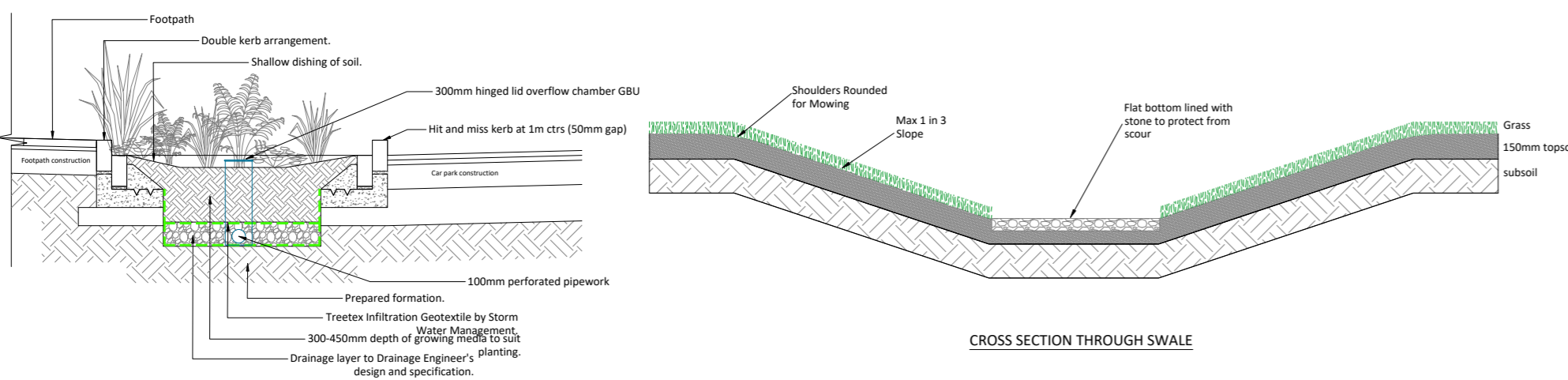
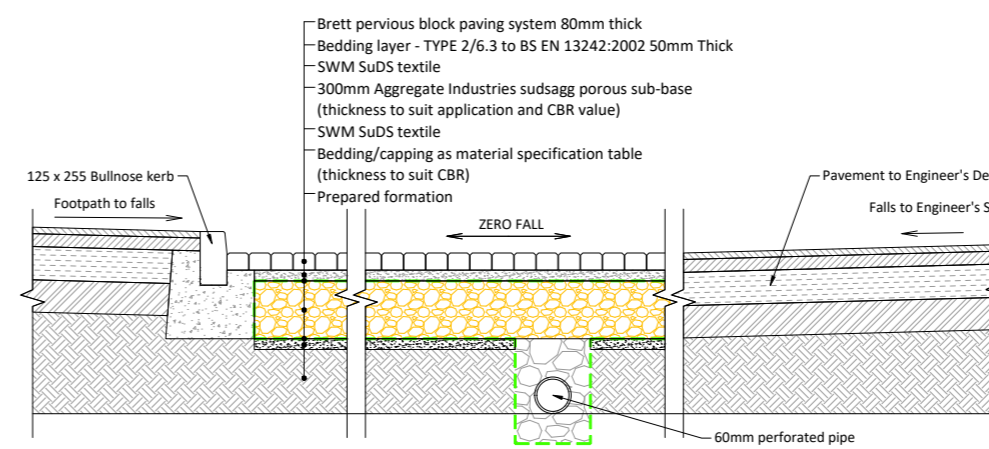


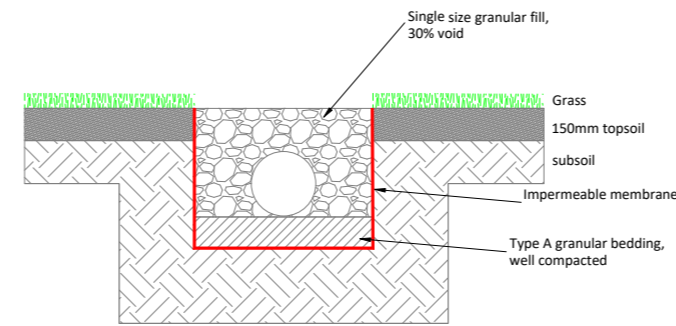
**TYPICAL DETAILS FOR BIORETENTION (RAIN GARDEN)**



