

9 May 2024

Chief Executive Officer
Northern Beaches Council
725 Pittwater Road
DEE WHY NSW 2099

Address of the Project: **20 Beatty Street, Balgowlah Heights**

Description of Project: **Stormwater Management Plan**

With reference to the Development Application for the above property, please find enclosed a copy of the site Stormwater Management Plan, STORM-1/C and Stormwater Management Details, STORM-2/A, for your perusal.

The plan shows collected flows from the proposed roof areas and surrounding hardstand and landscaped areas, discharging to the kerb and gutter in Beatty Street via the detention storage tank. The lower level areas are drained via the existing easement to the rear.

Note that it is proposed to provide a 23,810-litre detention storage system in accordance with Council requirements.

This is to certify that the Stormwater Management Plan layout, as shown on STORM-1/C and STORM-2/A by Taylor Consulting Civil & Structural Engineers, has been designed in accordance with section 3.1.2, 'Drainage', of the Building Code of Australia Housing Provision, AS/NZS 3500.3.2 – Stormwater Drainage and Northern Beaches Council - Water Management for Development Policy.

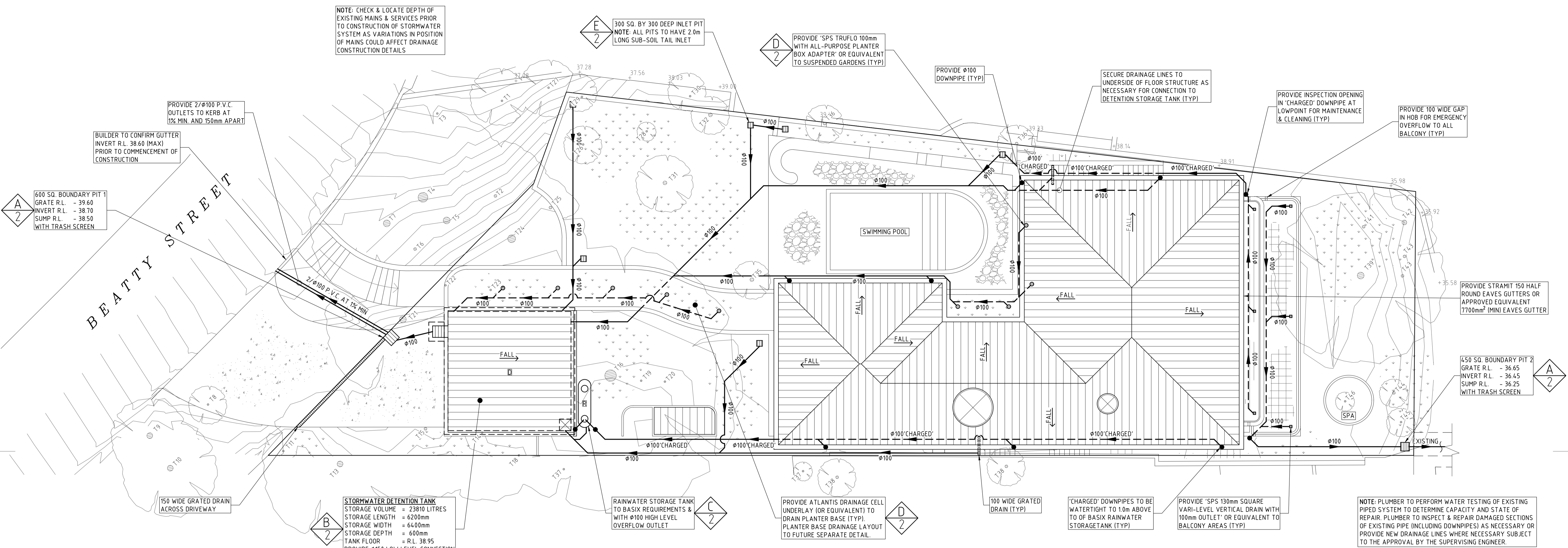
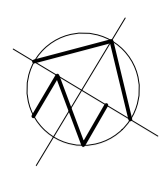
Should you require any further information, please contact the undersigned.

Yours faithfully
TAYLORCONSULTING.NET.AU



D.M.Schaefer - Director
B.E Civil (Hons) M.I.E. Aust. N.E.R.





