

GENERAL NOTES

1. This drawing is to be read in conjunction with relevant architectural and engineering drawings.
2. Levels indicated in brackets are finished floor levels which may be subject to change.
3. Roads leading off parking bays and forms which part of the Highway to be adopted under Section 38 of the Highways Act 1980 shall comply with the relevant Council standards.
4. Sewers to be adopted under Section 104 of the Water Industry Act 1991 shall comply with the Water Industry Act 1991 and the standards for Adoption (81) and Combined Addendum¹.
5. All pipes to be used in adoptable sewers shall be either drainage or BS EN 252 or BS EN 591 with a minimum strength requirement for pipes to be used in adoptable sewers to be as follows:
 - 150mm dia - Class 187 - min crushing strength 280kN/m²
 - 225mm dia - Class 120 - min crushing strength 280kN/m²
 - 300mm dia - Class 120 - min crushing strength 280kN/m²
6. Larger than 300mm dia - High Strength Concrete. Where the strength of the concrete is checked by the Contractor prior to the commencement of any proposed drainage work, any increase in strength between actual and drawn details is to be reported immediately.
7. Positions of existing sewers/tankers/undertakers (undertakers adjacent to or crossing proposed sewers) is to be ascertained by the Contractor prior to the commencement of any proposed drainage work. Any increase in strength between actual and drawn details is to be reported immediately.
8. Positions of existing structures/tankers/undertakers (undertakers adjacent to or crossing proposed sewers) is to be ascertained by the Contractor prior to the commencement of any proposed drainage work. Any increase in strength between actual and drawn details is to be reported immediately.

PIPES 150mm - 300mm DIA :-

SURFACE AND FOUL WATER PIPES ARE TO BE EXTRA STRENGTH VITRIFIED CLAY WITH FLEXIBLE MECHANICAL JOINTS. PIPES MUST COMPLY WITH THE RELEVANT REQUIREMENTS OF BS EN 295-1:1991 AND BS 65:1991 (surface water pipes only).

PIPES > 300mm:-

DIA SURFACE AND FOUL WATER PIPES ARE TO BE HIGH STRENGTH CONCRETE. CONCRETE PIPES AND FITTINGS WITH FLEXIBLE JOINTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911-1:2002.

General requirements

Copies of delivery notes for concrete and pipe bedding will be required intermittently as the job progresses. All other component units must be kite-marked.

Channels and Benching

All chambers with pipe sizes 150mm, 225mm, 300mm must have swept bends and channels. All benching to be a *minimum 40mm thick granolithic concrete trowelled to a smooth finish.*

Ironwork In Manholes

If the chamber is less than 3m deep we require double encapsulated step rungs unless otherwise approved. If the chamber is over 3m deep we require *hot dipped galvanised mild steel ladders*. There must be 900mm between ladder and back of shaft. Depth is measured from finished cover level to the top of the benching. The maximum distance between cover level and the first step must be 675mm.

Brickwork

Min 2 max 4 courses under frame and must be solid class B engineering bricks or concrete spacing rings neatly pointed up. English Bond to be used on all brickwork. Sulphate resisting cement must be used in all locations.

Cover and Frames

Cover slab opening, cover and frames must be 675 x 675 *unless otherwise approved*. DN400 shall be used at all locations. On spine roads must be 150mm deep. On residential cul-de-sacs 100mm may be used subject to approval. Frames for manhole covers should be dedded in a polyester resin bedding mortar in all situations where covers are sited in NRSWA Road Categories I, II or III.

'Infill' type covers should not be used.

In block paved areas 150mm deep frames must be used (in accordance with cl 2.8.6 SfA6 p.25)

Laterals

They should be laid to the same standard as public sewers. They should have no changes of line or gradient between the sewer and the demarcation chamber. They should have an adoptable manhole as the demarcation chamber unless there is only on property when a plastic chamber to BS7158 is approved. Lockable B125 and A15 covers may be allowed in certain locations subject to approval. The demarcation should be inside the boundary of the property, no more than 1m inside the boundary, preferably in the driveway and not in the wheel tracks of vehicles.