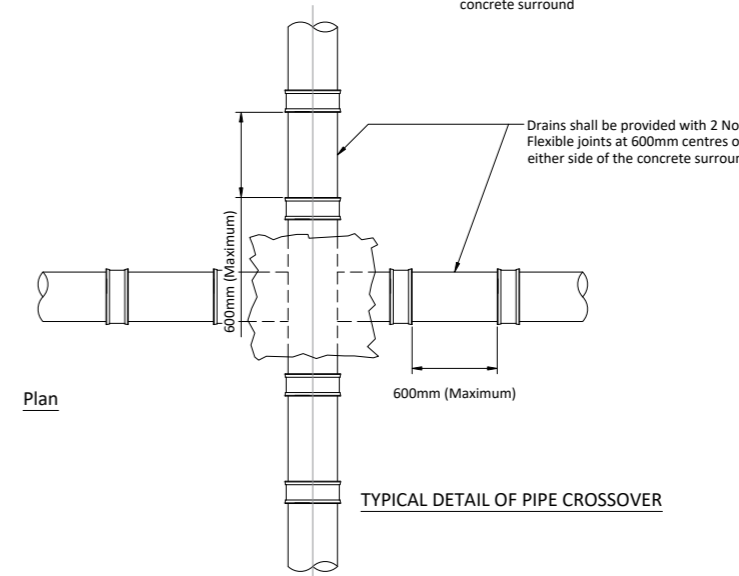
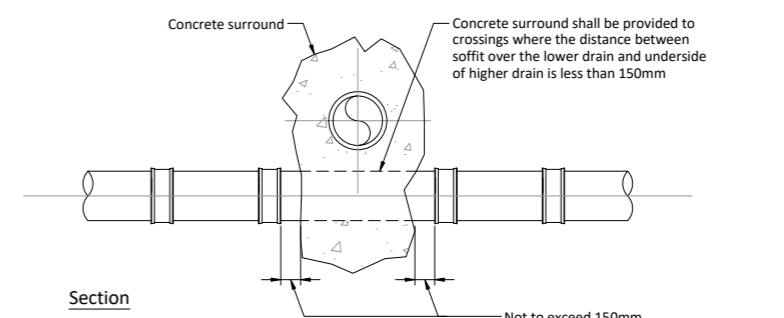
**CROSS SECTION THROUGH SWALE**



