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For Planning
These drawings are produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

GENERAL NOTES

- All dimensions shown in mm unless otherwise stated
- The works shown on this drawing could affect Statutory Undertaker's apparatus and the Contractor is required to verify the location and depth of all such apparatus prior to commencement of the works and to take any precautions necessary when working in the vicinity of any such apparatus.
- The Contractor shall seek clarification from the Engineer regarding any contradiction between this drawing and the Specification.
- All Adoptable Drainage works to be constructed in accordance with Sewers for Adoption Seventh Edition.
- Bed Type Z shall be used where cover to pipe crown is less than 0.9m in verges or 1.2m in carriageways and footways/footpaths.
- All subject to Detailed Design.

Rev	Date	Description	Drawn	Check
#	24/10/19	First Issue.	DRB	CI

Status
FOR PLANNING

Client
millerhomes

Project
**Boorley Gardens
Winchester Road
Hedge End
Phase 3**

Drawing Title
**Planning Application
Drainage Details**

Drawing No.
M380/123

Date: October 2019 Scale: As Shown @ A1

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25mm max. Mortar bed & haunch to M.H. Cover and Frame. All Ironwork to be Kite marked (see note 2)

Reinforced concrete cover slab bedded with mortar proprietary bitumen or resin mastic sealant

On manholes less than 1.5m diameter reducing slab not to be used and precast concrete rings to continue up to cover slab.

In-situ concrete bed and surround to be GEN3 designated concrete to BS 8500-1&2:2006, 20mm max size aggregate, Class S1 consistency (Designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Ladder

High strength concrete topping to be brought up to a dense smooth face neatly shaped and finished to all branch connections (minimum thickness 20mm)

Self cleaning toe holes to be provided where channel exceeds 600mm wide

Inverts to be formed using channel pipes

Cover and frame to have minimum opening as detailed in Table 1

Class B engineering bricks or special purpose precast concrete masonry units 3 courses (max) 2 courses (min) or precast concrete cover frame seating rings with square opening

Shaft diameter 900mm if no ladder or step irons, otherwise 1200mm

Precast concrete manhole sections and cover slab to be bedded with mortar, proprietary bitumen or resin mastic sealant

Lifting eyes in concrete rings to be pointed

Concrete surround 150mm thick

Bottom of precast concrete manhole ring to be built into base concrete minimum 75mm

Benching slope to be in the range of 1 in 10 to 1 in 30

Construction Joint

Distance between top of pipe and underside of precast manhole section to be 50mm minimum, 300mm maximum

225mm to barrel of pipe

25mm max. Mortar bed & haunch to M.H. Cover and Frame. All Ironwork to be Kite marked (see note 2)

Reinforced concrete cover slab bedded with mortar proprietary bitumen or resin mastic sealant

150mm thick surround to be GEN3 designated concrete to BS 8500-1&2:2006, 20mm max size aggregate, Class S1 consistency (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Double encapsulated step rungs at 230mm to 300mm centres throughout (see note 5).

High strength concrete topping to be brought up to a dense smooth face neatly shaped and finished to all branch connections (minimum thickness 20mm)

GEN3 designated concrete to BS 8500-1&2:2006, 20mm max size aggregate, Class S1 consistency (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Inverts formed using channel pipes

Cover and frame to have minimum opening as detailed in Table 1

Class B engineering bricks or special purpose precast concrete masonry units 3 courses (max) 2 courses (min) or precast concrete cover frame seating rings with square opening

Lifting eyes in concrete rings to be pointed
Precast concrete shaft, chamber sections to be bedded with mortar, proprietary bitumen or resin mastic sealant

Bottom of precast concrete manhole ring to be built into base concrete minimum 75mm

Benching slope to be in the range of 1 in 10 to 1 in 30

Distance between top of pipe and underside of PC chamber to be 50mm minimum, 300mm maximum

225mm to barrel of pipe

Pipe joint with channel to be located minimum 100mm inside face of manhole

Minimum width of benching for landing area to be 500mm

Minimum width of benching to be 225mm

150mm thick GEN3 designated concrete surround to first joint to BS 8500-1&2:2006, 20mm max size aggregate, Class S1 consistency (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement

Toe holes to be provided in benching of sewer greater than 450mm dia. for access to invert

Manhole with outgoing pipes greater than 600mm dia. should be fitted with guard bars, safety chains or other safety devices.

