

Nos 25 - 27 Kevin Ave
Avalon Beach
refer to plans by
Gartner Trovato Architects
for details of the
proposed residential development

26000l OSD Tank
INV 20.45 TWL 22.90
adjacent to **26000l**
Rainwater Tank
in Basement area
refer SW2 for details.
OSD HED chamber
to collect all site area
above RL 23.00

7m2
BioRetention
system refer
SW3 for details

OSD outlet to be installed
under arborists supervision
possibly utilizing underboring
or manual tunnelling

STORMWATER NOTES

- All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments Hydraulic Consultant for a 1% AEP event capacity.
- All Trunk Drainage pipes, as shown on this plan are to be minimum of 300mm dia uno.
- All pipes to be uPVC to AS 1254:2002.
- All pipes to be laid at the grade required to match pit invert levels.
- All pipes to be installed and laid in accordance with AS 3500.3:2003.
- Thrust blocks to be installed to the trunk drainage pipes in accordance with AS 3500.3:2003.
- All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
- 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.
- All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
- 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).
- All works are to be inspected and certified by the Principle Certifying Authority prior to backfilling.
- 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.
- The system is to be flushed and cleaned of all sediment and debris annually.
- The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
- 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 an engineer every 20yrs.

SITE STORMWATER MANAGEMENT PLAN

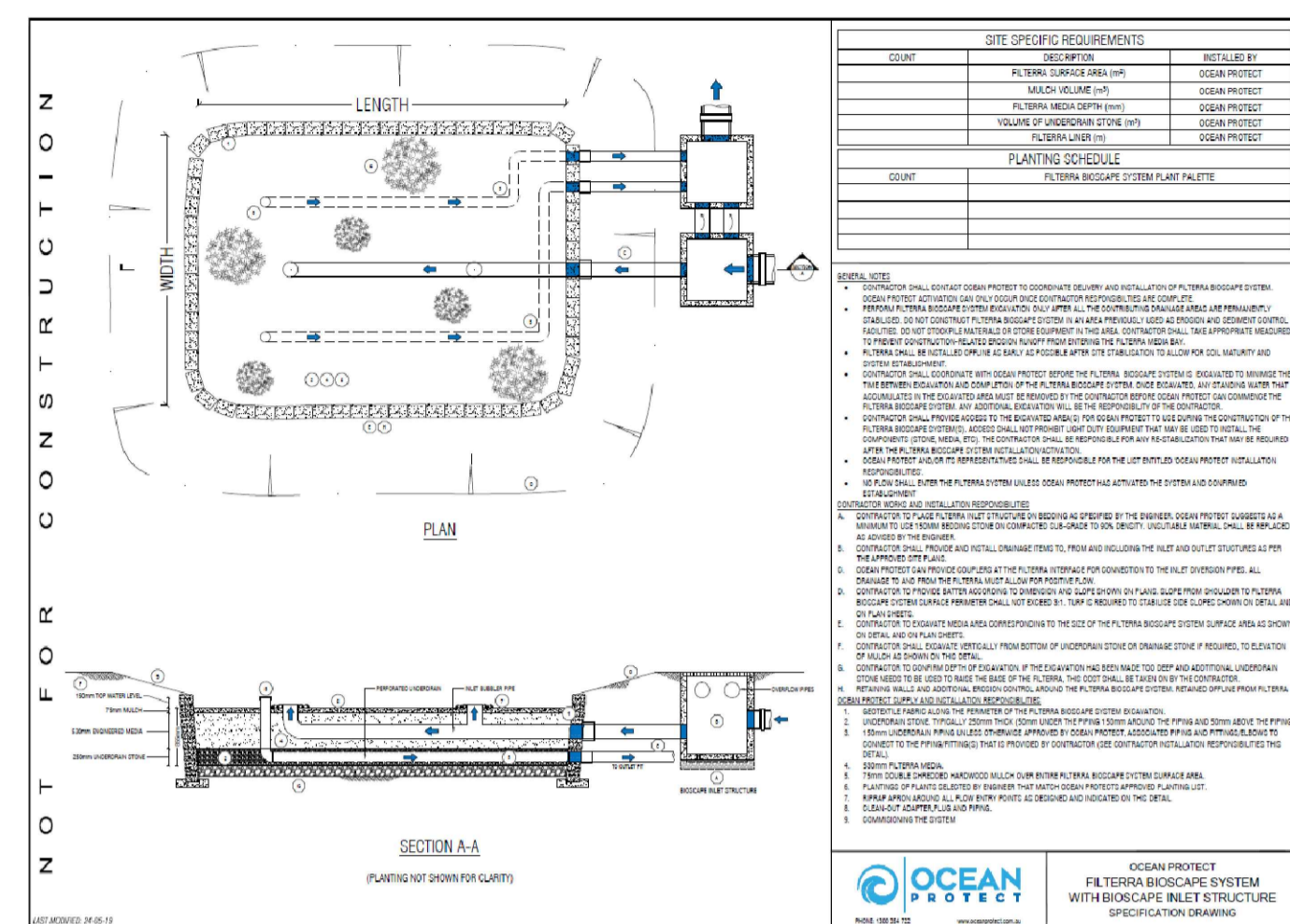
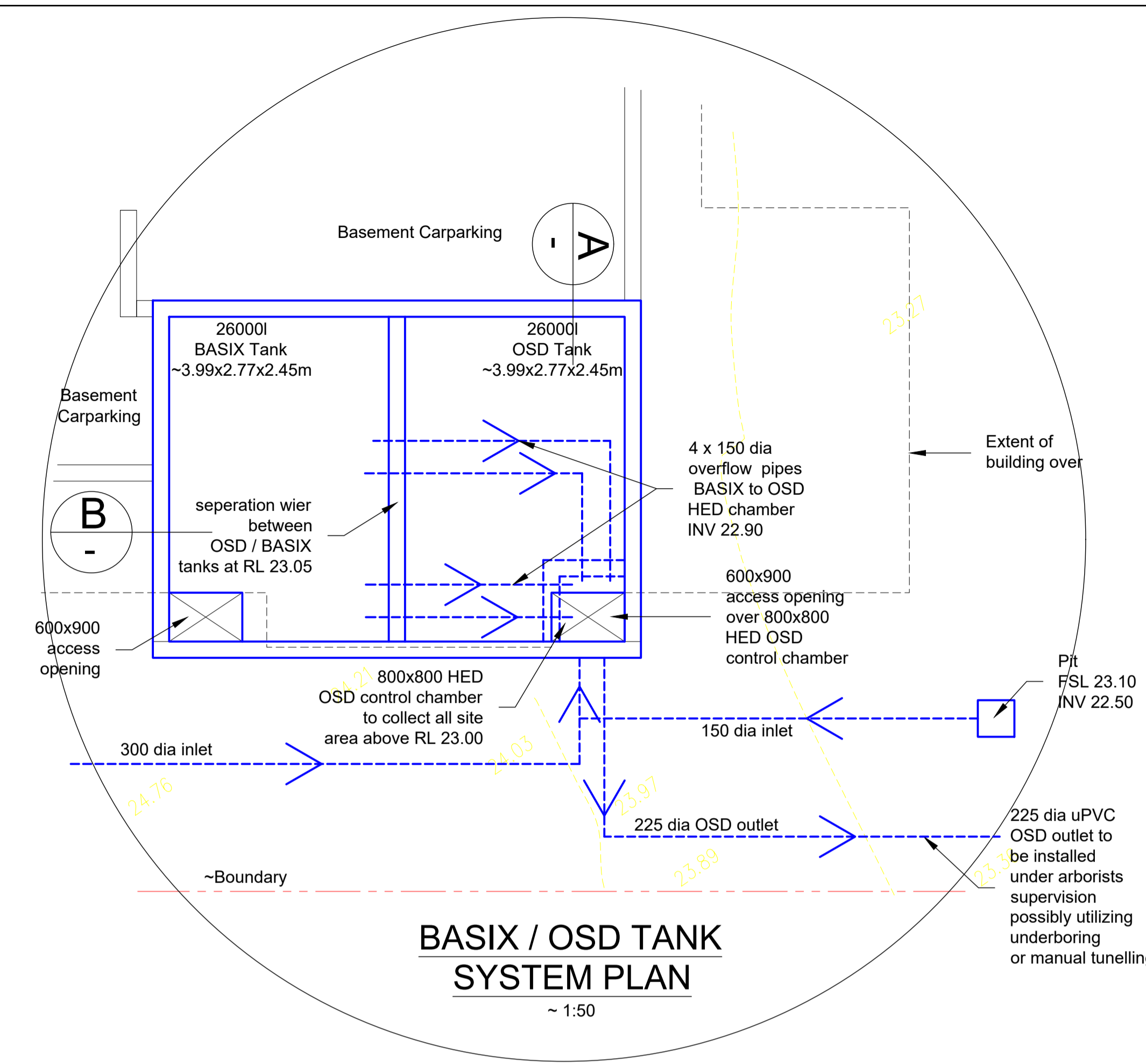
1:100