**TYPICAL SECTION THROUGH PAVEMENT WITH OPEN GRADED SUB-BASE AND COLLECTOR DRAIN**



**CROSS SECTION THROUGH FILTER DRAIN (1:10)**



**TYPICAL DETAIL OF PIPE CROSSOVER**

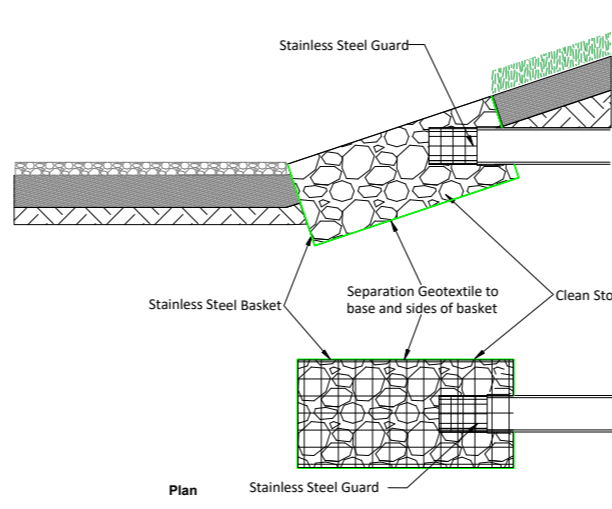
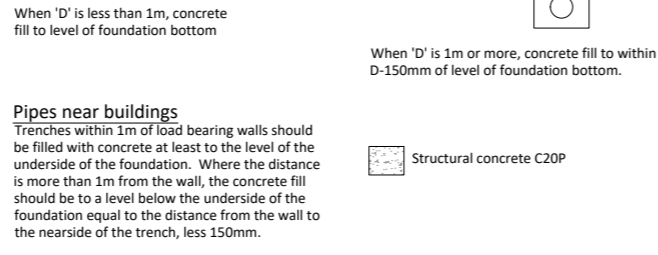
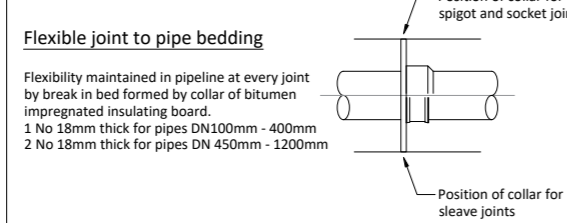
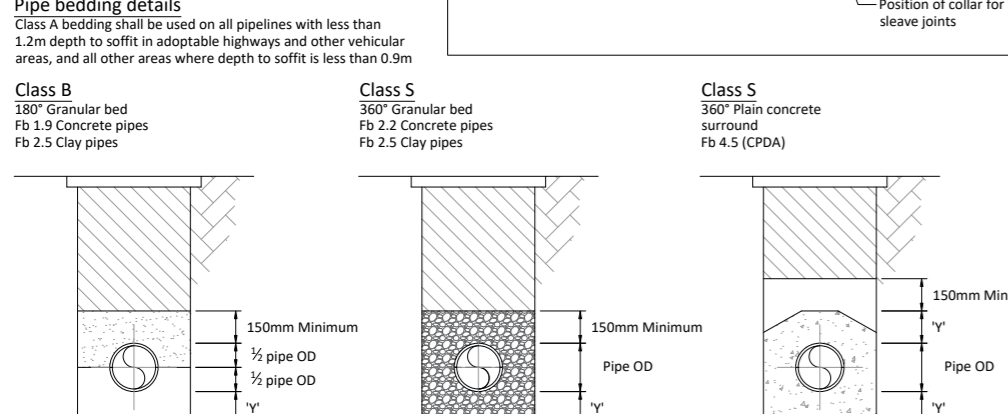
**Table of aggregate sizes for pipe bedding**  
For rigid pipe materials only

Pipe diameter	Alternative aggregate sizes		Aggregate material
	Single size	Graded	
100Ø	10mm	Not suitable	Natural aggregate
150Ø	10mm or 14mm	14mm - 5	To BS 882
225Ø - 450Ø	10mm or 14mm or 20mm	14mm - 5 or 20mm - 5	Either crushed or as dug
500Ø and above	14mm or 20mm	14mm - 5 or 20mm - 5 or 40 - 5	Must be crushed stone

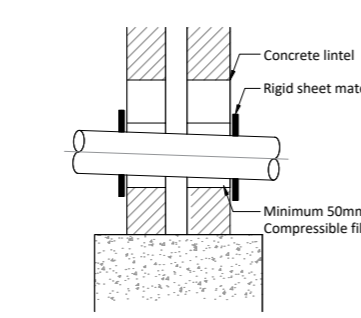
**Table 1**  
Capping layer & sub base thickness

CBR (%)	Sub-base thickness
< 2%	610mm
2%	420mm
2.5%	370mm
3%	310mm
4%	300mm (Minimum)

