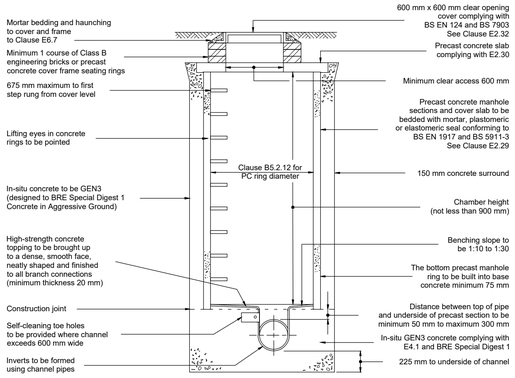
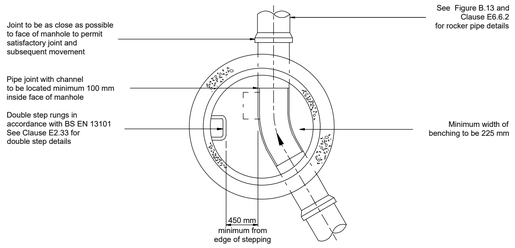
FIGURE B 10
TYPICAL MANHOLE DETAIL - TYPE B

Depth from cover level to soffit of pipe 1.5m to 3.0 m

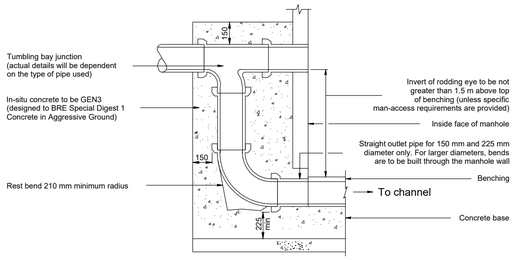




Not to scale

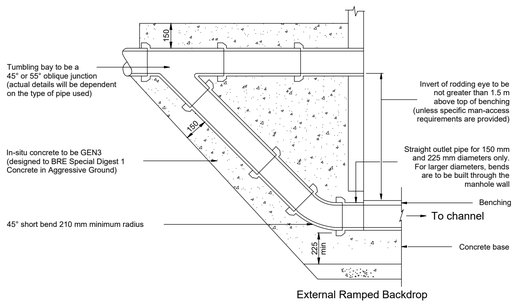
FIGURE B 16
TYPICAL VERTICAL AND RAMPED BACKDROP DETAIL

Note: Steeper gradients are preferred to the use of backdrops.
Type of backdrop to be used to be agreed with Undertaker.



External Vertical Backdrop

The minimum backdrop height shall be 1.0 m



External Ramped Backdrop

Not to scale, dimensions in millimetres

FIGURE B 26
CONNECTIONS TO SEWER

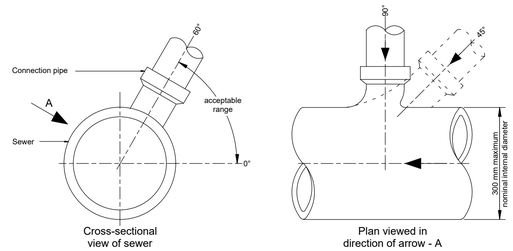
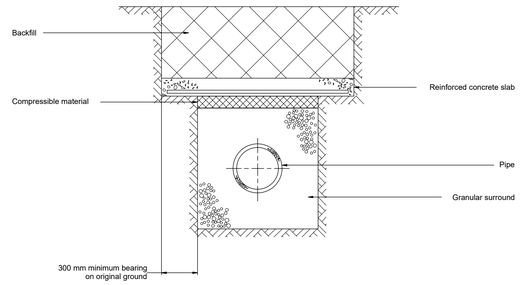
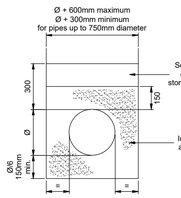


FIGURE B 27
PROTECTION OF PIPES LAID AT SHALLOW DEPTHS

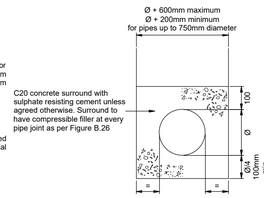


TYPICAL PIPE BED & SURROUND DETAILS

Type S - Granular Bed and Surround



Type Z - Concrete Bed and Surround



Not to scale

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM. DISCREPANCIES MUST BE REPORTED TO THE DESIGN TEAM BEFORE PROCEEDING. © THIS DRAWING IS COPYRIGHT.