Proposed residential development refer to plans by Gartner Trovato Architects for details.
Trunk Drainage system only shown above, detailed drainage/hydraulic system to be issued by a hydraulic consultant for Construction Certificate documentation.
26000l BASIX storage plus 26000l OSD storage to be located in basement area.
OSD system to collect min 1889 m2 of the site (ie ALL areas above RL 23.00). The OSD system is designed to restrict the peak storm event flow rates to that of a 'greenfields' undeveloped site. BioRetention/StormFilter system design (see *OceanProtect* analysis/modeling) to meet Councils 4.1.1 Stormwater Quality Requirements. Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

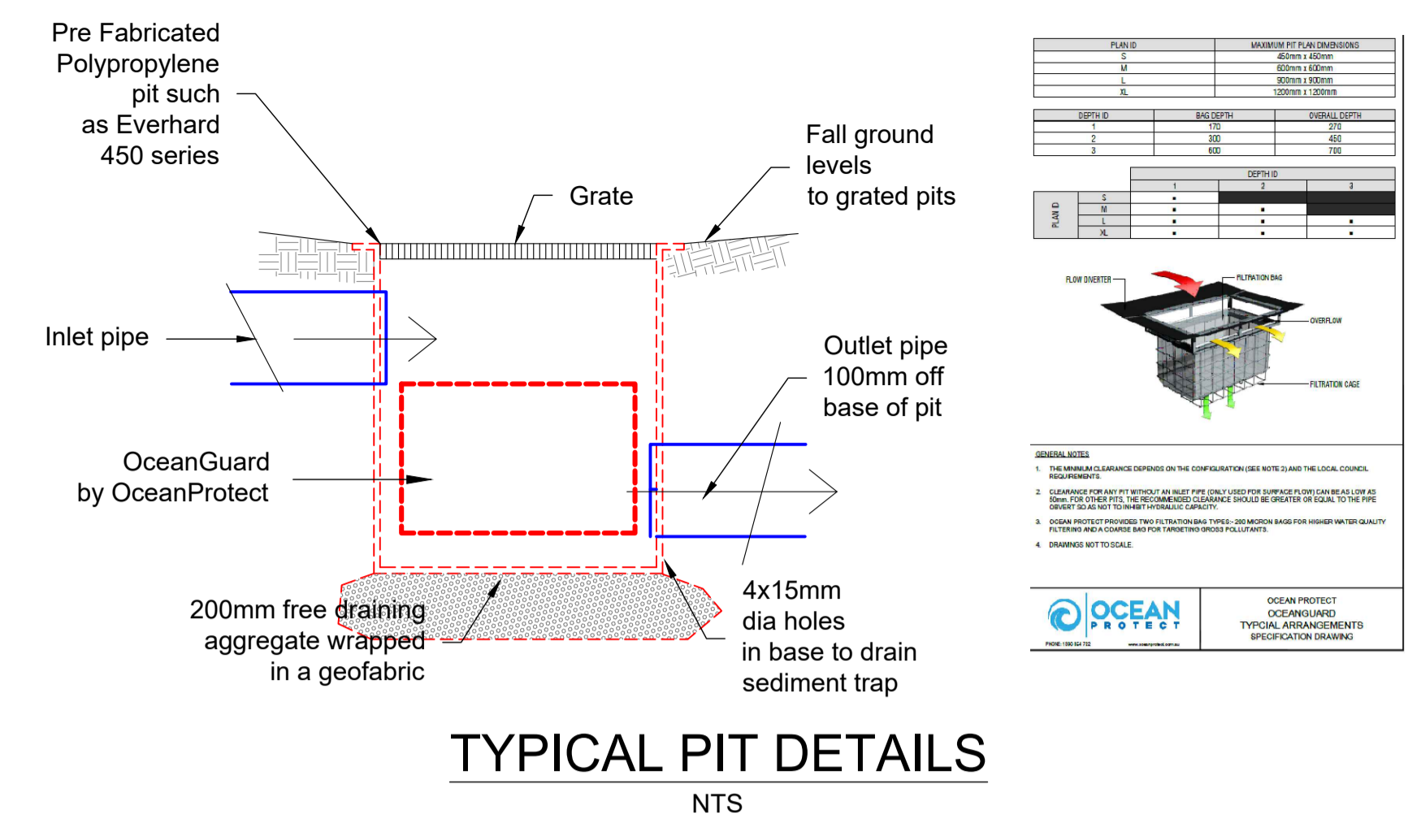
STORMWATER FLOW SUMMARY (DRAINS ANALYSIS)

Site area	- 2789m ²
Existing impervious area	- ~ 600 m ² (0m ² modeled)
Proposed impervious area	- ~ 1642 m ²
Detention Volume modeled	- 26000l (inc HED chamber)
PSD modeled	- 26 l/s
Existing Site Discharge (100% Pervious ie Greenfields)	
5yr ARI Storm	- 52 l/s
100yr ARI Storm	- 128 l/s
Post Development Site Discharge	
5yr ARI Storm	- 50 l/s (25 uncon, 25 via OSD)
100yr ARI Storm	- 123 l/s (48 uncon, 26 / 49 via OSD)