NOTE: CHECK & LOCATE DEPTH OF EXISTING MAINS & SERVICES PRIOR TO CONSTRUCTION OF STORMWATER SYSTEM AS VARIATIONS IN POSITION OF MAINS COULD AFFECT DRAINAGE CONSTRUCTION DETAILS

300 SQ. BY 300 DEEP INLET PIT
NOTE: ALL PITS TO HAVE 2.0m LONG SUB-SOIL TAIL INLET

PROVIDE 'SPS TRUFLO 100mm WITH ALL-PURPOSE PLANTER BOX ADAPTER' OR EQUIVALENT TO SUSPENDED GARDENS (TYP)

SECURE DRAINAGE LINES TO UNDERSIDE OF FLOOR STRUCTURE AS NECESSARY FOR CONNECTION TO DETENTION STORAGE TANK (TYP)

PROVIDE INSPECTION OPENING IN 'CHARGED' DOWNPIPE AT LOWPOINT FOR MAINTENANCE & CLEANING (TYP)

PROVIDE 100 WIDE GAP IN HOB FOR EMERGENCY OVERFLOW TO ALL BALCONY (TYP)

PROVIDE 2xφ100 P.V.C. OUTLETS TO KERB AT 1% MIN. AND 150mm APART
BUILDER TO CONFIRM GUTTER INVERT R.L. 38.60 (MAX) PRIOR TO COMMENCEMENT OF CONSTRUCTION

600 SQ. BOUNDARY PIT 1
GRATE R.L. - 39.60
INVERT R.L. - 38.70
SUMP R.L. - 38.50
WITH TRASH SCREEN

PROVIDE STRAIT 150 HALF ROUND EAVES GUTTERS OR APPROVED EQUIVALENT 7700mm² (MIN) EAVES GUTTER

450 SQ. BOUNDARY PIT 2
GRATE R.L. - 36.65
INVERT R.L. - 36.45
SUMP R.L. - 36.25
WITH TRASH SCREEN

STORMWATER DETENTION TANK
STORAGE VOLUME = 23810 LITRES
STORAGE LENGTH = 6200mm
STORAGE WIDTH = 6400mm
STORAGE DEPTH = 600mm
TANK FLOOR = R.L. 38.95
PROVIDE φ150 LOW LEVEL CONNECTION TO BOUNDARY PIT

RAINWATER STORAGE TANK TO BASIX REQUIREMENTS & WITH φ100 HIGH LEVEL OVERFLOW OUTLET

PROVIDE ATLANTIS DRAINAGE CELL UNDERLAY (OR EQUIVALENT) TO DRAIN PLANTER BASE (TYP). PLANTER BASE DRAINAGE LAYOUT TO FUTURE SEPARATE DETAIL.

'CHARGED' DOWNPIPES TO BE WATERTIGHT TO 1.0m ABOVE TO OF BASIX RAINWATER STORAGE TANK (TYP)

PROVIDE 'SPS 130mm SQUARE VARI-LEVEL VERTICAL DRAIN WITH 100mm OUTLET' OR EQUIVALENT TO BALCONY AREAS (TYP)

NOTE: PLUMBER TO PERFORM WATER TESTING OF EXISTING PIPED SYSTEM TO DETERMINE CAPACITY AND STATE OF REPAIR. PLUMBER TO INSPECT & REPAIR DAMAGED SECTIONS OF EXISTING PIPE (INCLUDING DOWNPIPES) AS NECESSARY OR PROVIDE NEW DRAINAGE LINES WHERE NECESSARY SUBJECT TO THE APPROVAL BY THE SUPERVISING ENGINEER.

