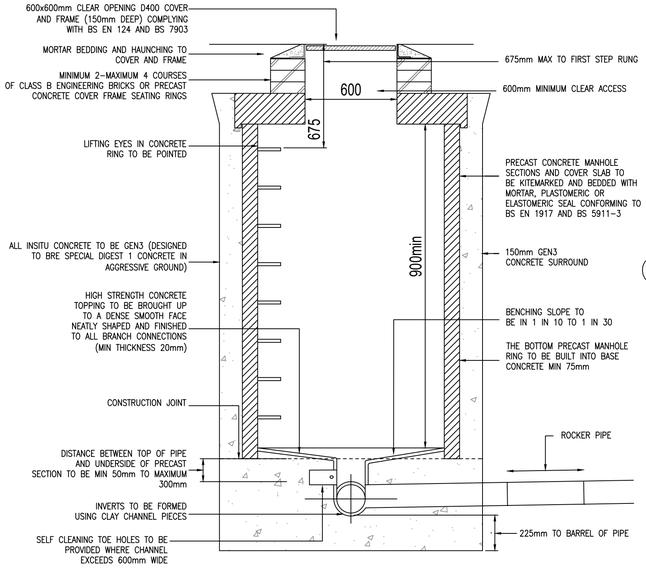
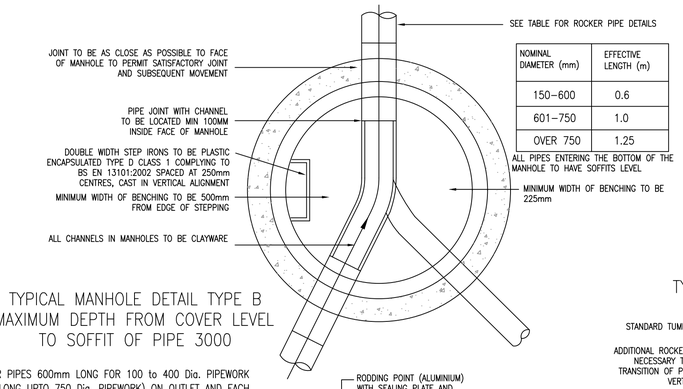
YWS REF: H-3-264-***



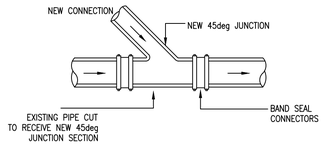
TYPICAL MANHOLE DETAIL TYPE B
MAXIMUM DEPTH FROM COVER LEVEL
TO SOFFIT OF PIPE 3000



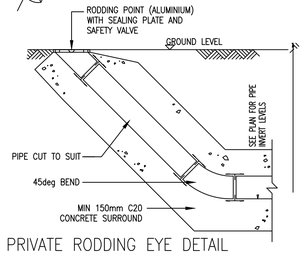
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH (m)
150–600	0.6
601–750	1.0
OVER 750	1.25

ALL PIPES ENTERING THE BOTTOM OF THE MANHOLE TO HAVE SOFFITS LEVEL

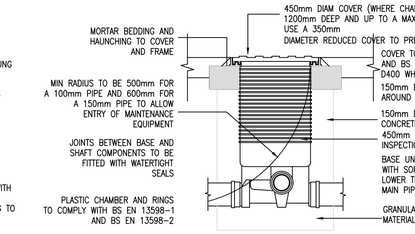
1. ROCKER PIPES 600mm LONG FOR 100 to 400 Dia. PIPEWORK (1000 LONG UPTO 750 Dia. PIPEWORK) ON OUTLET AND EACH ENTRY STARTING 150mm FROM CONCRETE SURROUND.
2. FOR CHAMBERS DEEPER THAN 3000mm STEP IRONS TO BE REPLACED WITH GALVANISED LADDER TO B.S.4211 AND 729



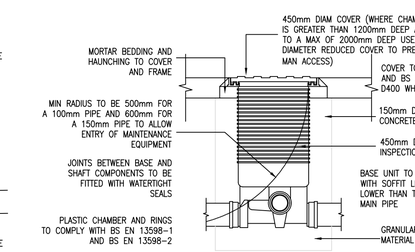
PRIVATE BRANCH INSERTION DETAIL



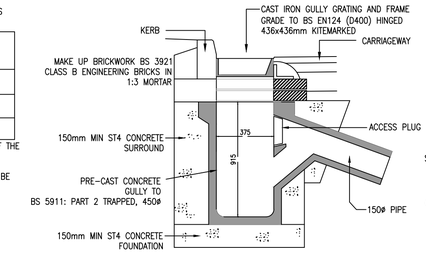
PRIVATE RODDING EYE DETAIL



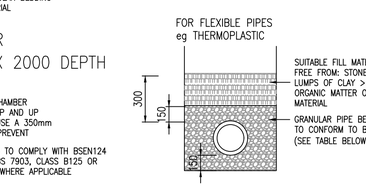
POLYPROPYLENE INSPECTION CHAMBER
(WHERE SITED IN DRIVEWAYS/PAVED AREAS) – MAX 2000 DEPTH