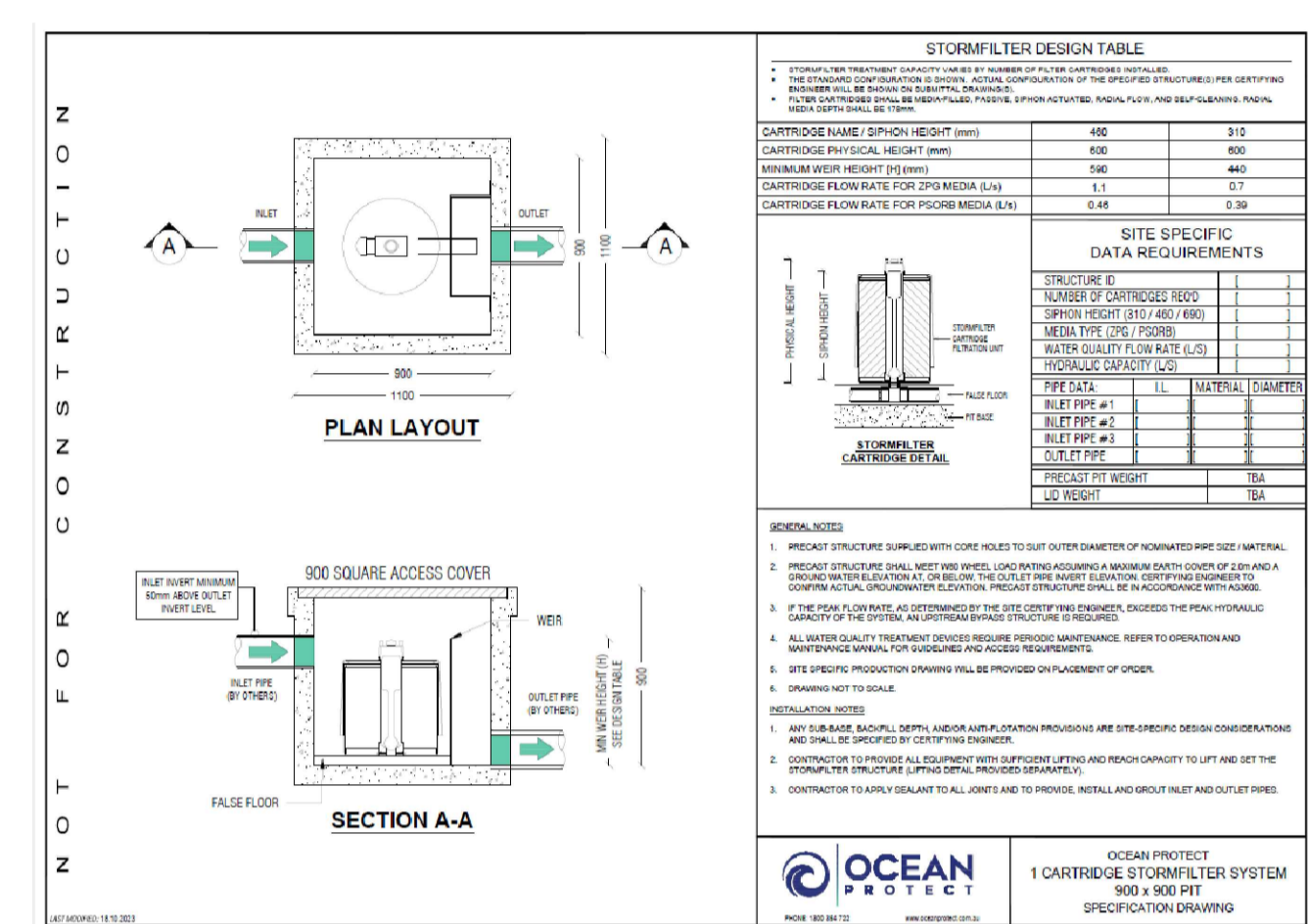
ISSUE:	19. 10. 2019 Issued for comment	Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon NSW 2107 M: 0418 620 350 E: lucas@bce.org.au ABN: 13124694917 ACN: 124694917	PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT 25 -27 KEVIN AVE AVALON BEACH	DRAWING : STORMWATER MANAGEMENT PLAN	Job No : 230706	Drawing No SW1 DA
Prelim DA	23. 10. 2019 Issued for DA submission					
Document Certification Barrenjoey Consulting Engineers Pty Ltd per Lucas Molloy MEA CPEng NER Director						



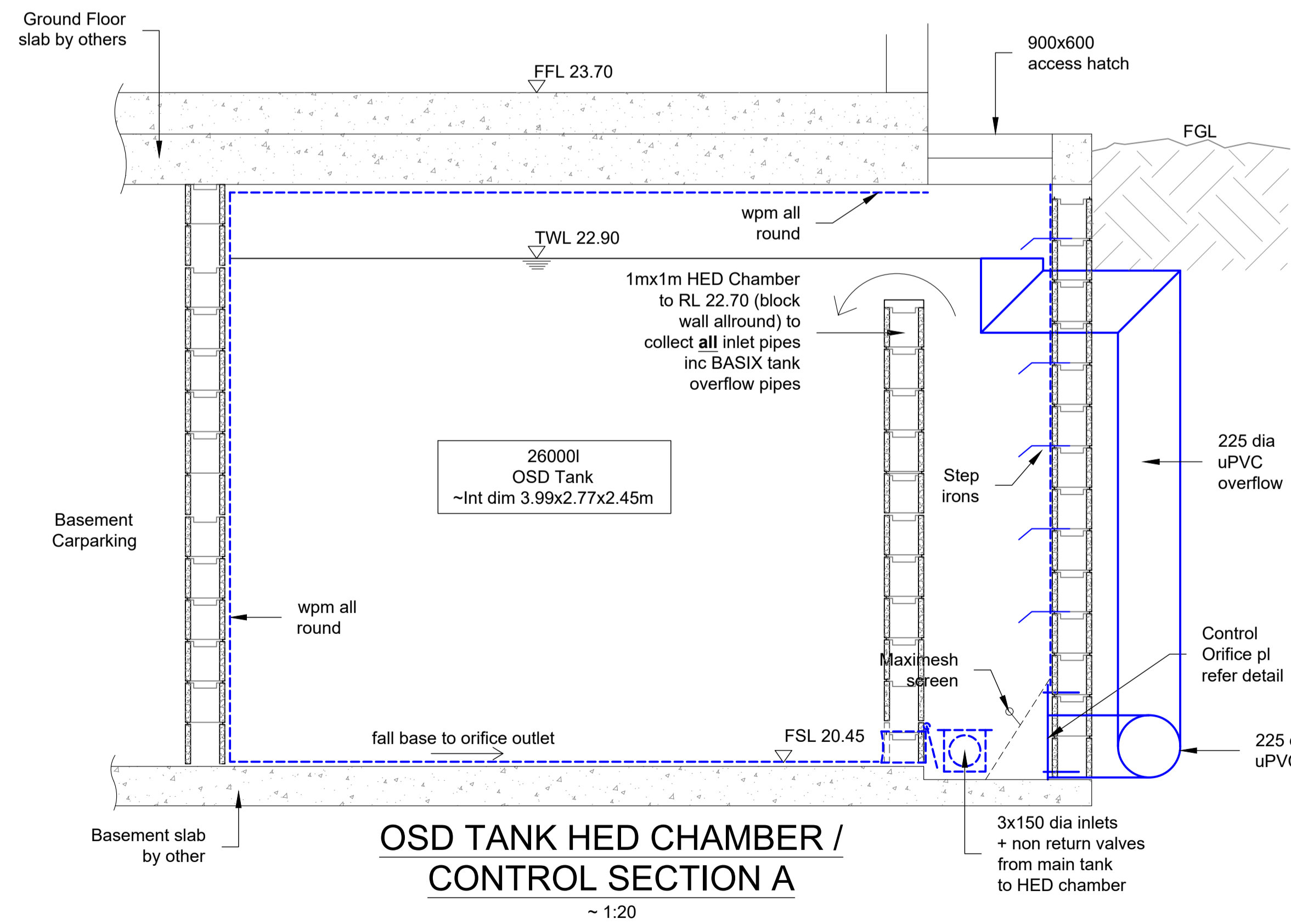
FILTERRA BIOSCAPE SYSTEM
by OCEAN PROTECT