Typical Manhole Detail – Type 2

Depth from cover to soffit of pipe less than 3.0m

Scale 1:20

NOTES

1. All drainage works shall be constructed in accordance with Sewers for Adoption 6th Edition. All components to be kite marked.

2. All access covers, gully gratings and frames shall be cast iron, non-rocking to BS EN 124 and BS 7903 and sealed against ingress of surface water within areas liable to flooding.

– Class D400 for carriageways and parking areas for all types of road vehicles.

– Class B125 elsewhere.

Manhole Covers – Minimum Frame Depths			
NRSWA Road Category	Description	Minimum frame depth (mm)	Bedding Mortar
I	Trunk Roads & Dual Carriageways	150	Polyester Resin
II	All other A Roads	150	Polyester Resin
III	Bus Service	150	Polyester Resin
IV	All other Roads except residential cul-de-sacs	150	Cement Mortar
	Residential cul-de-sacs	100	Cement Mortar

3. Pipes built into manholes shall have a flexible joint as close as feasible to the external face of the structure and the length of the rocker pipe shall be as shown.

Nominal diameter(mm).	Rocker Pipe length(m).
150 – 600	0.60
601 – 750	1.00
751 & Over	1.25

4. All pipes entering the bottom of the manhole to have the same soffit level unless otherwise shown.

5. Step rungs shall be hot dip galvanized mild steel, stainless steel or GRP.

6. Hooks for safety chains shall be fitted where the outfall pipe is 600mm diameter or greater, and shall be hot dip galvanized mild steel or stainless steel.

7. All adoptable highway works shall be constructed in accordance with the Specification for Highway Works (consolidated Edition) November 2005 (SHW) as amended published by the Stationary Office.

8. The Contractor shall seek clarification from the Engineer regarding any contradiction between this drawing and the Specification. If there is conflict between the Works Specification and the Adopting Authority's Specification the latter shall prevail. No claim/compensation event will be accepted by the Engineer/Project Manager as a consequence of the Contractor's failure to seek clarification or comply with the Adopting Authority's Specification.