NOTES:

The planning, design and construction of sewers shall be in accordance with Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code"). Dated March 2020

The minimum size of sewer where guide bars, safety chains, or other safety devices are required in Manholes shall be 375mm diameter

All manholes / inspection chambers should have a concrete surround. Concrete rings shall be sealed using "Tokstrip" and lifting eyes pointed with resin modified mortar

Compliance with Health & Safety matters on any trench/manhole is obligatory and a permit to enter a confined space is required when connecting site drainage to the existing public sewerage system. A permit to enter a confined space will be obtained from the local water authority prior to the works commencing on any public sewerage system

MH covers & frames shall be ductile iron with a minimum square opening of 600 x 600mm. Covers shall be double triangle for 675mm square openings and be provided with loose bolted connections

The use of ladders or steps in manholes, wet wells and valve chambers shall comply with the following: Steel plastic encapsulated MH single steps shall not be used in MHs of a greater depth than 1.0m. Steel plastic encapsulated double steps may be provided in MHs up to 3.0m in depth. Ladders shall be provided in accordance with BS 4211 in MHs between 3.0 & 6.0m deep. MHs greater than 6.0m deep shall be specially designed and have intermediate landings. Access holes in intermediate landings shall be provided with galvanised mild steel gratings to prevent persons falling through. The design of deep MHs shall permit the use of a winch or lifting gear mounted at ground level in case of emergencies

Only low carbon steel or stainless steel ladders for vertical fixing to MHs will be acceptable

Proposed adoptable sewers are only permitted to have other sewer/gully connections and other services laid at an angle of between 45 degrees and 90 degrees across the line with a vertical clearance in excess of 300mm

All ironwork to be kite marked by BSI or certified by equal inspection authority

Red coloured plastic marker tape at least 150mm wide shall be laid at a minimum of 200mm above the soffit of the pipe. The tape shall be printed with the words gravity sewer in bold capital letters throughout its length and at intervals not exceeding 700mm and shall incorporate a corrosion resistant tracing system for non-metallic pipes

Minimum backdrop height shall be 1m

B3.2 - Access

12. Manhole diameters (Type A and B only) should be in accordance with Table B.1.

E2.29 - Precast Concrete Manholes

1. Precast concrete manhole units shall comply with the relevant provisions of BS EN 1917 and BS 5911-3. Units which bed into bases shall be manufactured so that imposed vertical loads are transmitted directly via the full wall thickness of the unit. The profiles of joints between units and the underside of slabs shall be capable of withstanding applied loadings from such slabs and spigot-ended sections shall only be used where the soffit of the slab is recessed to receive them.

2. Precast concrete chamber sections for valves and meters shall be interlocking and comply with BS EN 1917 and BS 5911-3.

E2.32 - Manhole Covers and Frames

1. Manhole covers and frames shall comply with the relevant provisions of BS EN 124, BS 7903 and Highway Agency Guidance Document HA 104/09. They shall be of a non-rockingdesign which does not rely on the use of cushion inserts.

2. Manhole covers on foul-only sewers shall be of low leakage types in order to prevent excessive surface water ingress.

3. As a minimum, Class D400 covers shall be used in carriageways of roads (including pedestrian streets), hard shoulders and parking areas used by all types of road vehicles.

4. Minimum frame depths for NRSWA road categories I to IV shall be as Table E.6.

5. Class B125 shall be used in footways, pedestrian areas and comparable locations.

6. In situations where traffic loading is anticipated to be heavier than would occur on a typical residential estate distributor road (i.e. braking or turning near a junction), a higher specification (E600) shall be used.