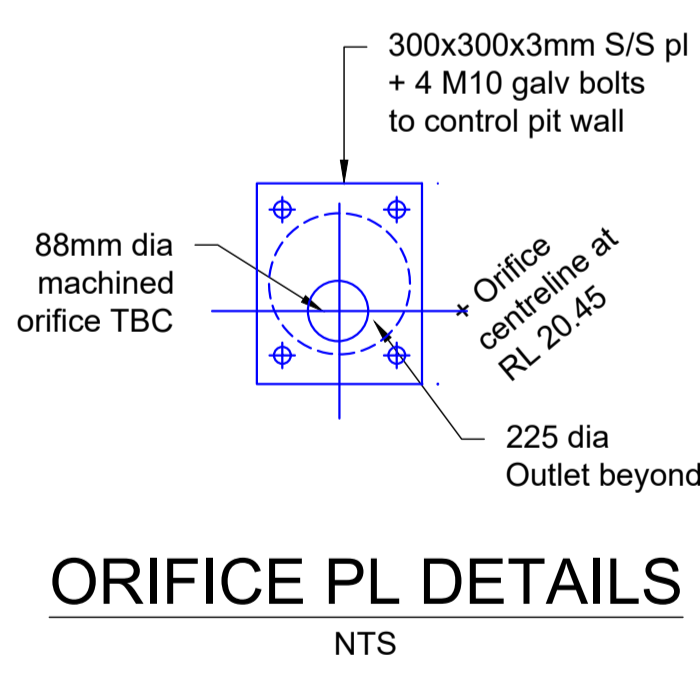
TYPICAL PIT DETAILS
NTS



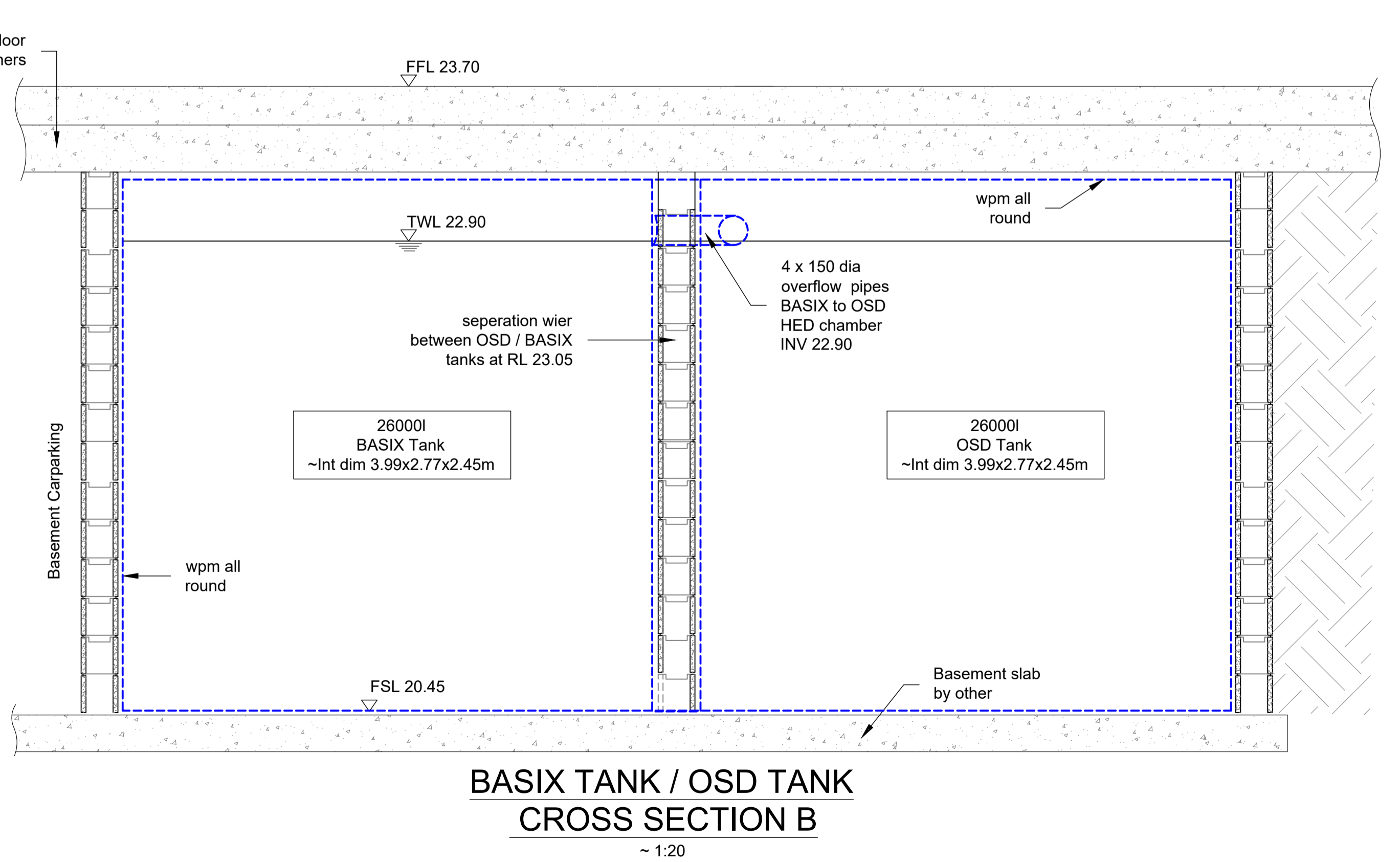
STORMFILTER SYSTEM
by OCEAN PROTECT



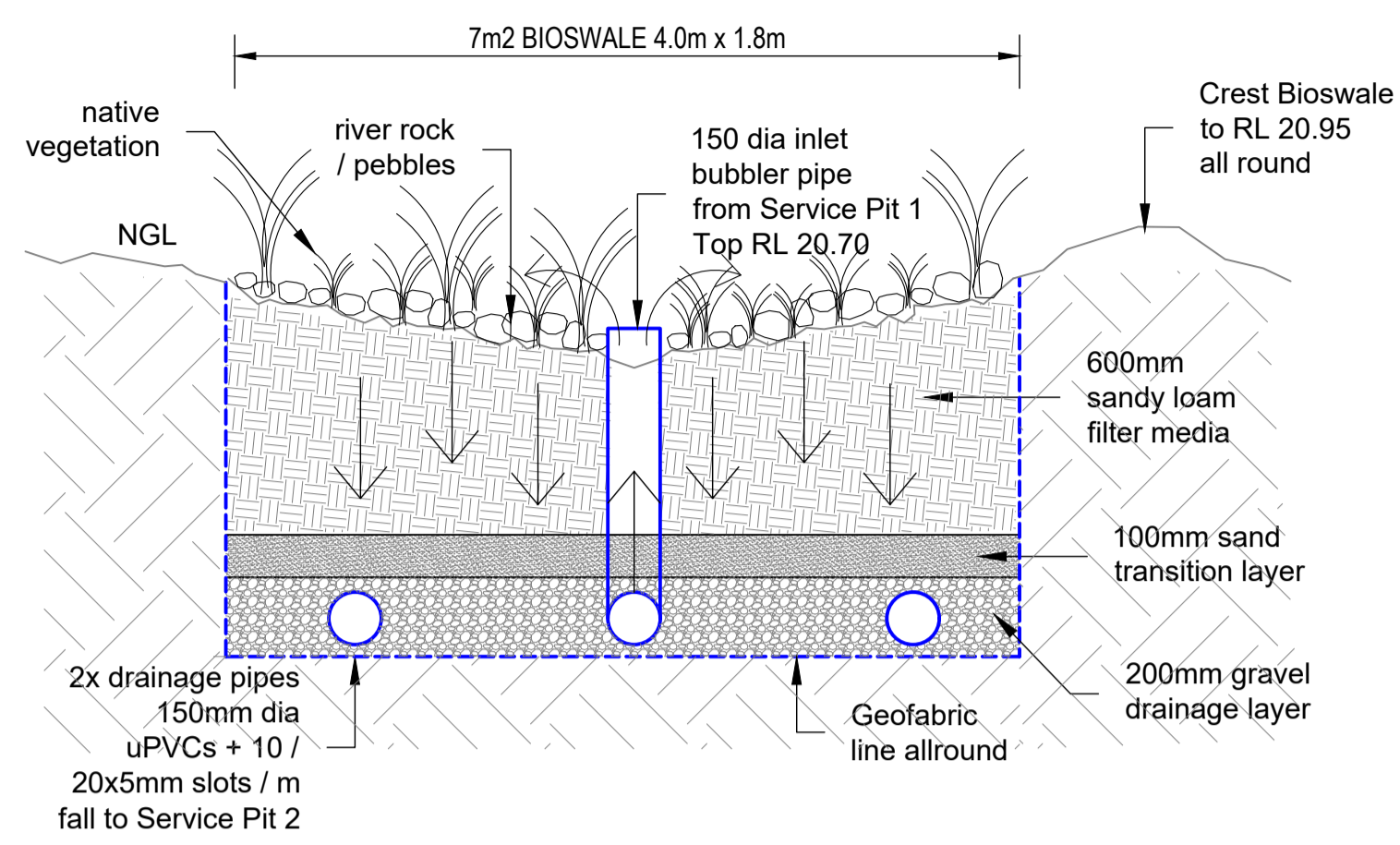
OSD TANK HED CHAMBER / CONTROL SECTION A
~ 1:20