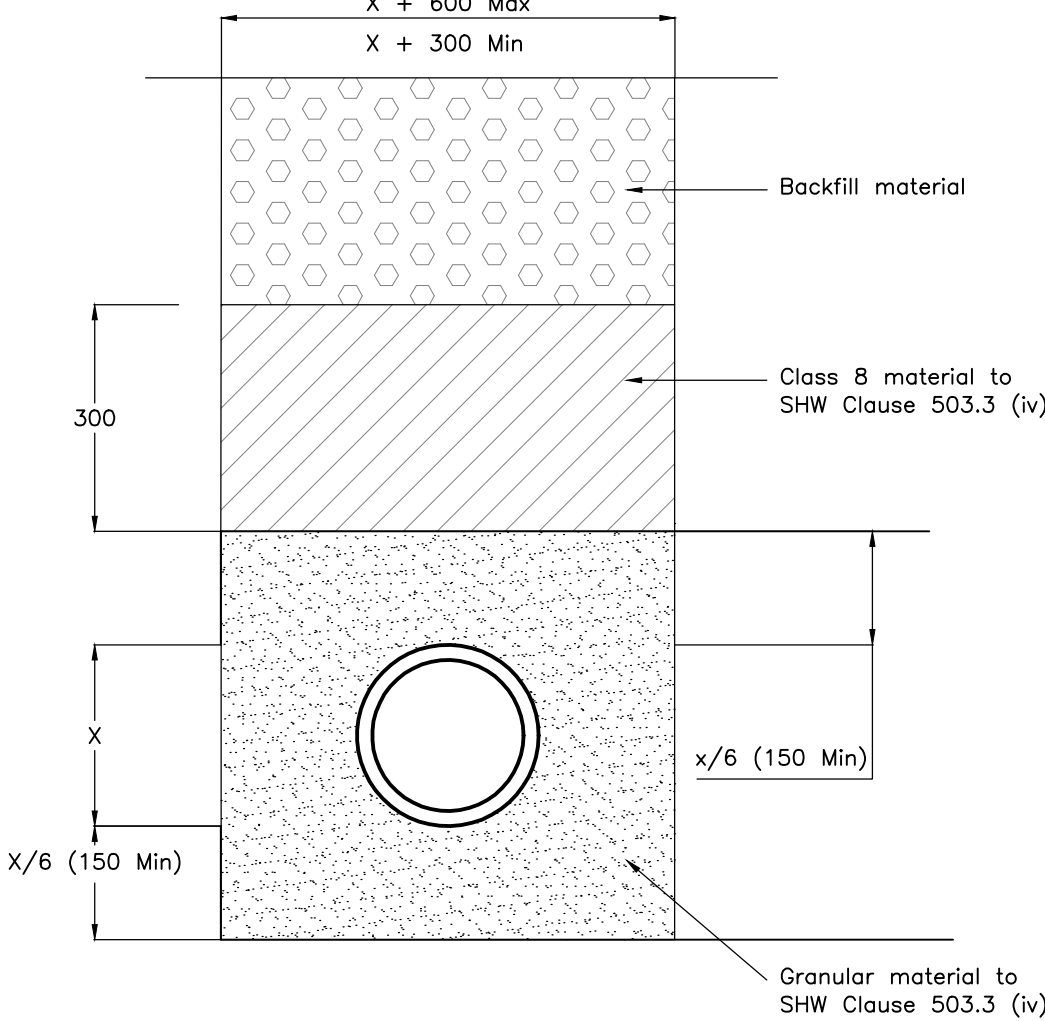
9. The use of this drawing does not absolve the client from his responsibilities under Health & Safety: The Construction (Design and Management) Regulations 2007.

10. All measurements in millimetres unless otherwise shown.

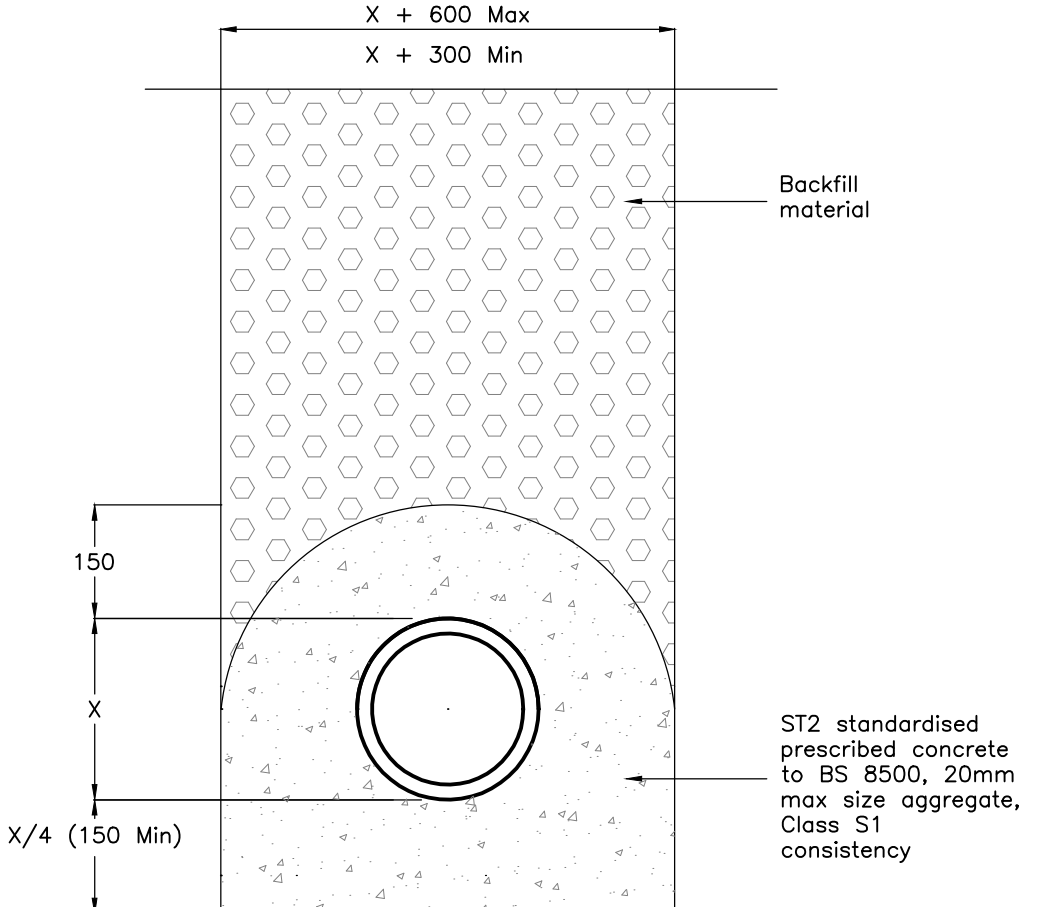
11. Cover Grade shall be minimum D400 unless otherwise agreed with Highway Inspector. 375mm clear opening.