SITE DRAINAGE PLAN
SCALE 1:100

- DRAINAGE NOTES**
- + DENOTES EXISTING GROUND LEVEL
 - FALL STORMWATER PIPES AT 1% MIN UNLESS OTHERWISE NOTED.
 - SUB-SOIL DRAINAGE TO BE CONNECTED TO THE SITE DRAINAGE SYSTEM AS NECESSARY.
 - SURFACE GRATES 300 SQ. UNLESS OTHERWISE NOTED.
 - ALL STORMWATER PIPES TO HAVE SOLVENT CEMENT WATER TIGHT JOINTS.
 - CHECK & LOCATE DEPTH OF EXISTING MAINS & SERVICES PRIOR TO CONSTRUCTION OF STORMWATER SYSTEM AS VARIATIONS IN POSITION OF MAINS COULD AFFECT DRAINAGE CONSTRUCTION DETAILS.
 - INSPECTIONS MUST BE UNDERTAKEN BY THIS OFFICE (BY PRIOR ARRANGEMENT WITH ENGINEER) DURING CONSTRUCTION TO ENABLE FULL CERTIFICATION UPON COMPLETION OF WORKS.
 - ALL CONSTRUCTION OF COUNCIL DRAINAGE WORKS TO COMPLY WITH COUNCIL STANDARD.
 - REMOVE REDUNDANT DRAINAGE PITS AND SEAL PIPES.
 - PIT BENCHING TO BE HALF THE OUTGOING PIPE DIAMETER. CONCRETE FOR BENCHING TO BE 20 MPa MASS CONCRETE.
 - APPROVED PRE-CAST PITS MAY BE USED.
 - ALL PIPES TO BE LAID ON COMPACTED FINE CRUSHED ROCK OR SAND BEDDING 75mm THICK & PIPES BACKFILLED WITH COMPACTED SAND TO 300mm ABOVE TOP OF PIPE. ELSE ATTACHED TO UNDERSIDE OF STRUCTURE AT 600mm c/c AS NECESSARY.
 - PIPE ROUTES SHOWN ARE INDICATIVE ONLY AND SHOULD BE AS NECESSARY ACCORDING TO SITE CONDITIONS. TREE POSITIONS ETC. CONFIRM SIGNIFICANT CHANGES IN PIPES SYSTEM DETAILS WITH SUPERVISING ENGINEER PRIOR TO COMMENCEMENT OF DRAINAGE CONSTRUCTION WORKS.
 - CONTRACTOR SHALL ENSURE THAT SERVICES TO BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS WHERE REQUIRED. ONCE WORKS ARE COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SERVICES AND MAKE GOOD ALL DISTURBED AREAS.
 - STORMWATER SYSTEM REQUIRES SIGNIFICANT MAINTENANCE DUE TO POTENTIAL HIGH POLLUTANT LOAD. FILTERS AND POLLUTANT TRAPS SHOULD BE CHECKED AFTER LARGE STORM EVENTS AND CLEANED EVERY 6 MONTHS.
 - PLUMBING AND DRAINAGE WORKS TO COMPLY WITH AS-3500, THE NATIONAL DRAINAGE & PLUMBING CODE.
 - WHERE POSSIBLE DRAINAGE LINES SHALL BE LAID IN AREAS PREVIOUSLY DISTURBED BY OTHER SITE WORKS AND FOLLOW TOPOGRAPHICAL FEATURES TO REDUCE IMPACT AND AVOID TREE ROOTS.
 - THIS STORMWATER MANAGEMENT PLAN HAS BEEN PREPARED FOR SUBMISSION TO COUNCIL. CERTIFIER AND DOES NOT NECESSARILY CONTAIN ALL APPROPRIATE INFORMATION TO ENABLE FOR ISSUE. TO PLUMBER/BUILDER FOR CONSTRUCTION. CONTACT TAYLOR CONSULTING FOR MORE INFORMATION.

- RAINWATER RE-USE NOTES AND SPECIFICATIONS**
- ROOF WATER ONLY TO BE DRAINED TO THE RAINWATER STORAGE TANK.
 - THE RAINWATER STORAGE TANK NEEDS TO BE CONNECTED FOR RE-USE AS REQUIRED BY THE OWNER.
 - RAINWATER STORAGE TANK TO BE CONFIGURED IN ACCORDANCE WITH SYDNEY WATER SPECIFICATIONS 'GUIDELINES FOR RAINWATER TANK ON RESIDENTIAL PROPERTIES'.
 - PROVIDE MAINS 'TOP-UP' SUPPLY TO RAINWATER TANK. MAINS TOP-UP ZONE TO BE BASED ON THE DAILY NON-POTABLE USAGE THAT MAY BE EXPECTED FROM THE TANK.
 - PROVIDE A MECHANICAL PUMPING ARRANGEMENT (IN SOUND-PROOF HOUSING) TO PUMP SUPPLIERS SPECIFICATION TO SUIT INTENDED USAGE OF RAINWATER STORAGE. PUMPING ARRANGEMENTS MUST COMPLY WITH EPA GUIDELINES.
 - INLETS TO RAINWATER TANK MUST BE SCREENED TO PREVENT THE ENTRY OF FOREIGN MATTER, ANIMALS OR INSECTS.
 - A SIGN MUST BE AFFIXED TO THE RAINWATER TANK CLEARLY STATING THAT THE WATER IN THE TANK IS RAINWATER AND IS NOT TO BE USED FOR HUMAN CONSUMPTION.
 - RAINWATER TANK TO BE PLACED ON A STRUCTURALLY ADEQUATE BASE IN ACCORDANCE WITH THE MANUFACTURER'S OR STRUCTURAL ENGINEER'S DETAILS.
 - THE TANK MUST NOT BE INSTALLED OVER ANY MAINTENANCE STRUCTURE OR FITTINGS USED BY A PUBLIC AUTHORITY.
 - RAINWATER TANK AND ASSOCIATED PLUMBING WORKS TO BE INSTALLED AND CONFIGURED BY A LICENSED PLUMBER. PUMP TO BE INSTALLED BY A LICENSED ELECTRICIAN.

