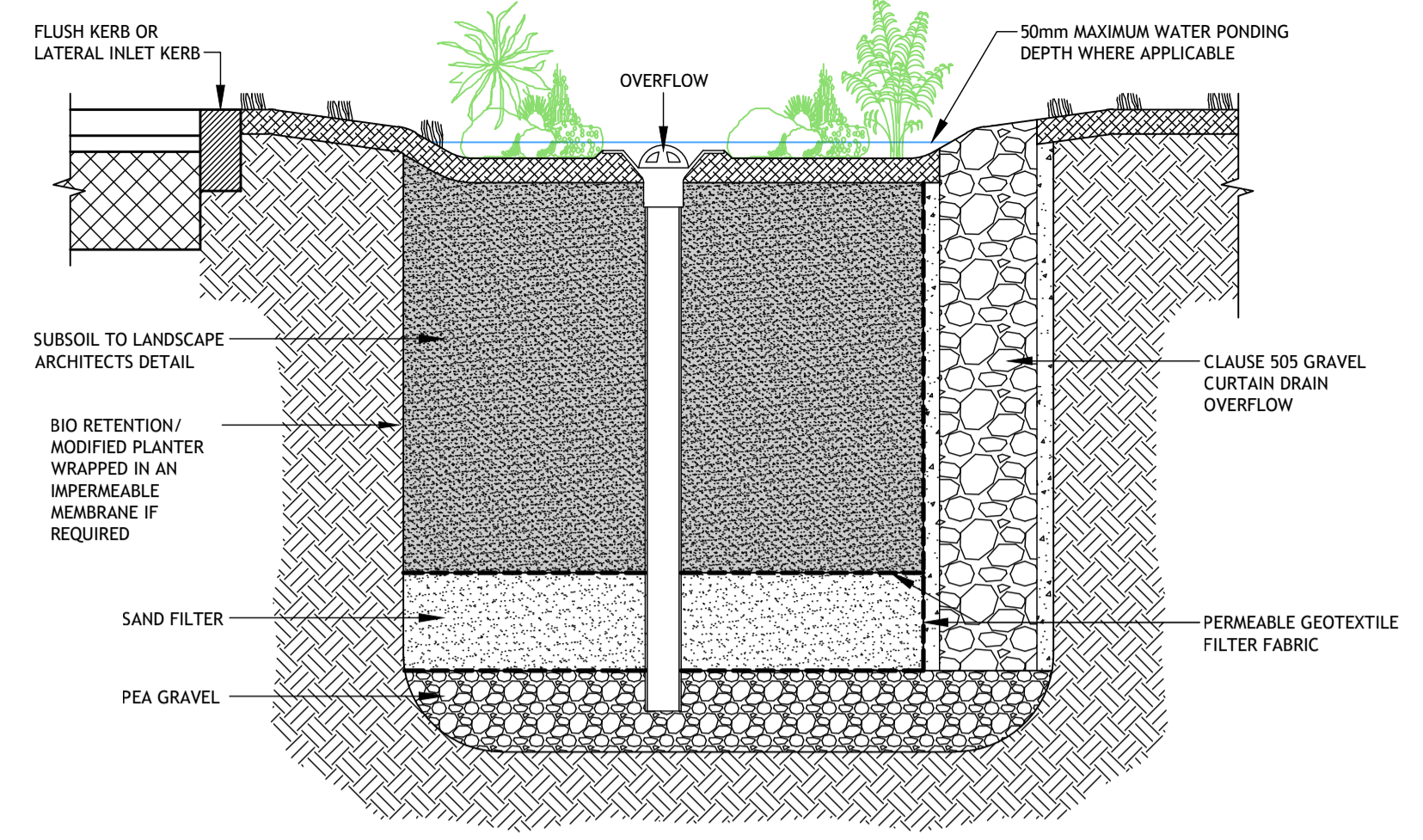
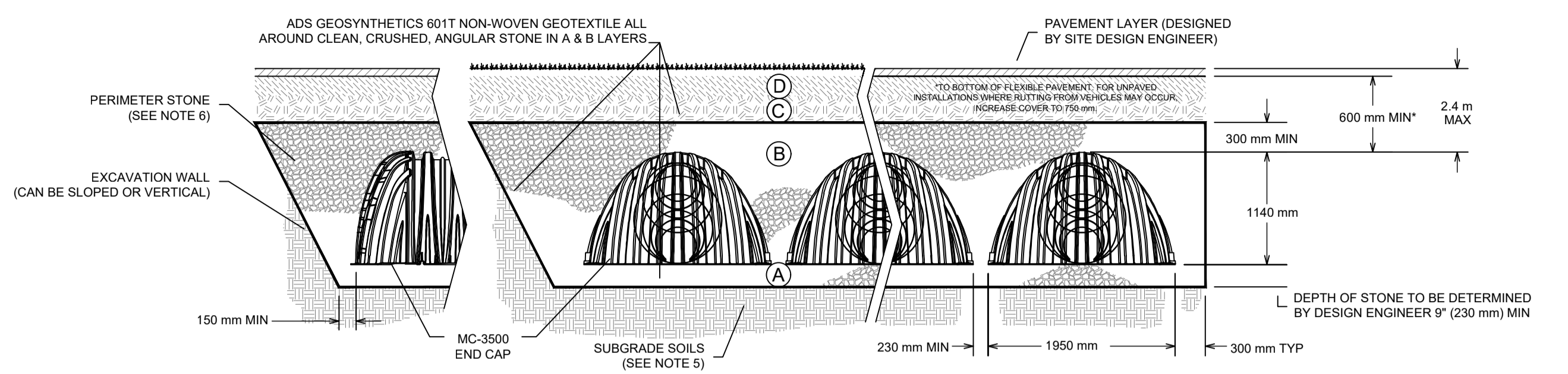


