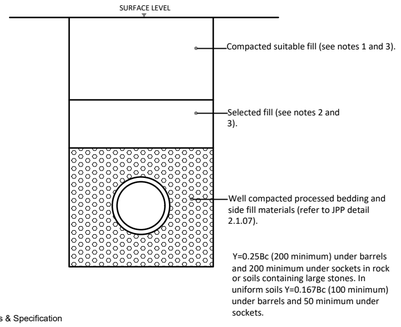


Notes & Specification

1. Suitable fills shall be capable of accepting compaction plant subject to the Engineer's approval and shall exclude boulders, lumps of concrete, bricks, timber and vegetable matter.

2. Selected fill shall be readily compatible material free from roots, organic material, building material, and shall be in an unfrozen condition. Selected fill shall exclude clay lumps exceeding 25mm size. Selected fill shall be carefully compacted around and above the pipe, taking care not to damage the pipe.

3. Where the pipe is installed in areas which are paved or future settlement of back fills is not acceptable then back filling of the trench shall be carried out using type 1 sub-base to Highways Agency specification for Highway Works compacted to the same specifications.

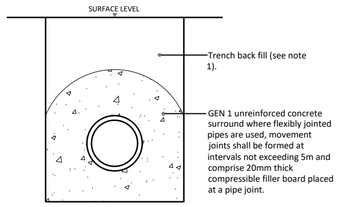
4. Minimum cover: Cover shall be greater than: 2000mm in areas subject to heavy construction plant. 1000mm in areas subject to normal construction traffic. 1200mm to finished level of new main road pavements. 600mm in landscape areas, foot ways, gardens or fields Otherwise use class Z bedding and surround.

5. Flexible pipes shall be unplasticised UPVC to BS EN 13598

6. Construction, subsequent testing, operation and maintenance shall be carried out in accordance with BS EN 752. Sewers to be adopted by water companies shall be installed in accordance with the current edition of 'Sewers for Adoption' produced by the Water Services Association. Sewers to be adopted by highway authorities shall be installed in accordance with the authority's specification.

7. Workmanship shall be in accordance with BS 8000 - 14:1989

Flexible carrier drain, class s bedding, surround and sidefill



Notes & Specification

1. Trench excavation shall be back filled as follows: a) Outside road pavements or areas where surface settlement cannot be accepted, back filling shall be carried out using suitable fills. Suitable fills shall be capable of accepting compaction plant subject to the Engineer's approval and shall exclude boulders, lumps of concrete, bricks, timber and vegetable matter. b) In areas below road pavements (or where surface settlement cannot be accepted) (i) Where soffit of pipe is less than 0.5m below formation, back fill with GEN 0 unreinforced concrete. (ii) Where soffit of pipe is between 0.5m and 1.0m below formation, back fill with Type 1 sub-base.

2. Cover to pipes shall be: 2000mm or less in areas subject to heavy construction plant. 1000mm or less in areas subject to normal construction traffic. 1200mm or less to finished level of new main road pavements. 600mm or less in landscape areas, foot ways, gardens or fields Otherwise use other specified surround and back fill details.

3. Pipes, unless otherwise stated, shall be: (i) Clay pipes with min FN of 40 to BS EN 295 and BS65 (ii) Concrete pipes to BS 5911 and BS EN 1916 or, (iii) Flexible pipes shall be unplasticised UPVC to BS EN 13598. Concrete pipes shall not be used for foul sewers unless otherwise stated.

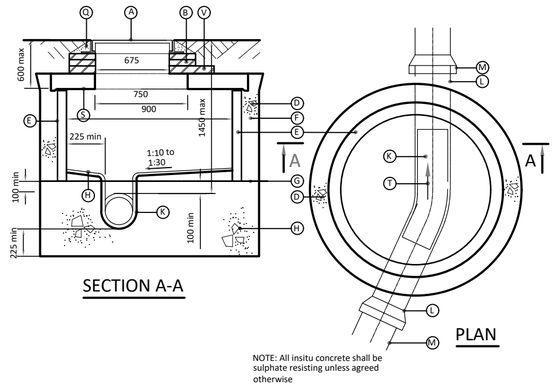
4. Construction, subsequent testing, operation and maintenance shall be carried out in accordance with BS EN 752. Sewers to be adopted by water companies shall be installed in accordance with the current edition of 'Sewers for Adoption' produced by the Water Services Association. Sewers to be adopted by highway authorities shall be installed in accordance with the authority's specification.