ALL ADOPTABLE DRAINAGE MUST COMPLY WITH
SEWERS FOR ADOPTION 6TH EDITION AND SEVERN
TRENT WATER REQUIREMENTS

S106 APPLICATION

A SECTION 106 APPLICATION TO SEVERN TRENT WATER
MUST BE COMPLETED FOR THE RE USE OF ANY EXISTING
CONNECTION INTO THE EXISTING PUBLIC SEWERAGE
SYSTEM OR THE CONSTRUCTION OF A NEW CONNECTION.

AN APPLICATION WILL BE REQUIRED FOR THE FOUL AND SURFACE WATER DRAINAGE ARRANGEMENTS AND THIS SHOULD BE COMPLETED BY THE CONTRACTOR.

Minimum dimensions for access fittings and inspection chambers

Type	Depth to invert from cover level (m)	Internal sizes			Cover sizes	
		Length x width (mm x mm)	Circular (mm)	Length x width (mm x mm)	Circular (mm)	
Rodding eye		As drain but min 100			Same size as pipework ¹	
Access fitting small	150 gdn 100 x 100 225 x 100	0.6 or less, except where situated in a chamber				
large		125 x 100 150 x 100	150 225	150 x 100 ² 225 x 100 ²	150 225	
Inspection chamber shallow	0.6 or less 1.2 or less	225 x 100 450 x 450	160 ³ 450	Min 430 x 430 max 300 x 300 ²	160 ³ 430	
deep	> 1.2	450 x 450	450		Access restricted to max 350 ³	

Note 1: The clear opening may be reduced by 20mm in order to provide proper support for the cover and frame.
 Note 2: Drains up to 150mm.
 Note 3: A larger clear opening may be used in conjunction with a restricted access. The size is restricted for health and safety reasons to deter entry.

Minimum dimensions for manholes

Type	Size of largest pipe (DN)	Min internal dimensions ^a		Min clear opening size ¹	
		Rectangular length and width	Circular diameter	Rectangular length and width	Circular diameter
Manhole ≤ 1.5m deep to soffit	≤ 150	750 x 675 ²	1000 ³	750 x 675 ²	na ⁴
	225	1200 x 675	1200	1200 x 675 ²	
	300	1200 x 750	1200		
	>300	1800 x 1200 (DN=450)	The larger of 1800 or (DN=450)		
> 1.5m deep to soffit	≤ 225	1200 x 1000	1200	675 x 675	600
	300	1200 x 1075	1200		
	375-450	1500 x 1225	1500		
	>450	1800 x 1200 (DN=775)	The larger of 1800 or (DN=775)		
Manhole shaft ⁴ > 3.0m deep to soffit of pipe	Steps ⁵	1050 x 800	1050	675 x 675	600
	Ladders ⁶	1200 x 800	1200		
	Winches ⁷	800 x 800	800	675 x 675	600

Notes:

- 1) Larger sizes may be required for manholes on bends or where there are junctions.
- 2) May be reduced to 675 by 675 where required by highway loading considerations, subject to a safe system of work being specified.
- 3) Not applicable due to working space needed.
- 4) Minimum height of chamber in shaded manhole 2m from benching to underside of reducing slab.
- 5) Min clear space between beds or slabs and the opposite face of the shaft should be approximately 900mm.
- 6) Winch only - no steps or ladders, permanent or removable
- 7) The minimum size of any manhole serving a sewer (i.e any drain serving more than one property) should be 1200 mm x 675 mm rectangular or 1200 mm diameter

PUBLIC DRAINAGE

FOUL WATER

Manhole
Pipe line
Direction Arrow

SURFACE WATER

Manhole
Pipe line
Direction Arrow

HIGHWAY DRAINAGE

Highway Drain /
Gully Connection

* Demarcation chambers to be constructed as per adoptable manhole construction details depending on chamber depth. A 450Ø Inspection chamber can be used providing lateral only serves one plot.

Client **Davidsons**

Project Development at
Fairway Meadows
Ullesthorpe, Leicestershire

Title Engineering Layout

Status	Drawn By	PM/Checked b
Preliminary	LS	.
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AAC5143	1:250	Jan 2014

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