**TYPICAL SWALE DETAIL**  
NOT TO SCALE



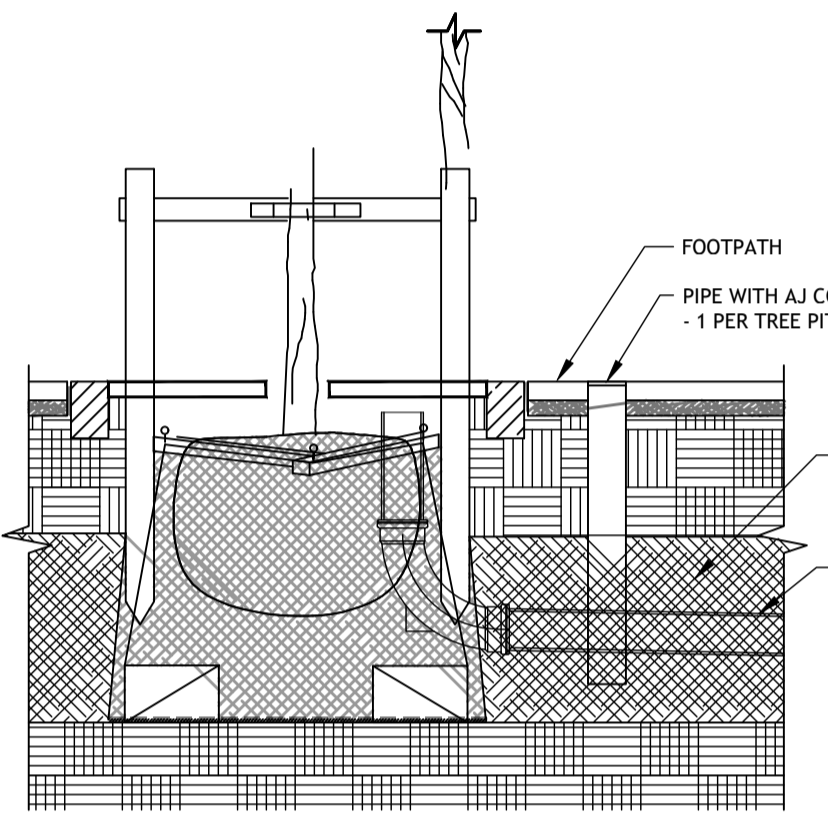
**BIO RETENTION / MODIFIED PLANTER DETAIL**  
NOT TO SCALE