5. Back filling shall only be undertaken when the concrete bedding and surround has obtained sufficient strength to accommodate back filling operations.

6. This detail shall not be used where the drainage is to be adopted by Water companies.

7. Workmanship shall be in accordance with BS 8000 - 14: 198.

Carrier drain - class z bedding, surround and backfill



SHAFT DIAMETERS	
Dia of largest pipe in MH (mm)	Int. Dia of MH (mm)
Upto 450	1200

If the pipe diameter exceeds 450mm, manhole types B or C shall be used

For every two additional incoming pipes, the diameter of the manhole shall be increase by 150mm.

ROCKER PIPES	
Pipe diameter (mm)	Effective Length (mm)
150 to 450	600

Key to Precast Concrete Manhole Chamber Details

- (A) Cover and frame shall be ductile iron to BS 7903, BS EN 124 and Highways Agency document HA 104/ 02 Class D400, minimum frame depth shall be 100mm (unless in block paved areas where the minimum depth shall be 150mm) in residential cul-de-sac, 150mm deep elsewhere, bedded on designation (i) mortar to BS EN 998 parts 1 and 2. Approved Packing material may be used if required. Manhole covers and frames shall be of non design which does not rely on the use of cushion inserts. Manhole covers shall be the non type and shall have closed key.
- (B) Type 2 cover frame seating rings with central access hole.
- (D) 150mm thick GEN3 unreinforced concrete surround concrete mix shall also be designed with reference to to BRE Special Digest 1' Concrete in Aggressive ground and with reference to the ground investigation report (refer to specification clause (5.2.9.) of Sewers for Adoption 6th Edition.)
- (E) Pre-cast concrete shaft, chamber sections and cover slab to BS 5911-3 and BS EN1917 on mortar bedding, with approved proprietary 10mm uncompressed thickness bitumen or resin mastic sealant. Lifting eyes in concrete rings shall be pointed in with mortar designation (i).
- (F) The bottom of the chamber shall be set 75mm into the base slab.
- (G) Construction Joint.
- (H) GEN3 unreinforced concrete mix shall also be designed with refernce to BRE Special Digest 1' Concrete in Aggressive ground and with reference to the ground investigation report benching shall be finished with a minimum of 20mm thickness of grano concrete bought up to a dense smooth face, neatly shaped and finished to all branch connections. Benching slope to be between 1 in 10 and 1 in 30.
- (K) Invert within chamber to be formed using channel pipes.
- (L) All pipes entering or leaving manholes shall have a joint as close as possible to the face of the manhole to allow a satisfactory joint.
- (M) Rocker pipe
- (Q) Class M1, M2 to BS EN 998-2 or Epoxy mortar haunching for manhole cover and frame
- (S) Heavy Duty reinforced concrete cover slab to BS 5911 with 750x600 access (B5752)
- (T) Direction of Flow
- (V) Type 1 cover frame a seating ring with eccentric access hole (BS752) bedded on mortar.

General Notes

1. This drawing is to be used in conjunction with all relevant drawings, specifications and details.
2. All dimensions are in metres unless noted otherwise.
3. Do not scale from this drawing.
4. Footway edgings (Type EF) to be provided to all driveways/parking areas unless noted otherwise.

Health, safety & the environment

In accordance with the Construction (Design and Management) Regulations 2015, the designs and details on this drawing have been the subject of a Designers Risk Assessment, to identify risks in the construction, use, or demolition of the scheme. It is not considered necessary for Designers to highlight obvious and/or common risks (such as deep excavations, manual handling and working around heavy plant) which Contractors should be familiar with, and be able to control by good management and site practice. So far as is reasonably practicable, the risks inherent in the design have been eliminated. Where it has been considered that elimination of a risk (or part of a risk) is not reasonably practicable, it has been reduced.