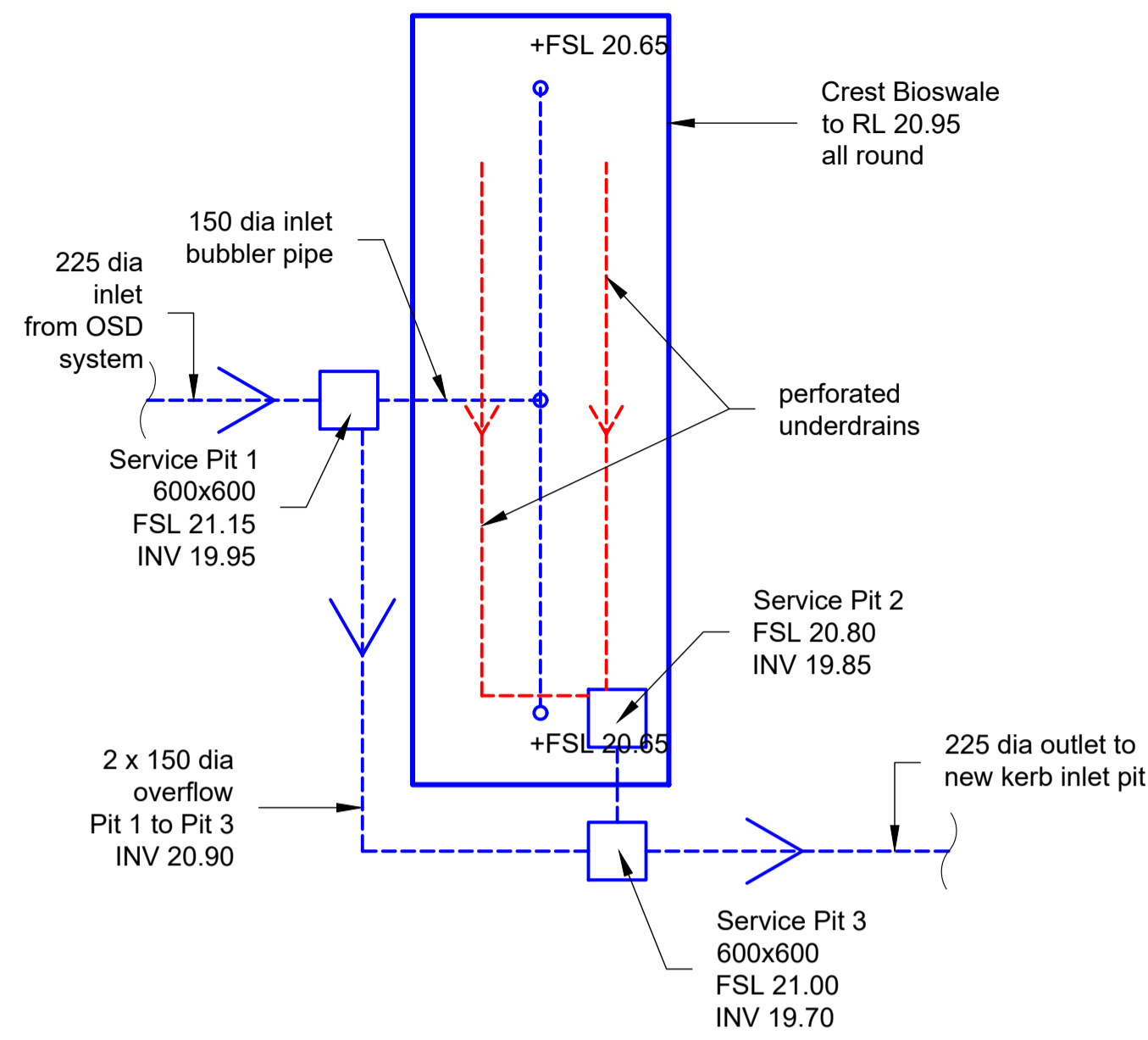
ORIFICE PL DETAILS
NTS



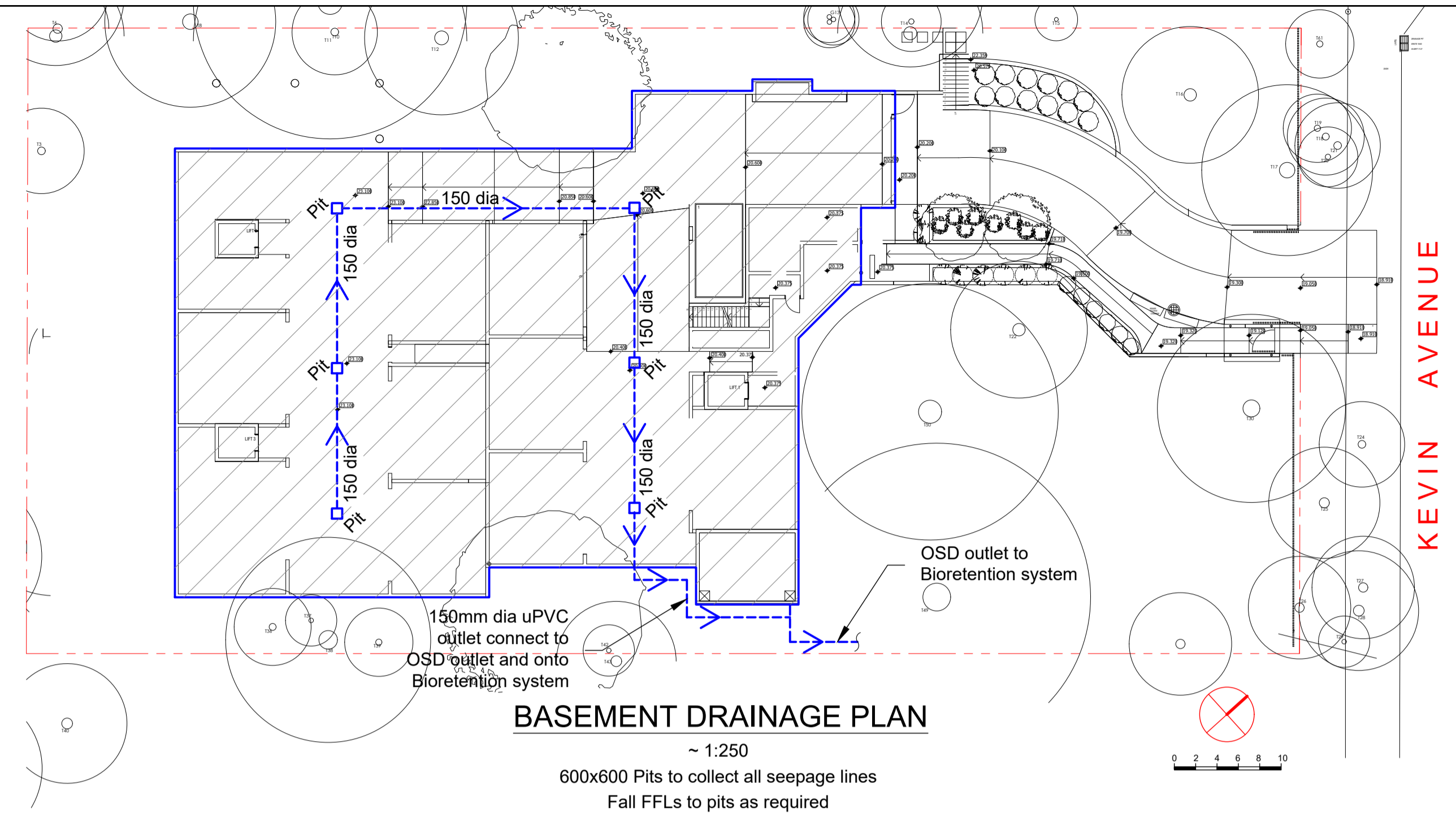
BASIX TANK / OSD TANK CROSS SECTION B
~ 1:20