OSD SYSTEM DESIGN DATA

SITE DATA

SITE AREA = 846.5m²
TOTAL IMPERVIOUS AREA = 498.8m² (59%)
TOTAL PERVIOUS AREA = 347.7m² (41%)

PERMISSIBLE SITE FLOWS (STATE OF NATURE FOR CATCHMENT = 846.5m²)

5 YR ARI = 16 l/s
DEVELOPED SITE FLOWS (FOR CATCHMENT = 846.5m²)
100 YR ARI = 16 l/s

DETENTION SYSTEM DATA

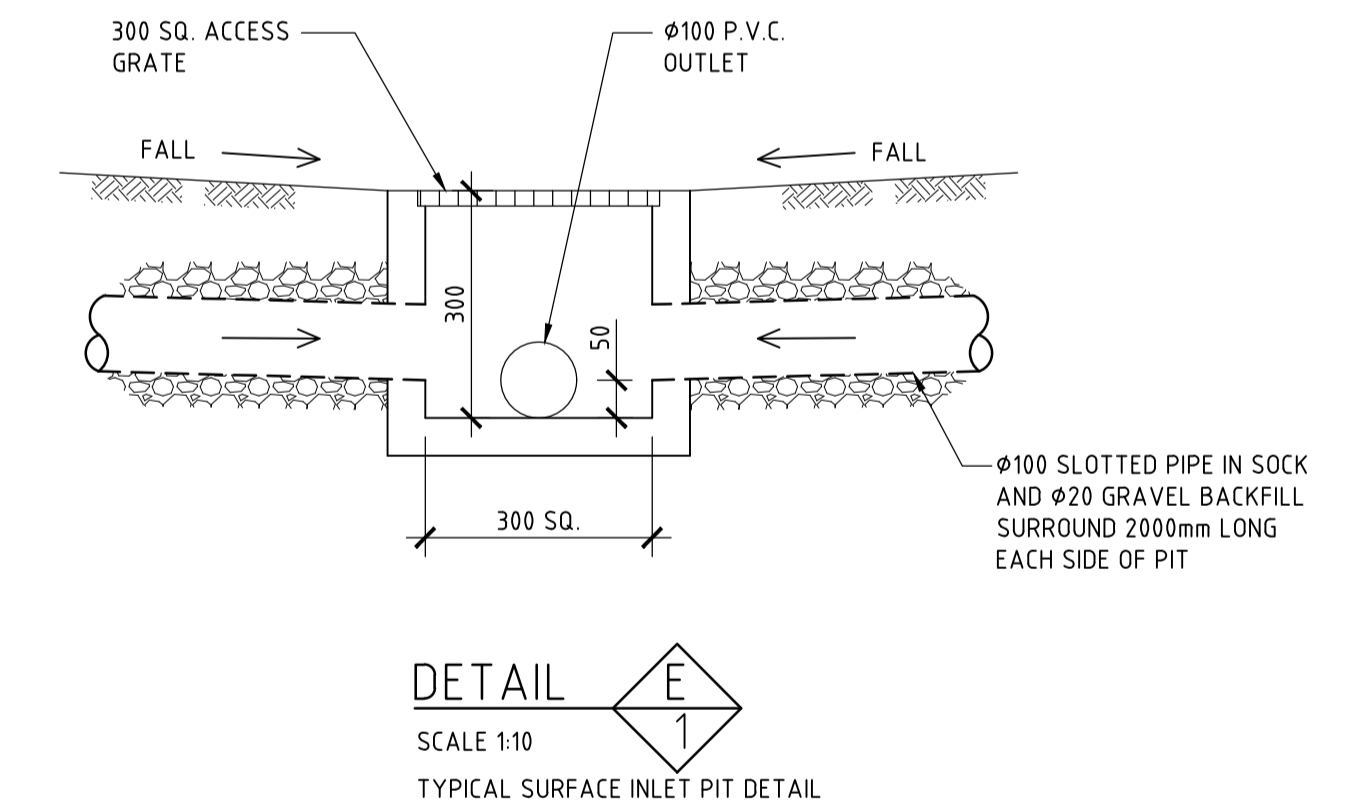
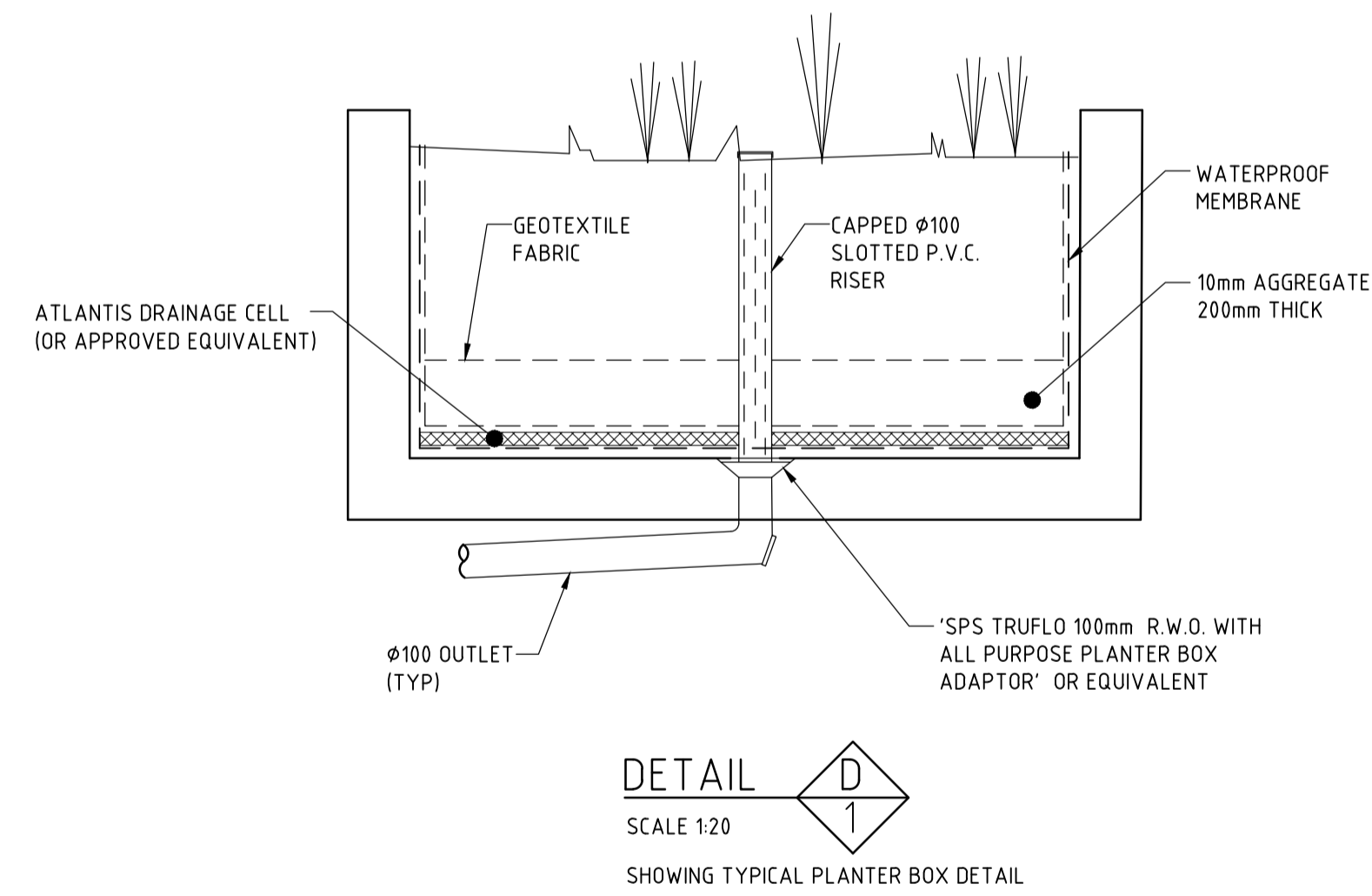
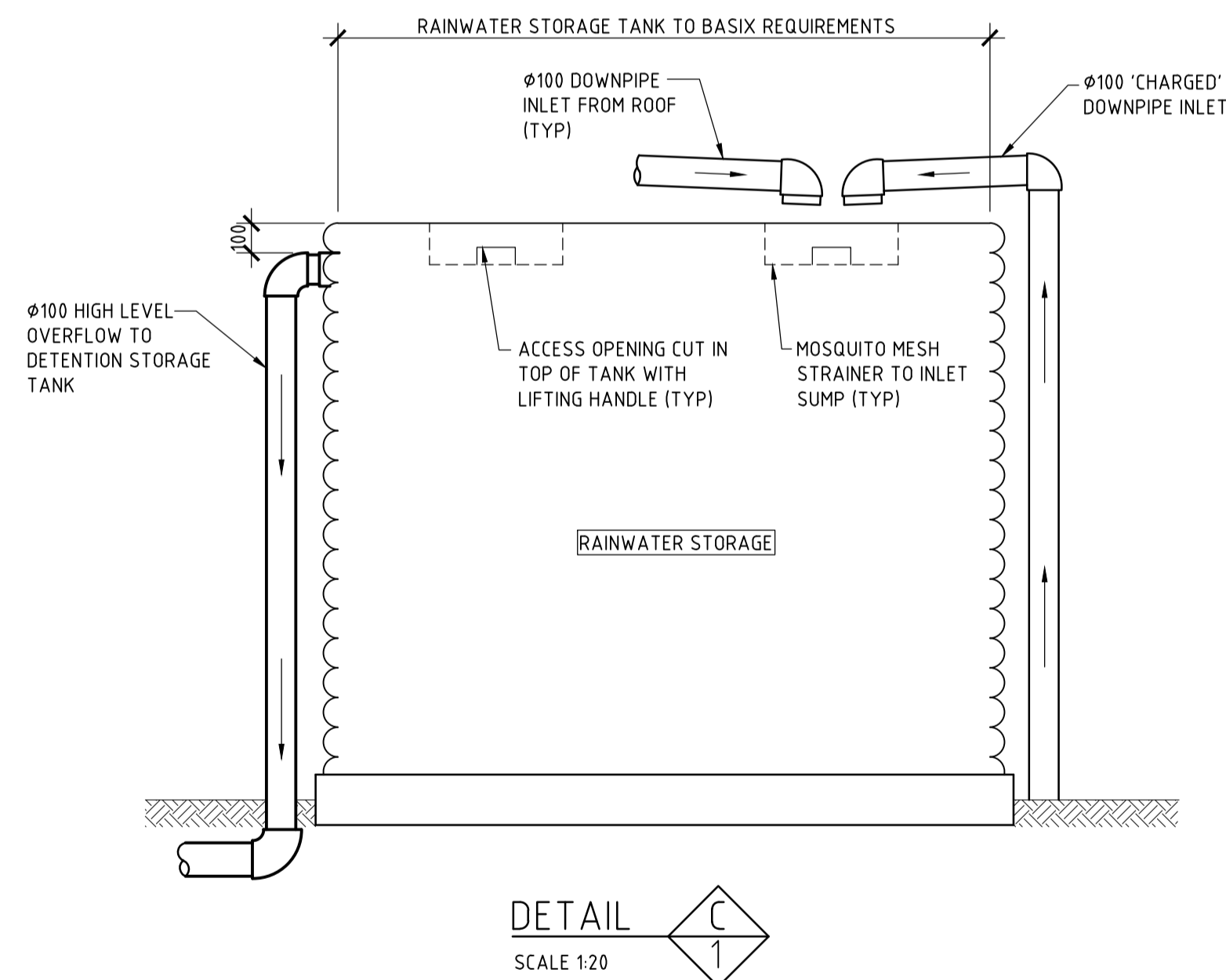
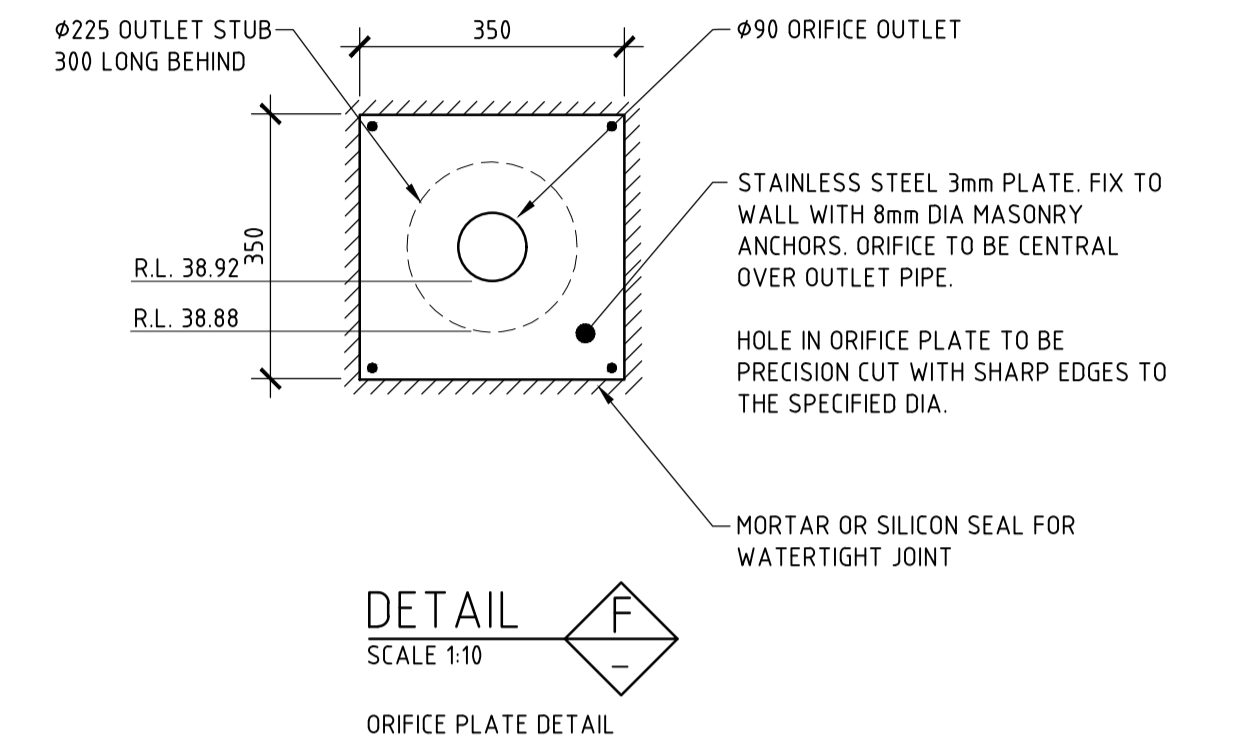
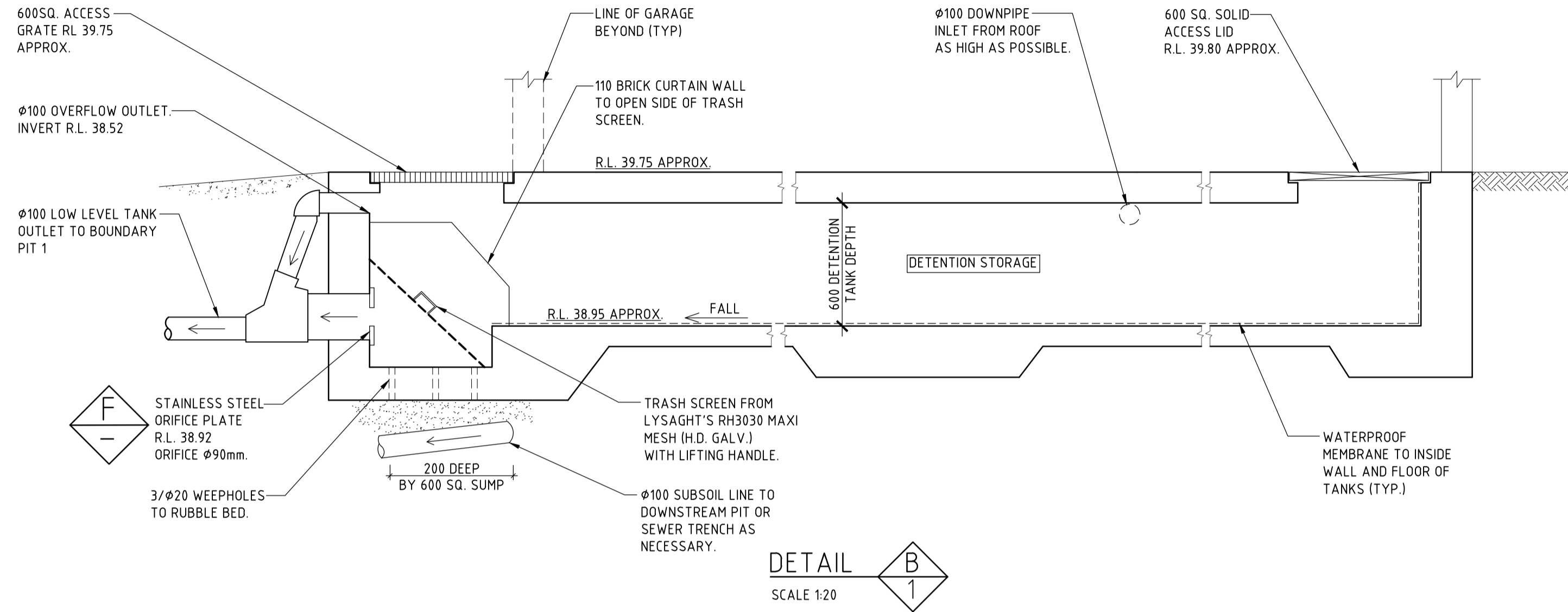
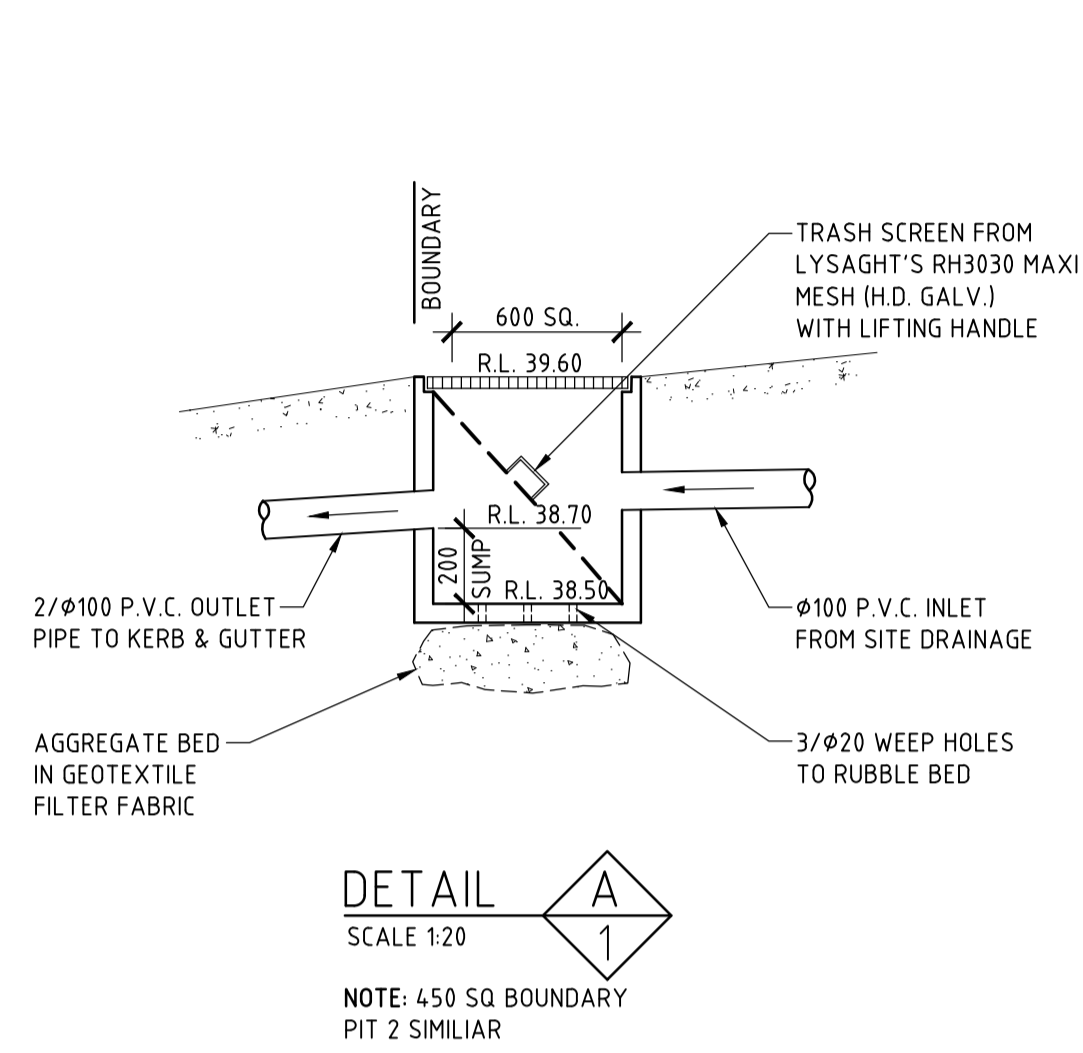
IMPERVIOUS AREA DRAINING TO OSD TANK = 493.1m²
