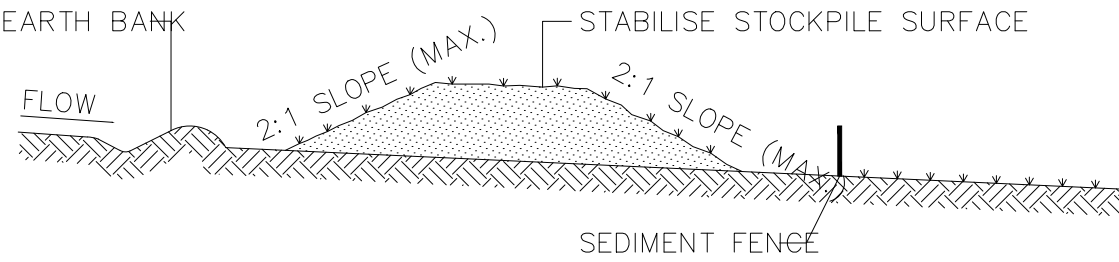
- THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.
- THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.
- ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.
- ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY HUMES CONCRETE MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.



SEDIMENT FENCE

SEDIMENT FENCE CONSTRUCTION NOTES:

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



STOCKPILE CONSTRUCTION NOTES:

- PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
- CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
- WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
- CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

STOCKPILES

SCALE N.T.S.

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SEDIMENT & EROSION  
CONTROL PLAN / DETAILS

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Drawing No  
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