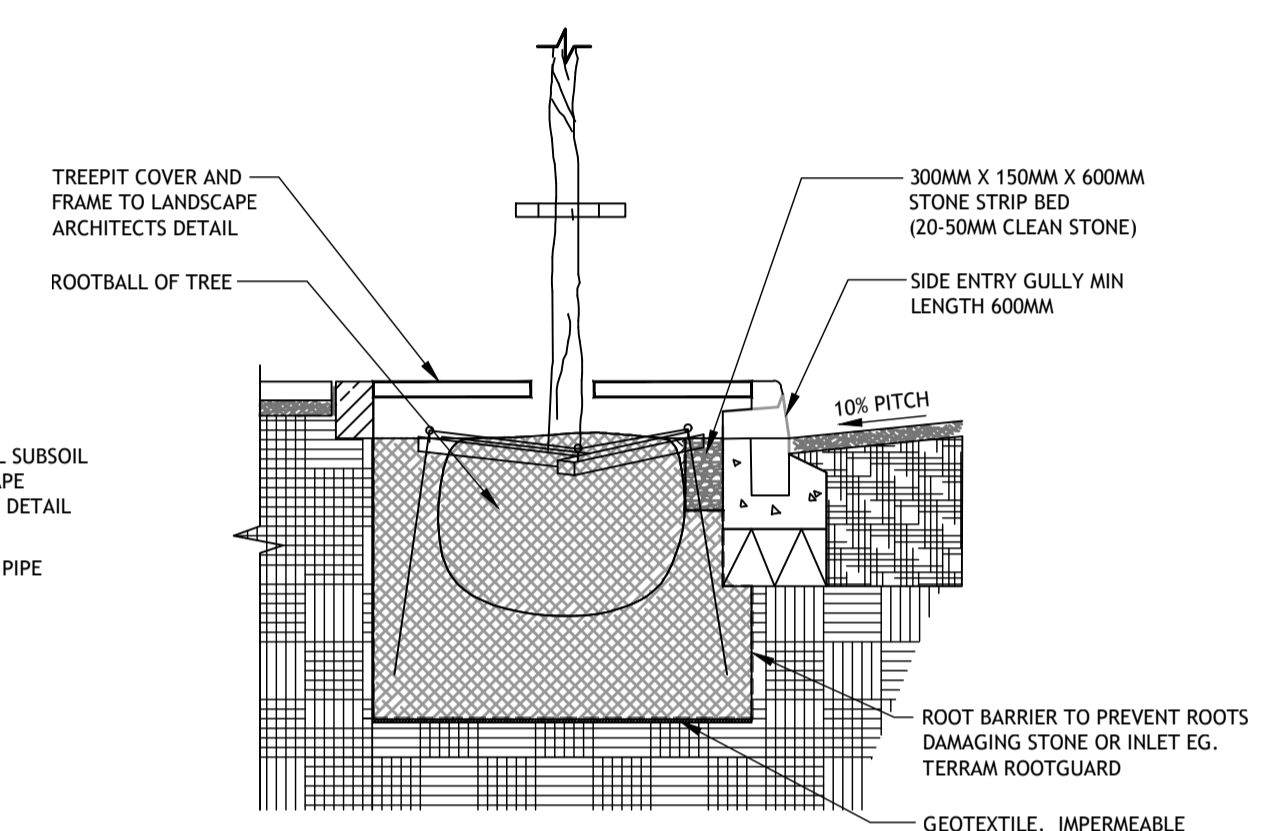
**NOTES:**

- MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

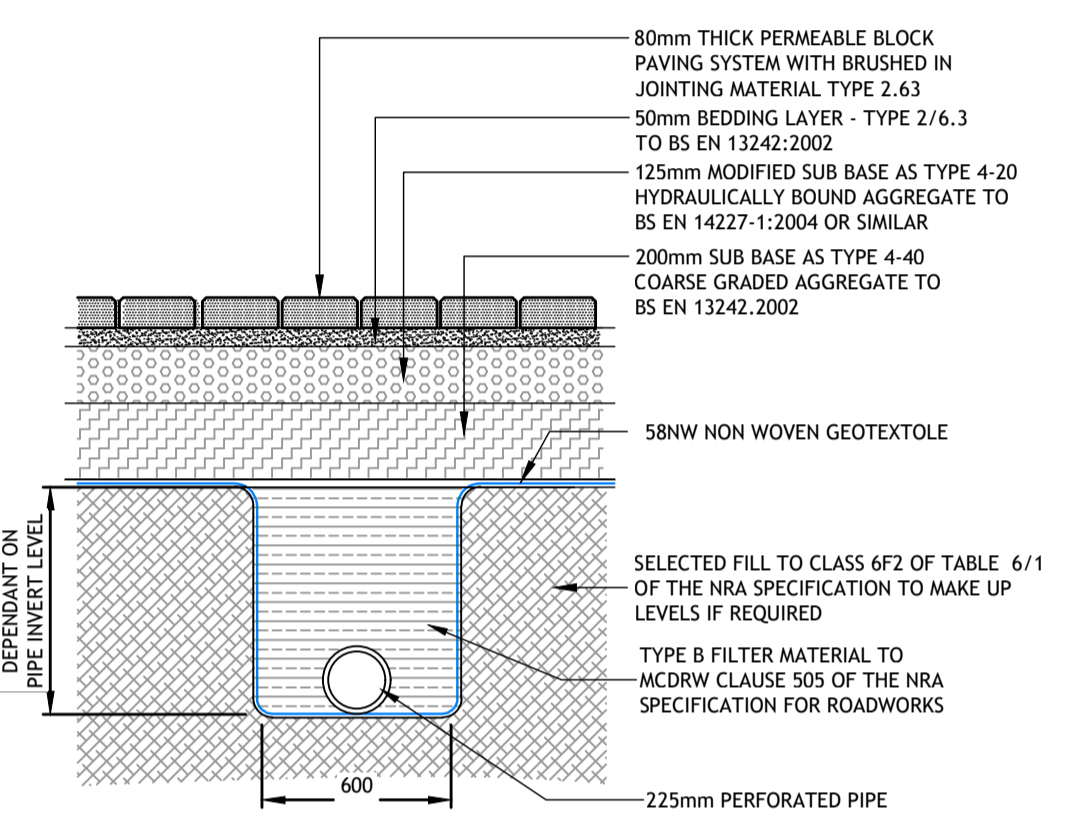