7. All manhole covers shall be the non-ventilating type and shall have closed keyways.

E2.33 - Manhole Steps

1. Steps for manholes and other chambers shall be Type D Class 1, complying with the requirements of BS EN 13101.

2. Galvanized mild steel and plastic encapsulated steps are preferred.

E2.37 - Ladders

1. Ladders in manholes and similar structures shall comply with the requirements of BS EN 14396, with width of rung 380mm and two stringers, but shall not be made from aluminium.

2. Mild steel ladders for vertical fixing shall be fabricated from steel conforming to BS EN 10025-2. After fabrication, low carbon steel ladders shall be hot dip galvanized in accordance with BE EN ISO 1461.

3. Stainless steel ladders for vertical fixing shall be fabricated from Grade X5CrNiMo 17-12-2 steel conforming to BS EN 10088-3.

4. GRP ladders shall be manufactured from pultruded sections conforming to BS EN 13706-2 and BS EN 13706-3. The surface shall be smooth with fibres embedded and sealed against penetration from dirt and water. The Barcol hardness of the sections shall be at least 35 when when tested in accordance with BS 2782-10.

E6.6 - Pipes and Joints Adjacent to Structures

1. Where rigid pipes are used, a flexible joint shall be provided as close as feasible to the outside face of any structure into which a pipe is built, within 150mm for pipe diameters less than 300mm. The design of the joints shall be compatible with any subsequent movement.

2. The recommended length of the next pipe (rocker pipe) away from the structure shall be as shown in Table E.12.

3. Stub pipes into structures shall be of rigid material.

E6.6 - Setting Manhole Covers and Frames

1. Manhole frames shall be set to level, bedded and haunched externally over the base and sides of the frame in mortar, in accordance with the manufacturer's instructions. The frame shall be seated on at least two courses of Class B engineering bricks, on precast concrete masonry units or on precast concrete cover frame seating rings to regulate the distance between the top of the cover and the top rung to no greater than 675mm. A mortar fillet shall be provided where the corners to an opening in a slab are chamfered and the brickwork is not flush with the edges of the opening.

2. Frames for manhole covers shall be bedded in a polyester resin bedding mortar in all situations where covers are sited in NRSWA Road Categories I, II or III (i.e. all except residential cul-de-sacs).

FIGURE B 28
JOINTS FOR CONCRETE ENCASED PIPES

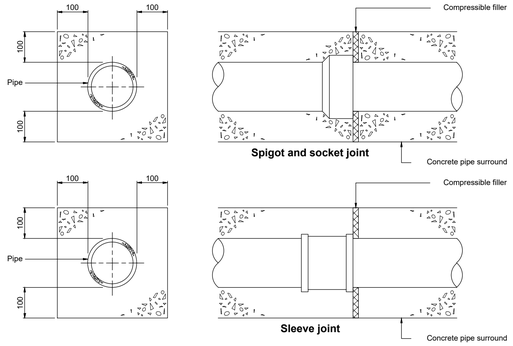
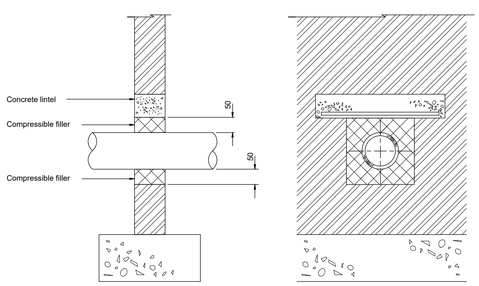