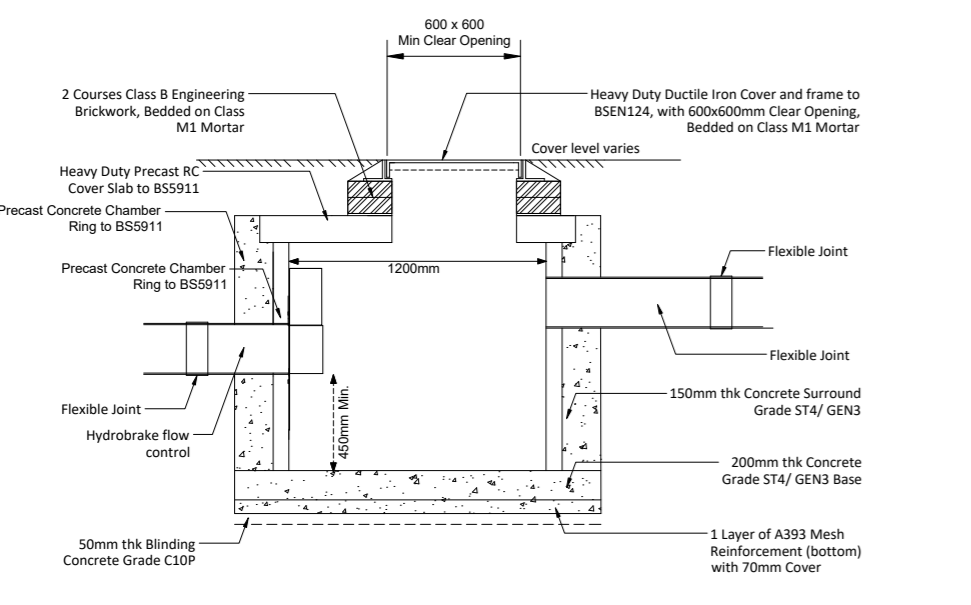
**Pipe bedding details**  
Class A bedding shall be used on all pipelines with less than 1.2m depth to soffit in adoptable highways and other vehicular areas, and all other areas where depth to soffit is less than 0.9m



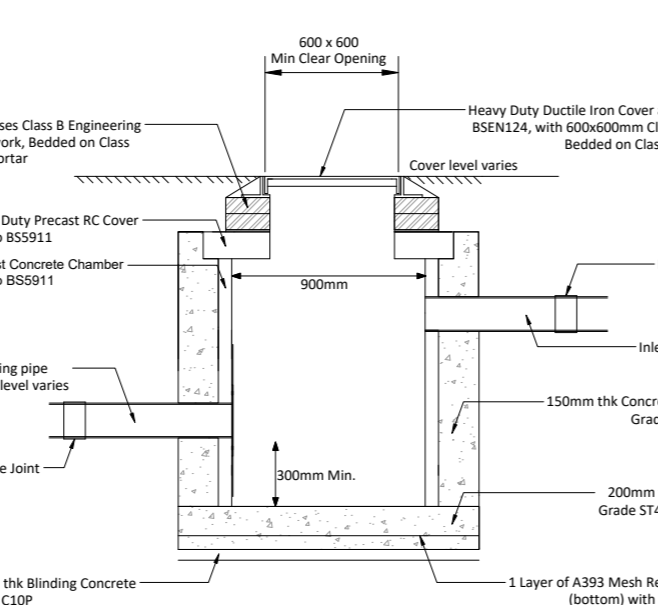
**BASKETED DIFFUSER OUTLET DETAIL - SWALE**