Notes & Specification

Processed granular bedding and side fill materials shall include aggregates to BS EN 12620 + A1 and lightweight aggregates to BS EN 13055-1 and shall be graded as defined in the following tables:

Table 1

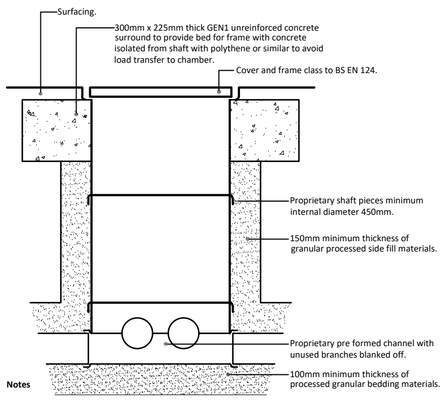
Pipe Nominal Size (mm)	Maximum Partical Size (mm)	Maximum CF Value	Material
100	10	0.15	10mm nominal single size
over 100 to 150	15	0.15	10 or 14mm nominal single size or 14 to 5mm graded.
over 150 to 300	20	0.15	10, 14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 300 to 550	20	0.15	14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 550	40	0.15	14, 20 or 40mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded or 40 to 5mm graded.

2. The sulphate content of bedding and side fill materials shall not be greater than 0.3% as sulphur trioxide. The above specification has been produced based on the Water Industry specification publication

3. No. 4-08-01 (issue 4) February 1994.

4. Compaction factor (CF) shall be determined in accordance with the water industry publication No 4-08-02 (issue 1) February 1994 - appendix B.

pecification for bedding and sidefill materials for flexible pipes (class s & b bedding)



Notes

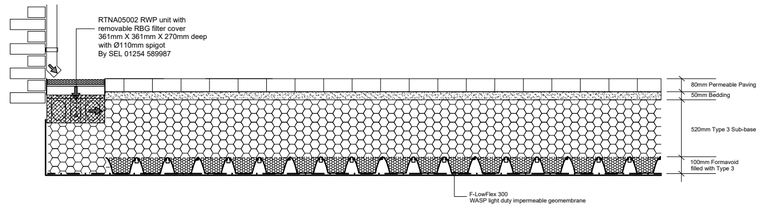
1. Plastic inspection chambers shall be to BS7158: 1989.
2. Vitrified clay inspection chambers shall be to BS65: 1991 and BS EN 295-6: 1996.
3. Proprietary inspection chambers shall be installed strictly in accordance with manufacturers instructions.
4. Refer to JPP specification for granular processed bedding and side fill materials.

Limitations of Use

1. Chamber can be used in areas subject to light vehicular loading.
2. Chamber is unsuitable for adoption by water companies.
3. Chamber as detailed is not suitable for internal installation.
4. Maximum inlet and outlet size is typically 110mm.
5. Maximum depth to invert 4000mm.
6. Access for inspection and remotely operated equipment only.

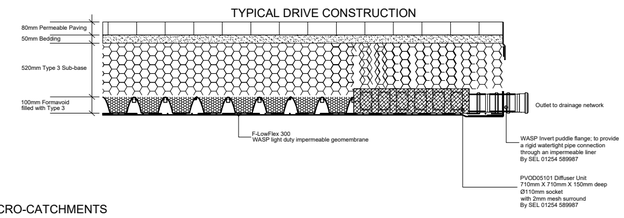
Proprietary plastic inspection chamber

INLET - DOWNPIPE RAINTAINA FILTER UNIT
where downpipe discharges onto permeable paving

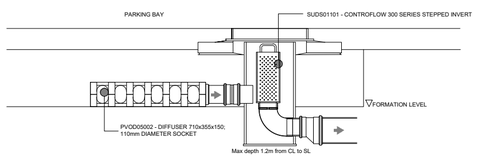


OUTLET - THROUGH DIFFUSER UNIT
sizing of diffuser unit to suit outflow critical

TYPICAL DRIVE CONSTRUCTION



OUTLET FROM MICRO-CATCHMENTS



Rev.	Description	Drawn	Date

Arbtech,
Unit 3,
Well House Barns,
Chester,
CH4 0DH

Tel: 0330 127 3101

Email: email@arbtech.co.uk

Project Title
The Old Piggery, Fryern Road, Storrington, West Sussex RH20 4BJ

Drawing Title
Construction Details

Scale	Drawn By	Designer Check	Engineer Check
NTS	AR	AR	
	Date 06.07.26	Date 06.07.26	Date

Job No.	Drawing No.	Revision
44028094	_1003	A

Original Sheet Size A2