**STORMTECH STORAGE TANK DETAILS**  
N.T.S.



**TREE ROOT SYSTEM DETAIL**  
NOT TO SCALE



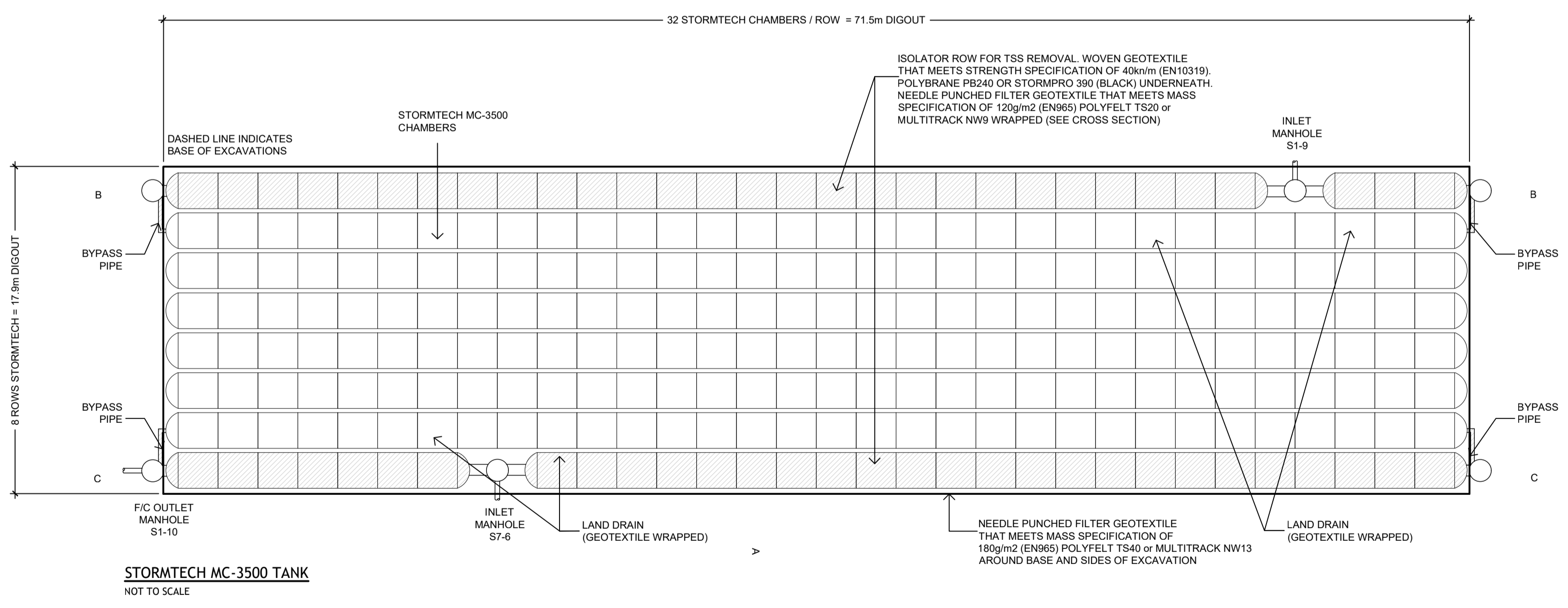
**TREE ROOT SYSTEM - CROSS SECTION**  
NOT TO SCALE