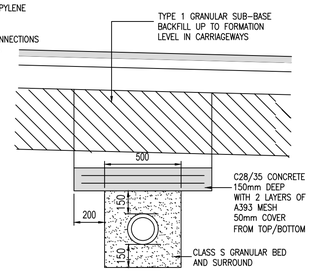
POLYPROPYLENE INSPECTION CHAMBER
(WHERE SITED IN GARDENS) – MAX 2000 DEPTH



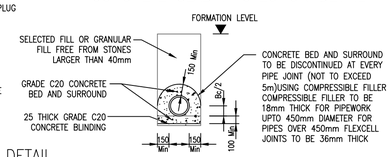
TYPICAL PRIVATE PRECAST CONCRETE ROAD GULLY DETAIL



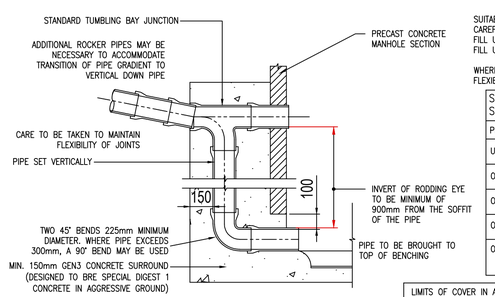
CLASS S BEDDING DETAIL



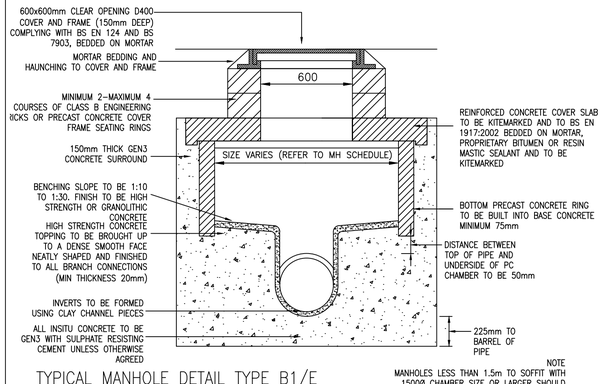
CONCRETE SLAB PROTECTION DETAIL



PRIVATE CLASS Z BEDDING DETAIL



TYPICAL EXTERNAL
VERTICAL BACKDROP
DETAIL



TYPICAL MANHOLE DETAIL TYPE B1/E
MAXIMUM DEPTH FROM COVER LEVEL
TO SOFFIT OF PIPE <1500

NOTE
MANHOLES LESS THAN 1.5m TO SOFFIT WITH 1500Ø CHAMBER SIZE OR LARGER SHOULD HAVE A 1200x675mm OPENING (CENTRAL OR ECCENTRIC) SITED OVER CHANNEL WITH DOUBLE TWIN 600x600mm COVERS

PRODUCT NAME	DIAMETER (mm)	MANUFACTURER	MATERIAL
Supersleve	100&150 (I.D)	Hepworth	Vitrified Clay
Superseal	100&225 (I.D)	Hepworth	Vitrified Clay
Densleeve	100,150&225 (I.D)	Naylor	Vitrified Clay
Denseal	100,150&225 (I.D)	Naylor	Vitrified Clay
Ultra-Drain	110&160 (O.D)	Uponor	uPVC
Plastidrain	110&160 (O.D)	Hepworth	uPVC
Osmadrain	110&160 (O.D)	Wavin	uPVC
Osma Ultrarib	150&225 (I.D)	Wavin	uPVC
Solid Wall	110&160 (O.D)	Marley	uPVC
Quantum	150&225 (I.D)	Marley	uPVC
Underground Drain	110&160 (O.D)	Polypipe	uPVC
Ridgisewer	150&225 (I.D)	Polypipe	uPVC