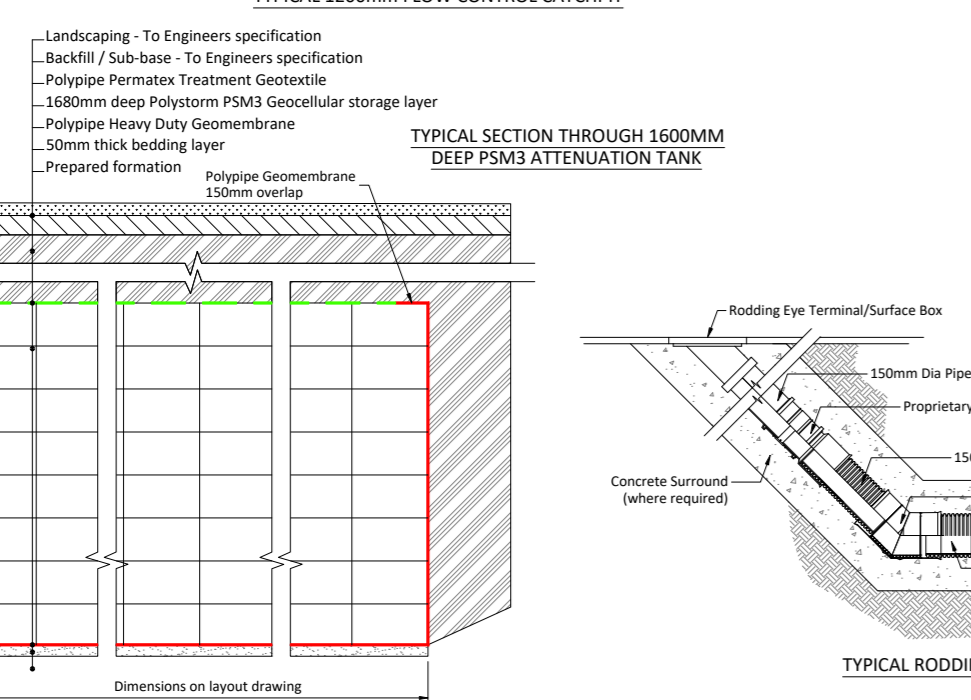
**DRAIN PENETRATING THROUGH WALLS**



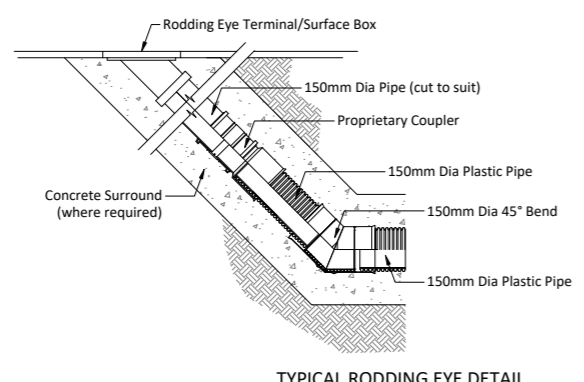
**TYPICAL 1200mm FLOW CONTROL CATCHPIT**



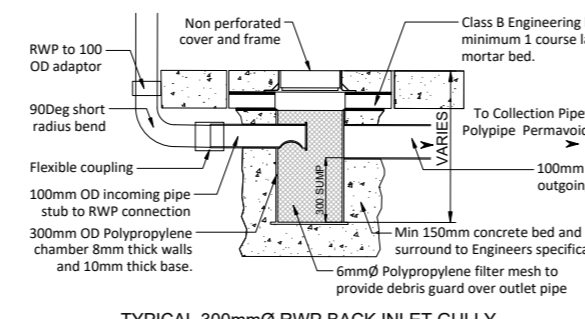
**900Ø CATCHPIT INSPECTION CHAMBER (750Ø Similar) SUMP REQUIRED ON SURFACE WATER NETWORK ONLY**



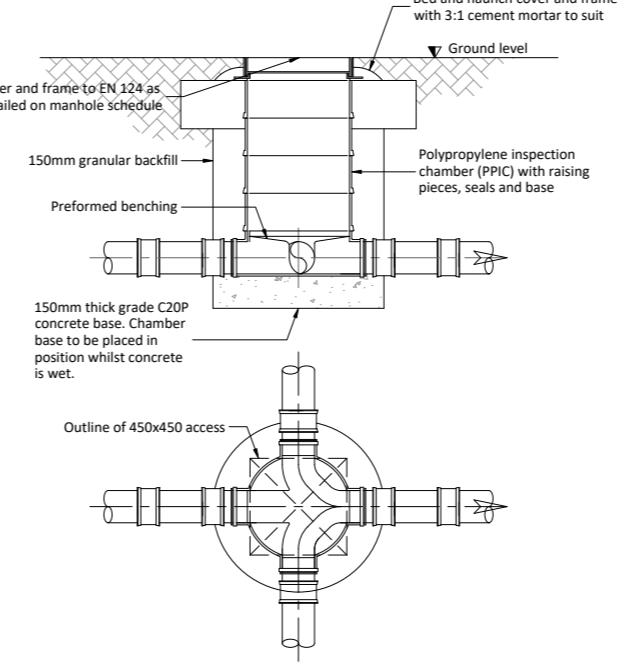
**TYPICAL SECTION THROUGH 1600MM DEEP PSM3 ATTENUATION TANK**