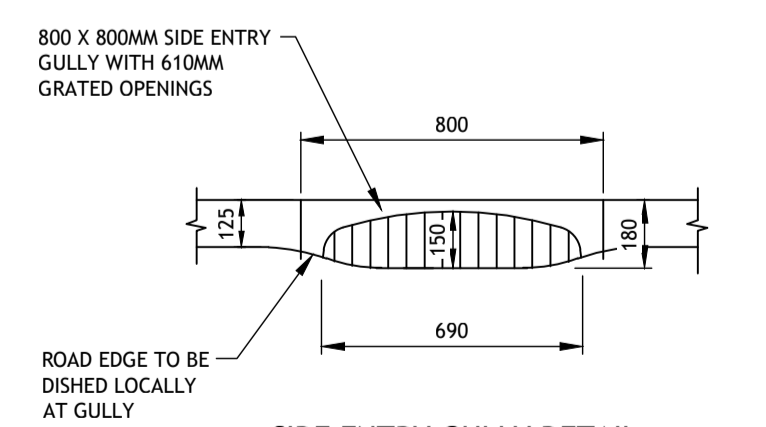
**TYPICAL SECTION THROUGH PERMEABLE PAVING WITH PERFORATED PIPELINE**  
SCALE 1:20

IRISH WATER WATERMAIN DETAILS		
Details Required	Drawing No.	Drawing Title
Y	STD-W-01	Water service connection responsibility
Y	STD-W-02	Typical layout for water mains within developments
Y	STD-W-03	Customer connection & boundary box
Y	STD-W-04	General pipe connections (sheet 1 of 7)
Y	STD-W-05	General pipe connections (sheet 2 of 7)
Y	STD-W-06	General pipe connections (sheet 3 of 7)
Y	STD-W-07	General pipe connections (sheet 4 of 7)
Y	STD-W-08	General pipe connections (sheet 5 of 7)
Y	STD-W-09	General pipe connections (sheet 6 of 7)
Y	STD-W-10	General pipe connections (sheet 7 of 7)
Y	STD-W-11	Typical service layout indicating separation distances
Y	STD-W-12	Restrictions on water infrastructure works adjacent to existing trees
Y	STD-W-12A	Restrictions on new trees / shrubs planting adjacent to watermains
Y	STD-W-13	Trench backfill & bedding
Y	STD-W-14	Sluice valve for ductile iron (D.I.) pipe (<350mm dia.) (sheet 1 of 2)
N	STD-W-15	Sluice valve for polyethylene (P.E.) pipe (<350mm dia.) (sheet 2 of 2)
Y	STD-W-16	On-line hydrant for ductile iron (D.I.) pipe (sheet 1 of 4)
N	STD-W-17	Off-line hydrant for ductile iron (D.I.) pipe (sheet 2 of 4)
Y	STD-W-18	On-line hydrant for polyethylene (P.E.) pipe (sheet 3 of 4)
N	STD-W-19	Off-line hydrant for polyethylene (P.E.) pipe (sheet 4 of 4)
N	STD-W-20	On-line air valve for ductile iron (D.I.) pipe (sheet 1 of 4)
N	STD-W-21	Off-line air valve for ductile iron (D.I.) pipe (sheet 2 of 4)
Y	STD-W-22	On-line air valve for polyethylene (P.E.) pipe (sheet 3 of 4)
N	STD-W-23	Off-line air valve for polyethylene (P.E.) pipe (sheet 4 of 4)
N	STD-W-24	Pressure reducing / sustaining valve (P.R.V. / P.S.V.) chamber
N	STD-W-25	Booster pump station arrangement
N	STD-W-26	Non Mech. Meter chamber (40 - 250mm dia.)
N	STD-W-26A	Mech. Meter chamber (40 - 250mm dia.)
Y	STD-W-27	Marker posts / plates
Y	STD-W-28	Water main thrust & support blocks
N	STD-W-29	Duct chamber
N	STD-W-30	Scour chamber & head wall arrangements
N	STD-W-30A	Washout hydrant
N	STD-W-31	Typical ditch / stream crossing for water main
N	STD-W-32	Typical bridge crossing for water main (sheet 1 of 2)
N	STD-W-33	Typical bridge crossing for water main (sheet 2 of 2)
N	STD-W-34	Security gate & fencing
N	STD-W-35	Pipe repair to existing mains
N	STD-W-36	Telemetry and wet kiosk
N	STD-W-37	Lamp bollard & lamp standard