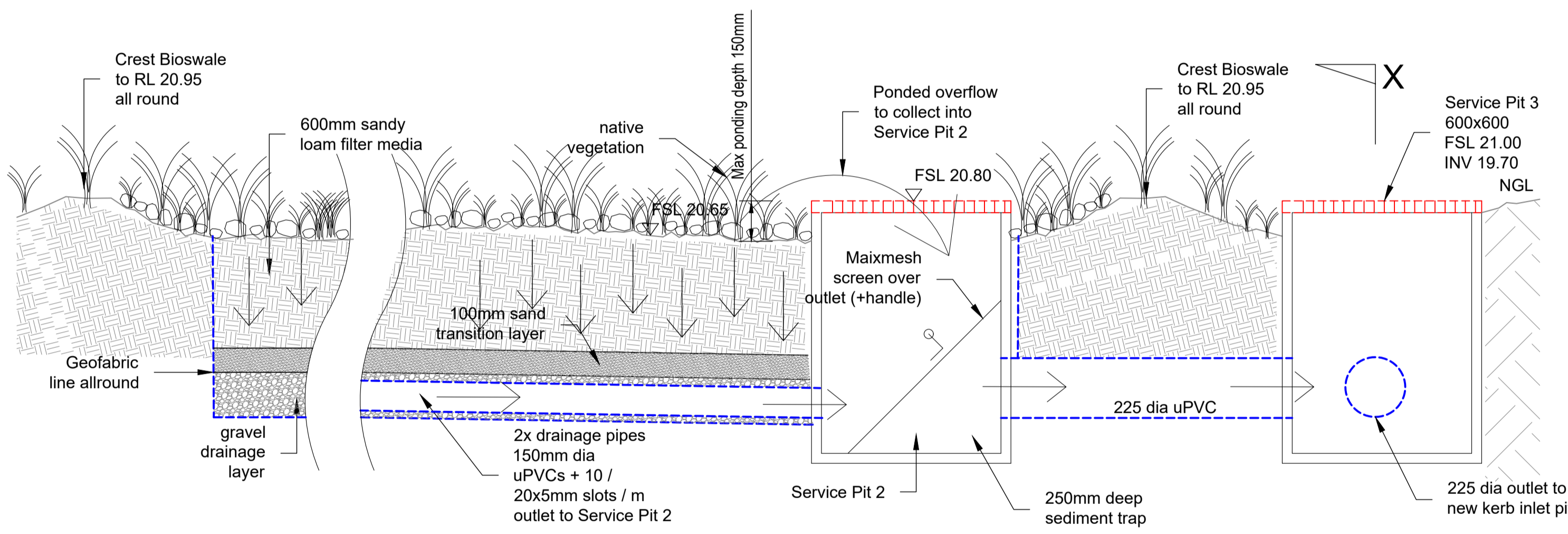
BIORETENTION SYSTEM CROSS SECTION
~ 1:20