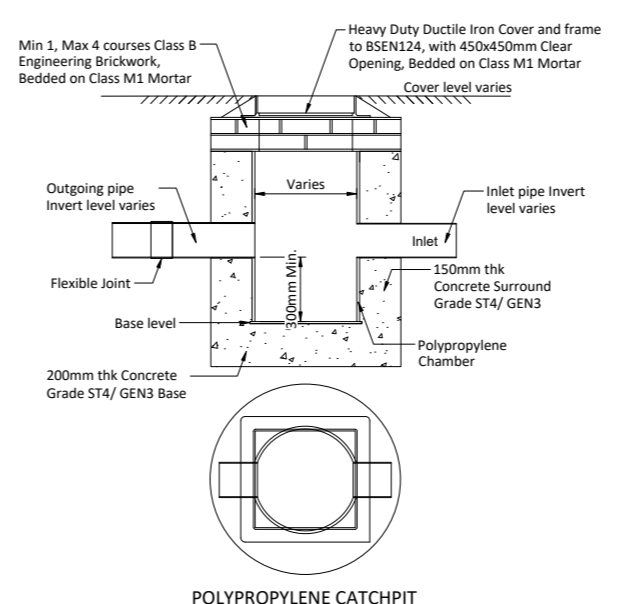
**TYPICAL RODDING EYE DETAIL**



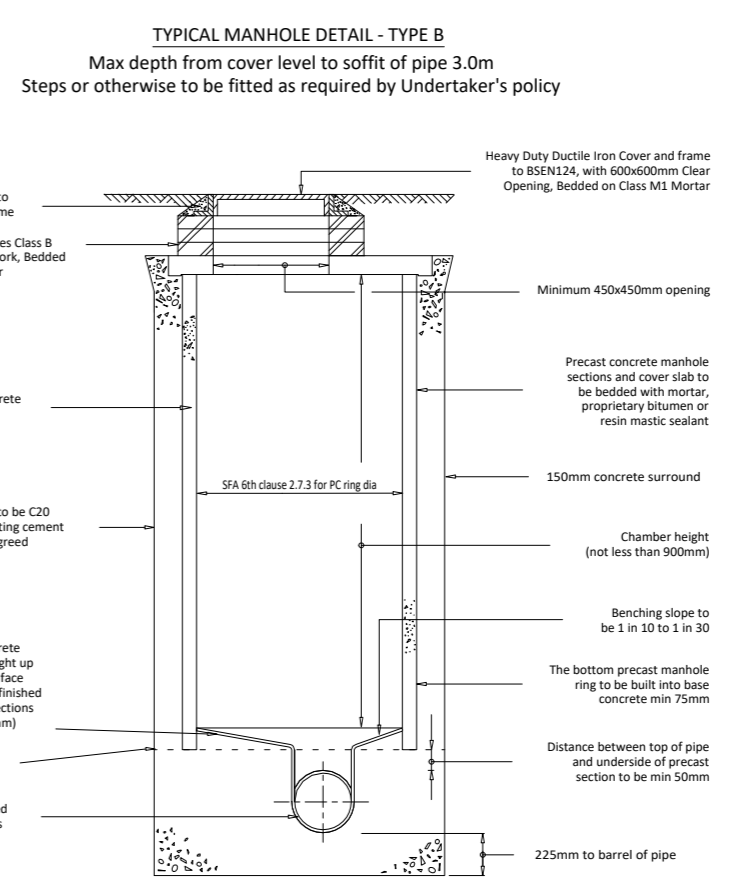
**TYPICAL 300mmØ RWP BACK INLET GULLY**



**DETAIL OF 500mm/600mm POLYPROPYLENE INSPECTION CHAMBER MAXIMUM DEPTH TO SOFFIT 1.20m MANHOLE TYPE A**



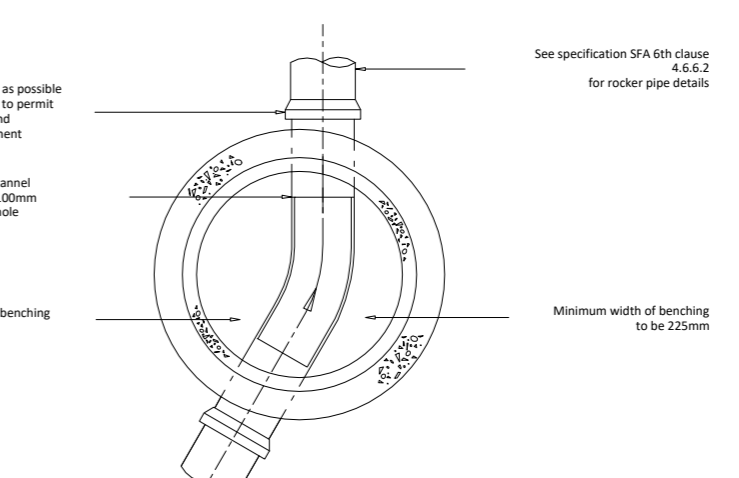
**POLYPROPYLENE CATCHPIT INSPECTION CHAMBER**