MANUFACTURER	PRODUCT NAME	MATERIAL	MAX DEPTH
Naylor	Plastic Inspection Chamber	Polypropylene	Up to 1200mm
Hepworth	PPIC	Polypropylene	Up to 1200mm
Uponor	Inspection Chamber (450mmø)	Polypropylene	Up to 1200mm
Marshalls	Inspection Chamber To BS5911 pt2	Precast concrete	Up to 1000mm
Wavin	Osma Ultrarib Inspection Chamber	Polypropylene	Up to 1200mm
Wavin	OsmaDrain Universal Inspection Chamber	Polypropylene	Up to 1200mm
Wavin	Non Entry Inspection Chamber	Polypropylene	Up to 2000mm
Marley	Inspection Chamber (450mmø)	Polypropylene	Up to 1200mm
Polypipe	110mm Inspection Chamber (460mmø)	Polypropylene	Up to 1200mm

SUITABLE FILL:– THE SUITABLE FILL SHALL BE SUITABLE FOR THE LOCATION AND SHALL BE CAREFULLY COMPACTED TO PROVIDE STABILITY WITHOUT DAMAGING THE PIPE.
FILL UNDER CAR PARKING AREAS AND PRIVATE ROADS TO BE WELL COMPACTED GRADED MATERIAL.
FILL UNDER ADOPTED ROADS TO BE TYPE 1 GRANULAR SUB-BASE.

WHERE THE PIPES ARE TO BE ADOPTED CLASS S BEDDING TO BE USED FOR EITHER RIGID OR FLEXIBLE PIPES

SIZE OF BEDDING MATERIAL – ALL GRANULAR MATERIAL TO BE SINGLE SIZED OR GRADED		
PIPE DIAMETER	NOMINAL SINGLE SIZED	GRADED
UP TO 100mm	10mm	5mm to 10mm
OVER 100mm TO 150mm	10mm or 14mm	5mm to 14mm
OVER 150mm TO 300mm	10mm,14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 300mm TO 550mm	14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 550mm	14mm, 20mm or 40mm	5mm to 14mm or 5mm to 20mm or 5mm to 40mm

LIMITS OF COVER IN ANY WIDTH OF TRENCH			
NOMINAL SIZE	LAID IN FIELDS	LAID IN LIGHT ROADS	LAID IN MAIN ROADS
CLASS 120 CLAYWARE PIPES (CLASS B BEDDING)			
100–150mm	0.6m – 8.0m	1.2m – 8.0m	1.2m – 8.0m
225mm	0.6m – 5.0m	1.2m – 5.0m	1.2m – 4.5m
400mm	0.6m – 4.5m	1.2m – 4.5m	1.2m – 4.0m
600mm	0.6m – 4.5m	1.2m – 4.5m	1.2m – 4.0m
CLASS M CONCRETE PIPES (CLASS B BEDDING)			
300mm	0.6m – 3.0m	1.2m – 3.0m	1.2m – 2.5m
450mm	0.6m – 3.5m	1.2m – 3.5m	1.2m – 2.5m
600mm	0.6m – 3.5m	1.2m – 3.5m	1.2m – 3.0m
THERMOPLASTIC PIPES (CLASS S BEDDING)			
100 – 300mm	0.6m – 7.0m	0.9m – 7.0m	0.9m – 7.0m

WHERE COVER IS LESS THAN THE ALLOWABLE DEPTH PIPES TO HAVE A CLASS Z CONCRETE SURROUND OR CONCRETE COVER SLAB PROTECTION

CONCRETE PROTECTION	
CLASS 1 SULPHATE CONDITIONS	
ADOPTABLE STANDARDS AND AREAS SUBJECT TO HEAVY LOADING	GEN3 OR GEN 3
AREAS SUBJECT TO LIGHT LOADING eg. PRIVATE DRIVES, SMALL CAR PARKS	GEN1 OR ST2
FOR BURIED CONCRETE EXPOSED TO SULPHATE CONDITIONS	
CLASS 2	FND 2
CLASS 3	FND 3
CLASS 4A	FND 4A
CLASS 4B	FND 4B

DRAINAGE NOTES
1. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BRITISH/EUROPEAN STANDARDS BSEN752 (SUPERSEDING BS:8301 "BUILDING DRAINAGE"), THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL OR NHBC SPECIFICATIONS AND REQUIREMENTS.

2. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 6TH EDITION, THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE ELECTRICAL AND MECHANICAL SPECIFICATION AND KITEMARKED.

3. INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 4027, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.

4. PRECAST CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 5911-PART 200. PRECAST CONCRETE RINGS AND COVER SLABS TO CONCRETE PIPES TO BE CLASS H AND BE JOINTED WITH CEMENT MORTAR UNLESS NOTED OTHERWISE.

5. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.