FIGURE B 29
PROTECTION OF PIPES PENETRATING SINGLE LEAF BOUNDARY WALLS

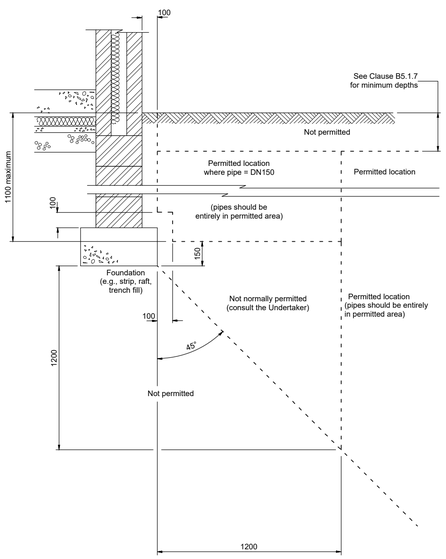


Not to scale, dimensions in millimetres
(all dimensions are minimum sizes)

Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Less than 375	1200
375 - 450	1350
500 - 700	1500
750 - 900	1800
Greater than 900	Pipe diameter + 900

Table B.1 - Manhole Diameters

FIGURE B 1
PERMITTED LOCATION OF SEWERS AND LATERAL DRAINS IN PROXIMITY TO BUILDINGS



Not to scale, dimensions in millimetres

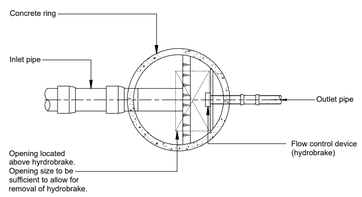
NRSWA road category	Description	Minimum frame depth (mm)
I	Trunk roads and dual carriageways	150
II	All other A roads	150
III	Bus services	150
IV	All other roads except residential cul-de-sacs	150
	Residential cul-de-sacs	100

Table E.6

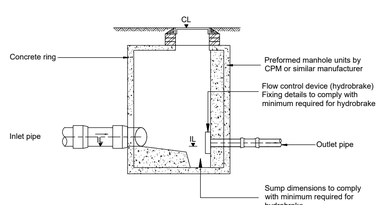
Nominal diameter (mm)	Maximum Effective length (m)
150 - 600	0.6
601 - 750	1.0
over 750	1.25

Table E.12

TYPICAL FLOW CONTROL CHAMBER
Not to scale



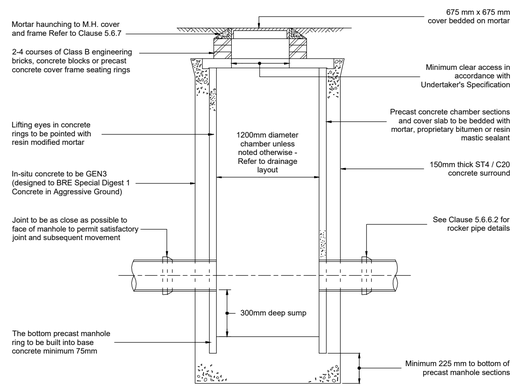
PLAN



SECTION

This detail is indicative only. Final chamber design to be provided by CPM or similar manufacturer. Detail should be read in conjunction with Hydro International Details. Detail must be read in conjunction with Drainage Plan.

TYPICAL CATCHPIT MANHOLE DETAIL



Plastic proprietary catchpit manholes may be used, with prior approval from the Engineer

The design of manholes will need to comply with the Undertaker's safety policy.
Not to scale, dimensions in millimetres

REVISION NOTES:
1.
2.
3.

STATUS: PRELIMINARY

EXPEDITE
Exeter
The Design Studio
35 Southernhay East
Exeter
EX1 1NX
t: 01392 691 631
www.expediteps.com

REV:	DESCRIPTION:	BY:	DATE:
P1	Initial preliminary issue	SDF	24.06.21

CLIENT: BARWELL MEDICAL CENTRE

SITE: BARWELL MEDICAL CENTRE
BARWELL
LEICESTERSHIRE

TITLE: DRAINAGE CONSTRUCTION DETAILS - SHEET 1

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
N.T.S	Jun 2021	SDF	-

PROJECT NO:	DRAWING NO:	REVISION:
ES19.125	40.01	P1