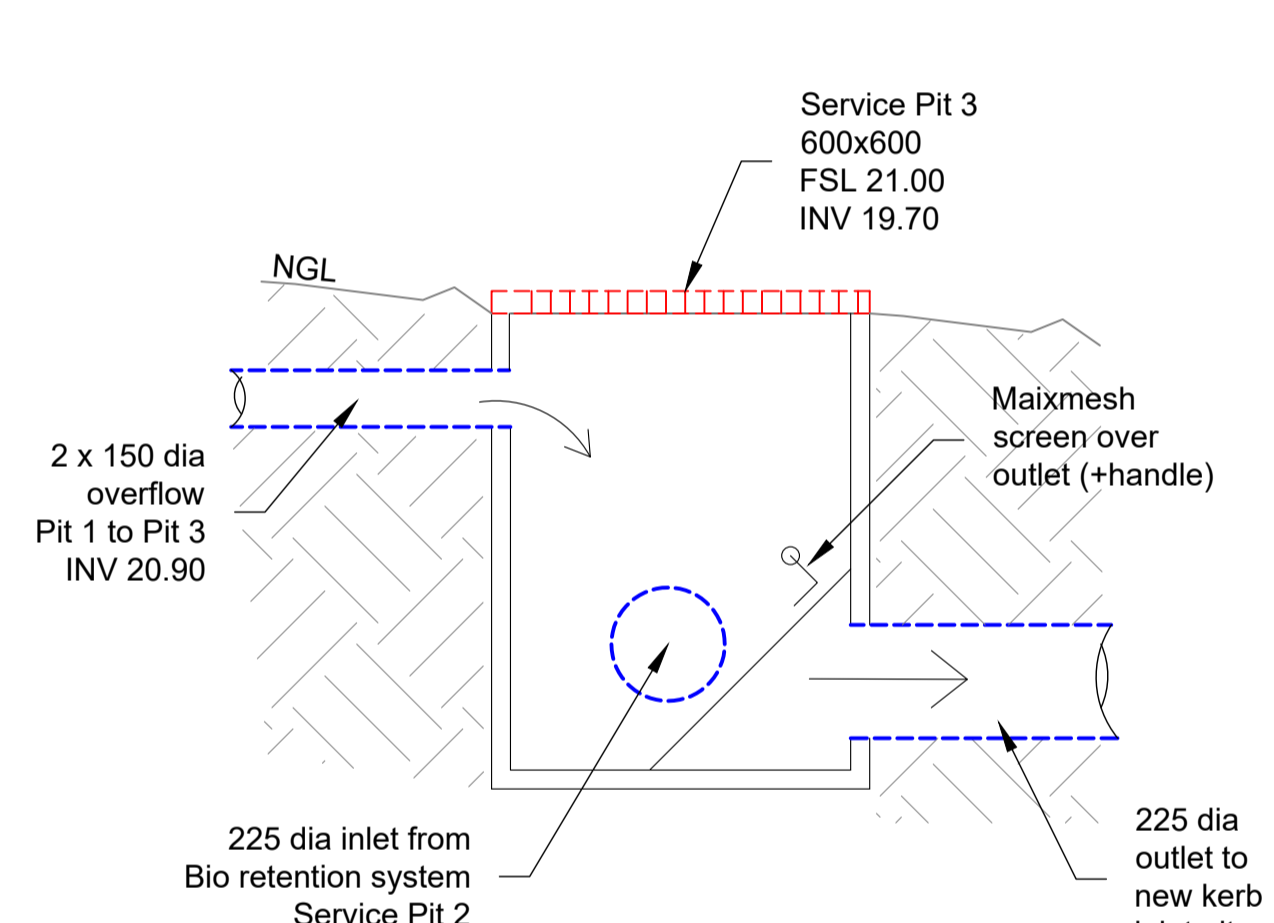
BIORETENTION SYSTEM PLAN
~ 1:50



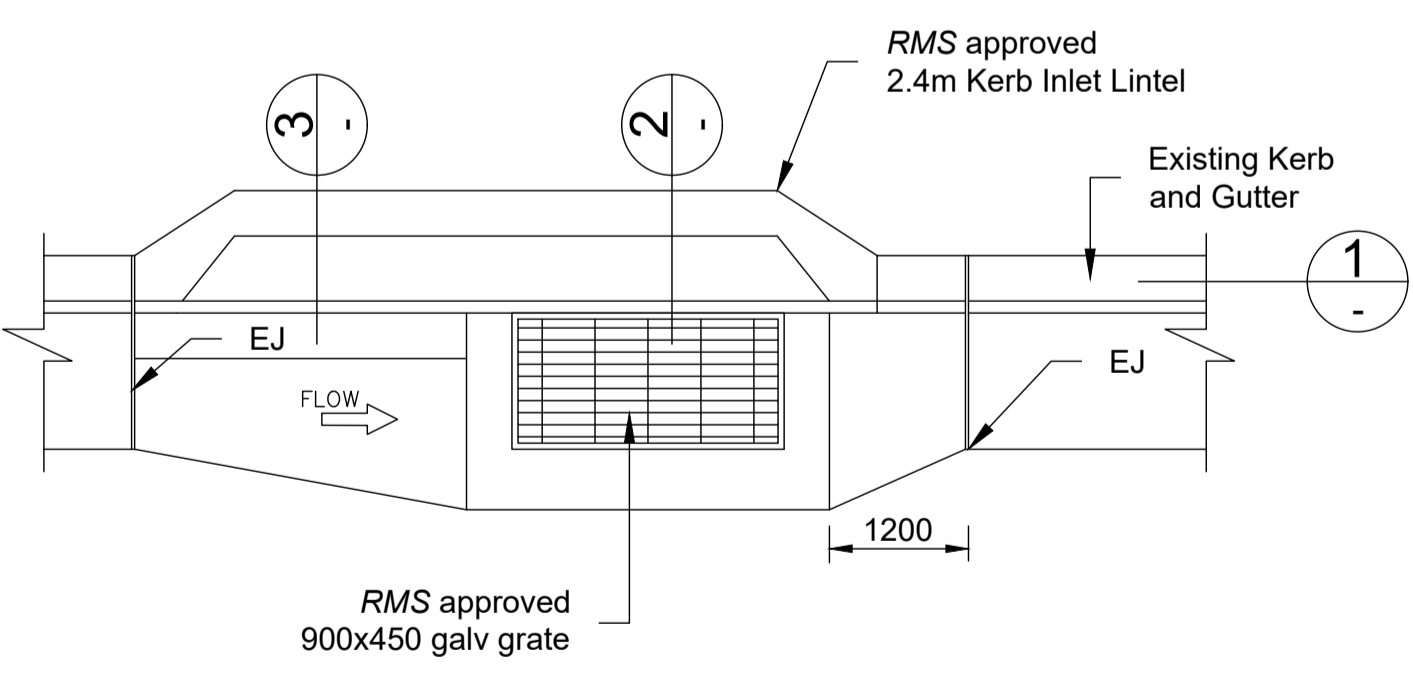
BASEMENT DRAINAGE PLAN
~ 1:250



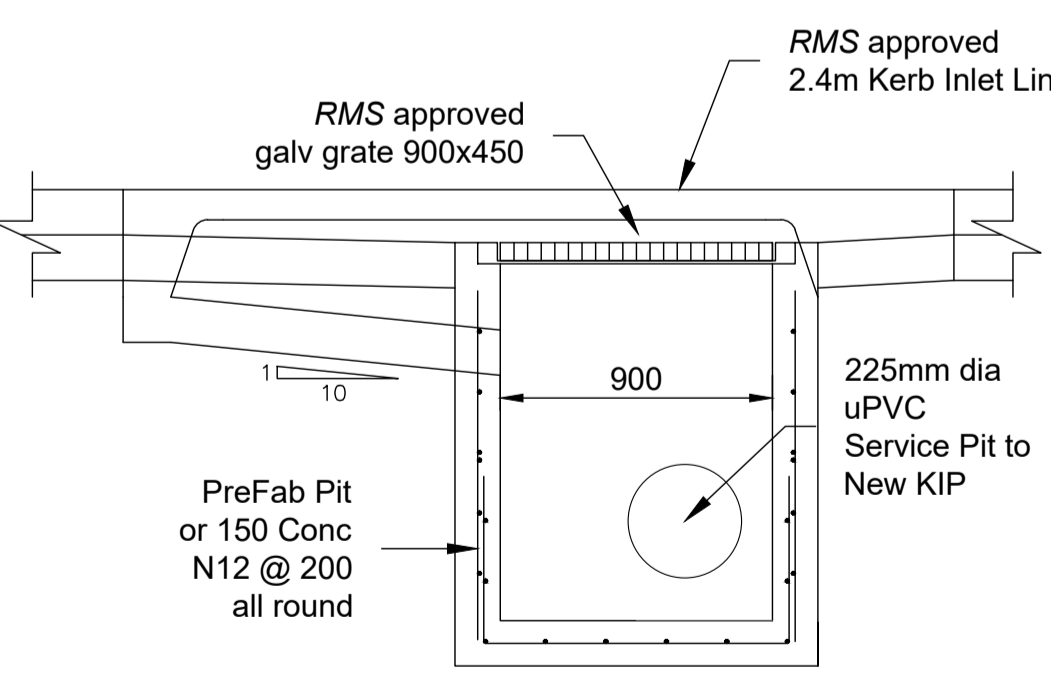
BIOSWALE LONG SECTION
~ 1:20



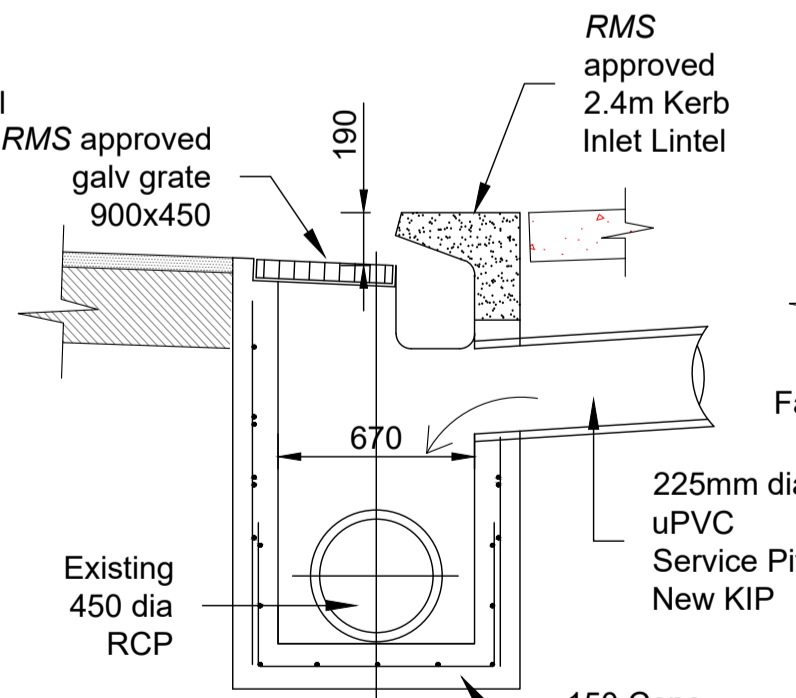
SECTION X SERVICE PIT 3
~ 1:20



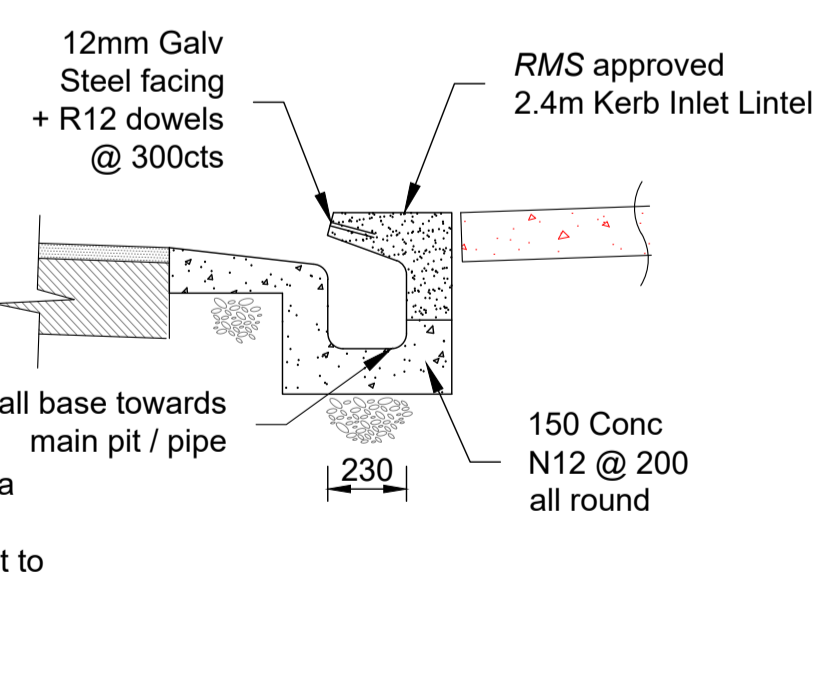
NEW KERB INLET PIT DETAIL
~ 1:20



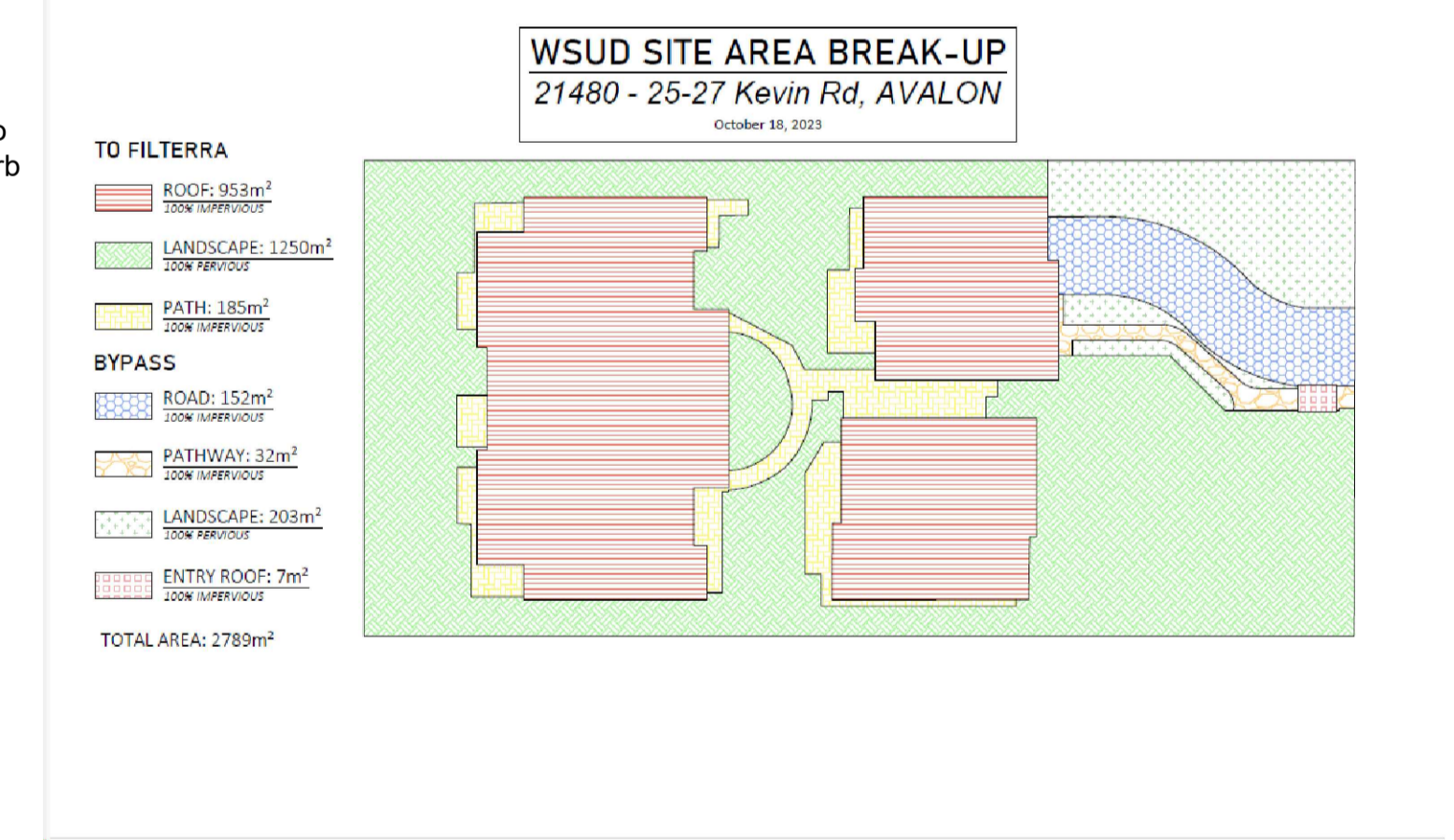
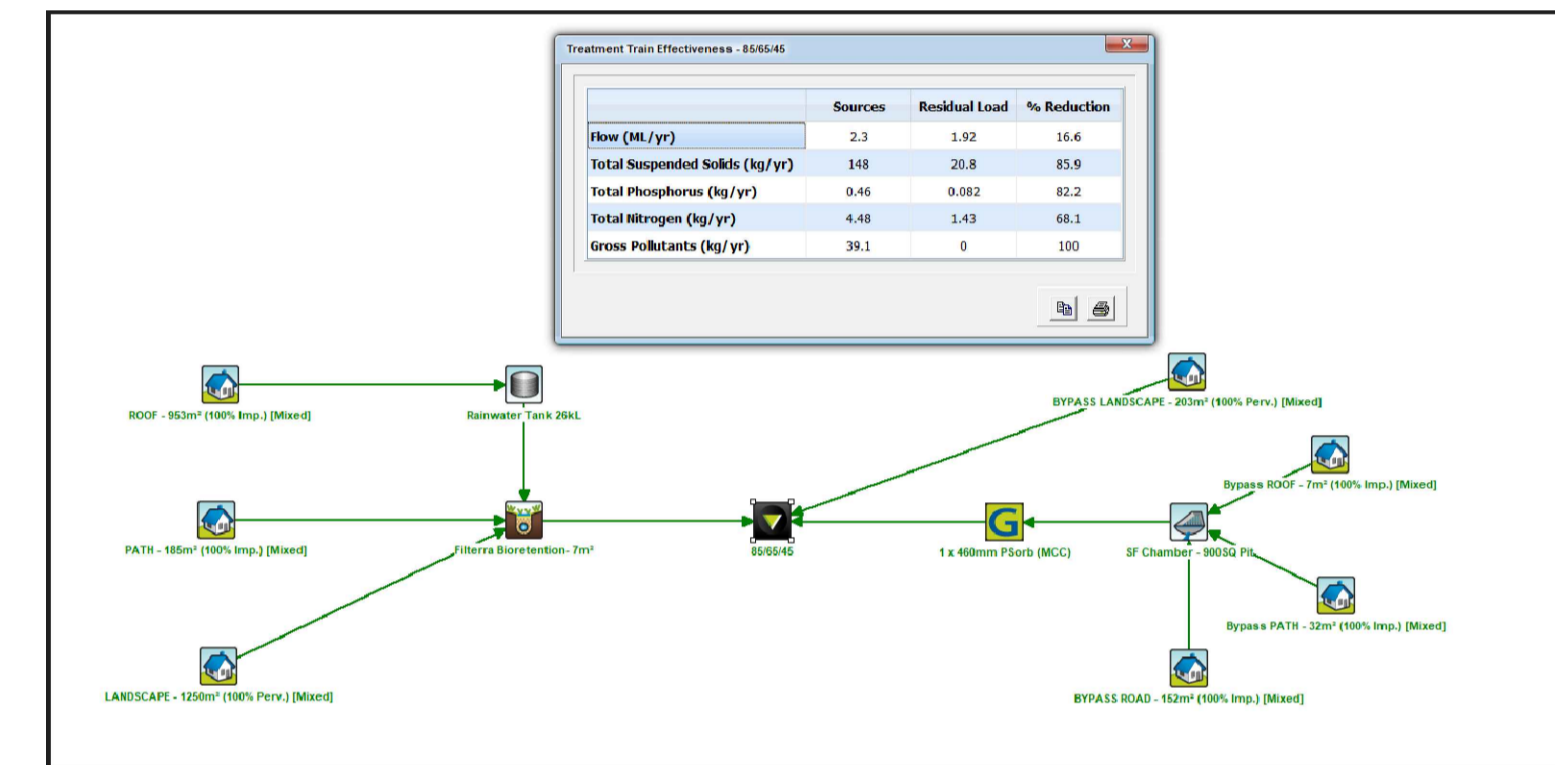
SECTION 1
~ 1:20



SECTION 2
~ 1:20



SECTION 3
~ 1:20



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

ISSUE:	DATE	DESCRIPTION
Prelim	19. 10. 2019	Issued for comment
DA	23. 10. 2019	Issued for DA submission

Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil
PO Box 672
Avalon NSW 21107
M: 0418 620 350
E: lucasbee@bigpond.com
ABN: 13124694917
ACN: 124694917

PROJECT:
PROPOSED
RESIDENTIAL DEVELOPMENT
25 -27 KEVIN AVE
AVALON BEACH

DRAWING :
STORMWATER MANAGEMENT
DETAILING 2

Job No :
230706
Drawing No
SW3DA
Document Certification
Barrenjoey Consulting Engineers Pty Ltd
per
Lucas Molloy MBE OPEng NER Director