**TYPICAL MANHOLE DETAIL - TYPE B**

**Max depth from cover level to soffit of pipe 3.0m**

**Steps or otherwise to be fitted as required by Undertaker's policy**



- Notes:**
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
  - This drawing is to be read in conjunction with all relevant Architect's, Engineer's and Specialist's drawings and their respective specification.
  - All work to comply with relevant British Standards, Codes of practice and the Building Regulations.
  - Any discrepancies between all working drawings, specifications and schedules of all disciplines to be immediately notified to main contractor for clarification/correction prior to construction of relevant structure.
  - All cover levels are indicative only and shall match Architects proposed levels. Invert levels to be confirmed on site prior to work commencing.
  - All areas of excavation are to be scanned and marked for existing services prior to any excavation.
  - Branch connections to PPIC's have been assumed 50mm higher than the main channel.
  - All connections from RWP to be 160mmØ unless noted otherwise.
  - For the location of all RWP's and SVP's refer to Architects drawings.
  - Stormwater attenuation system shall be Polypipe-Polystyrene pre-formed modular geocellular units with minimum 54% volumetric void ratio and minimum 52% effective perforated surface area. Units shall be installed using locking ties to maintain rigidity and minimise deflection. Geocellular units to be fully encapsulated with Heavy duty geotextile protection fleece and impermeable membrane.
  - Heavy duty geotextile fleece to be non-woven needle-punched polypropylene as per Specification. Geotextile to be laid with minimum 300mm overlaps and to be applied to all external surfaces of Polypipe-Permavoid drainage units. To be installed in accordance with the manufacturer's recommendations.
  - Waterproof geomembrane to be single layer cold applied robust welded flexible membrane as per Specification suitable for waterproofing to structure and for water containment. Membrane to be nominal 1mm thick laid with minimum 150mm laps and welded seams. To be installed in accordance with the manufacturer's recommendations under and approved COA protocol that includes testing of the welds.
  - Linear drainage channel to be ACO S or MD range with sump assemblies.
  - Oil bypass separators to be Kingspan Klargester as noted on drawing.
  - All dimensions are in millimeters unless noted otherwise.
  - Pre-cast concrete products shall comply with the relevant provisions of BS 5911 and be 'Kite Marked'.
  - All pipes and pipe fittings shall be HDPE twinwall and have current British Board of Agreement Certification.
  - Manhole covers and frames, grids and frames shall comply with the relevant provisions of BS EN 124.
  - Do not scale from this drawing. If in doubt ask.
  - This drawing to be read in conjunction with all relevant PEL, Architects & Engineers drawings.
  - Should there be any conflict between the details indicated on this drawing and those on other drawings the Engineer should be informed PRIOR to construction on site.
  - All times the works are to be executed in accordance with the requirements of the Health and Safety at Work Act 1974 and CDM Regulations 2015.
  - Until technical approval has been obtained from the relevant Authority, It should be understood that all drawings are **PRELIMINARY and NOT FOR CONSTRUCTION.**

NO	REV	DATE	REVISION HISTORY	DRW	CHK	APP
53	PO1	04.07.25	First Issue	JR	JR	JR

ALL REVISIONS	CLIENT
	<b>EDEN PLANNING</b>

KEY PLAN



DRAWING TITLE
<b>SURFACE WATER DRAINAGE DETAILS</b> <b>ALSTON DAIRY EXTENSION</b>

Name	Signature	Date
Designed by	JR	01/07/2025
Drawn by	JR	01/07/2025
Checked	RG	01/07/2025
Approved	JR	01/07/2025

PROJECT	ISSUER	VOLUME	LEVEL	TYPE	ROLE	NUMBER	REV
PN0259		XX	XX	DR	Y	00002	PO1