PERVIOUS AREA DRAINING TO OSD TANK = 250.9m²
IMPERVIOUS AREA BYPASSING OSD TANK = 5.7m²
ORIFICE DIAM = 90 mm
SSR = 23.46m
TWL = 39.52m A.H.D.

ISSUE DATE	REVISION
1 MAY 2024	REVISED TO SUIT CLIENT COMMENTS
9 MAY 2024	REVISED TO SUIT ARBORIST COMMENTS
9 MAY 2024	ADDITIONAL TREES ADDED FOR CO-ORDINATION WITH ARBORIST

TITLE			
STORMWATER MANAGEMENT PLAN			
20 BEATTY STREET, BALGOWLAH HEIGHTS			
DRAWN	DATE	CHECKED	SCALE @ A1
LI	24 APRIL 2024	<i>[Signature]</i>	1:100
ENGINEER	JPL	BE Civil (Hons) MIE Aust.	

TAYLOR CONSULTING
CIVIL & STRUCTURAL ENGINEERS

STORM-1/C



ISSUE DATE	REVISION
1 MAY 2024	REVISED TO SUIT CLIENT COMMENTS

TITLE			
STORMWATER MANAGEMENT DETAILS 20 BEATTY STREET, BALGOWLAH HEIGHTS			
DRAWN	DATE	CHECKED	SCALE @ A1
L1	24 APRIL 2024	<i>JPL</i>	1:20 1:10
ENGINEER	JPL	BE Civil (Hons) MIE Aust.	

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DRAWING NO.
STORM-2/A