GENERAL NOTES
1.1. THIS DRAWING IS COPYRIGHT AND SHOULD NOT BE REPRODUCED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF PATRICK PARSONS LTD.
1.2 DO NOT SCALE FROM THIS DRAWING.
1.3. LOCATIONS OF ALL EXISTING SERVICES ON-SITE TO BE CONFIRMED & PROVIDED TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
1.4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT PATRICK PARSONS LTD DRAWINGS & SPECIFICATIONS.

DRAINAGE NOTES
6. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTOR. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm X 600mm FOR THE YORKSHIRE WATER SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

7. MANHOLE COVERS AND FRAMES SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.

8. MANHOLE COVERS AND FRAMES WILL BE OF A NON-ROCKING DESIGN WITHOUT CUSHION INSERTS. LOAD CLASS D400 IN VEHICULAR TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS AND PEDESTRIAN AREAS. ALL COVERS TO BE BADGED "FW" OR "SW" AS APPROPRIATE. MANHOLE COVER SLABS AND ACCESS TO BE IN ACCORDANCE WITH CONCRETE PIPE ASSOCIATION TECHNICAL BULLETIN ISSUED SEPTEMBER 2001.

9. WHERE THERE IS LESS THAN 1.8m HEADROOM IN MANHOLES AND THE MANHOLE DIAMETER >1.2m, COVER AND FRAME TO BE HEAVY DUTY TWIN 600x600mm DOUBLE TRIANGULAR COVERS, WITH A CLEAR ACCESS OPENING OF 1220x675mm.

10. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS REGULARLY CARRYING FAST MOVING HEAVY VEHICLES, CLASS C250 TO BE USED IN LESSER TRAFFICKED AREAS eg. ESTATE ROADS, CUL-DE-SACS, RESIDENTIAL CAR PARKING AREAS ETC. TYPE D400-450 GRATE AND FRAME. MINIMUM AREA OF WATERWAY TO BE 1010cm². TYPE C250-450 GRATE AND FRAME. MINIMUM AREA OF WATERWAY TO BE 900cm².

11. SEWERS TO BE LAID IN CLASS 'S' BEDDING (150mm GRANULAR BED & SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED & SURROUND.

12. INTERNAL PIPE RUNS TO BE LAID WITH A CONCRETE BED AND SURROUND.

13. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40mm. TREE ROOTS, ORGANIC MATTER AND FROZEN SOIL. ALTERNATIVELY CLASS 6F1 CAPPING LAYER CAN BE USED.

14. GENERAL BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF NOTE 13 AND SHALL BE PLACED IN LAYERS NOT EXCEEDING 150mm, EACH LAYER TO BE WELL COMPACTED TO FORM A SUITABLE TRENCH BACKFILL. ALTERNATIVELY CLASS 6F1 CAPPING LAYER CAN BE USED.

15. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.

16. BACKFILL AND REINSTATEMENT TO TRENCHES IN HIGHWAYS TO BE IN ACCORDANCE WITH "THE STREET WORKS REGULATIONS - 1992" AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.

17. YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN/LAND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR IN-DIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION WITH REGARD TO THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN-OFF.

18. ALL DIMENSIONS INDICATED ARE MINIMUM.

19. ALL DRAINAGE WORK TO COMMENCE AT OUTFALL AND PROCEED UPSTREAM.

20. ALL DRAINAGE GOODS SHALL BE KITE MARKED.

21. FOR SANITARY PIPEWORK VENTILATION REQUIREMENTS, PLEASE REFER TO PAGES 8-10 OF PART H OF THE BUILDING REGULATIONS.

22. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.

23. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.

24. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.

25. "SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES (PLEASE ALSO REFER TO FIGURE 2.3 ON PAGE 33 IN "SEWERS FOR ADOPTION" 6TH EDITION FOR RESTRICTIONS ON TREE PLANTING ADJACENT TO SEWERS)".

26. SEWERS TO BE LAID IN CLASS "S" BEDDING (150MM GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDE ABOVE GRANULAR BED AND SURROUND.

27. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).

28. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.

29. YORKSHIRE WATER POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES AND 1050mm DIA MANHOLE RINGS. INSTEAD IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200mm DIA OR 1500mm DIA RINGS, WITH THE OPENING SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1 - 1.5m.

Rev.	Date	By
P2	DETAILS AMENDED TO SUIT YWS LATEST REQUIREMENTS	30.05.18	TB
P1	INITIAL ISSUE	05.04.17	GW

Revisions

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Client
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Project
SAUNDERSON ROAD
PENISTONE

Drawing
TYPICAL DRAINAGE DETAILS

Scales 1:20 At original size A1

Drawn TB Checked TE
Date MAR 2018

Status PRELIMINARY

Drawing No. N16417-236 Rev. P2