IRISH WATER WASTER WATER STANDARD DETAILS		
Details Required	Drawing No.	Drawing Title
Y	STD-WW-01	Waste water service connection responsibility
Y	STD-WW-02	Typical layout for sewer within new developments
Y	STD-WW-03	Drain & service connection pipework
Y	STD-WW-04	Typical sewer / service pipe connection
Y	STD-WW-05	Typical service layout indicating separation distances
Y	STD-WW-06	Restrictions on wastewater infrastructure adjacent to trees
Y	STD-WW-06A	Restrictions on new trees/shrubs planting adjacent to sewers
Y	STD-WW-07	Trench backfill & bedding
Y	STD-WW-08	Concrete bed, haunch & surround to wastewater pipes
Y	STD-WW-09	Blockwork manhole (<450mm dia.)
Y	STD-WW-10	Pre-cast concrete manhole
Y	STD-WW-11	In-situ concrete manhole
Y	STD-WW-12	Backdrop manholes
Y	STD-WW-13	Private side inspection chamber
N	STD-WW-14	Thrust blocks for rising mains
N	STD-WW-15	Scour valve chamber (foul rising main <200mm dia.)
N	STD-WW-16	Sluice valve details for rising mains ductile iron (D.I.) pipe (<200mm dia.) (sheet 1 of 2)
N	STD-WW-17	Sluice valve details for rising mains ductile iron (D.I.) pipe (<200mm dia.) (sheet 2 of 2)
N	STD-WW-18	Air valve chamber (foul rising main <200mm dia.)
N	STD-WW-19	Duct chamber
N	STD-WW-20	Emergency overflow structure
N	STD-WW-21	Typical ditch/stream crossing for gravity main (sheet 1 of 2)
N	STD-WW-22	Typical ditch/stream crossing for gravity main (sheet 2 of 2)
N	STD-WW-23	Typical bridge crossing for rising main (sheet 1 of 2)
N	STD-WW-24	Typical bridge crossing for rising main (sheet 2 of 2)
N	STD-WW-25	Security gate & fencing
N	STD-WW-26	Indicative pumping station layout
N	STD-WW-27	Flow meter chamber (foul rising main <200mm dia.)
N	STD-WW-28	Indicative submersible pumping station
N	STD-WW-28A	Indicative pre-cast concrete submersible pumping station
N	STD-WW-29	Rising main discharge manhole
N	STD-WW-30	Kiosk type 1 pumping station & wet kiosk (sheet 1 of 2)
N	STD-WW-31	Kiosk type 2 + 3 pumping station & wet kiosk (sheet 2 of 2)
N	STD-WW-32	Hardstanding area pumping station (permeable & impermeable)
N	STD-WW-33	Lamp bollard & lamp standard
Y	STD-WW-34	Vent stack



**STORMTECH MC-3500 TANK**  
NOT TO SCALE



**SIDE ENTRY GULLY DETAIL**  
SCALE 1:20