12. Manhole cover and frames shall comply with the relevant provisions of BS EN 124, BS 7903 and Highway Agency Guidance Document HA 104/02. They shall be of a non-rocking design which does not rely on the use of cushion inserts. All manhole covers shall be the non-ventilating type and shall have closed keyways.

13. Frames shall be bedded on a gauged Class 1 (3:1) sand/cement mortar to Cl.2402 of SHW Mortar Designation (i), and between 2 and 4 courses of Engineering Brickwork Class 'B' to BS EN 771-1:2011.



Bed Type S



Bed Type Z

Highway Drainage Pipe Bedding Details

Scale 1:10

Pipe Bedding Notes:

1. Bed Type Z shall be used where cover to pipe crown is less than 0.9m in verges or 1.2m in carriageways and footways/footpaths.

2. Backfill material to trench excavations in prospective highways shall be Type 1 unbound mixture for subbase to SHW Clauses 801, 802 & 803, up to formation level. Backfill material to trench excavations in existing highways shall be in accordance with the HAUC 'Specification for the Reinstatement of Openings in Highways'. Elsewhere backfill material shall be selected excavated material consisting of uniform readily compactable material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55, and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Additional material to make up any deficiency shall be Type 1 unbound mixture for subbase to SHW Clauses 801, 802 & 803.

3. The minimum or maximum width of the trench applies on and below a line 300mm above the outside top of the pipe. Above the 300mm line the trench backfill material shall be as described in SHW Clause 505.

4. For Bed Type Z the concrete cover may be formed to a radius batter or horizontal surface. Min. cover of concrete shall be 150.

5. Pipes for drainage shall comply with SHW Clause 501.

6. All dimensions are in millimetres.

7. Dimension X is the external diameter of the pipe.

TABLE 1 (Based on SFA 7th Edition and Table B1)

Manhole Sizes & Details (Personnel Entry)					
Type of Access	Depth to of Soffit from Cover Level	Diameter of Largest Pipe in Chamber	Nominal Chamber/ Shaft Size	Minimum Clear Opening Size	
	m	mm	mm	Cover Slab/ Reducing Slab mm	Cover & Frame mm
Chamber	≥1.5	≤375 375–450 500–700 750–900 ≥900	1200 dia 1350 dia 1500 dia 1800 dia pipe dia + 900	675 x 675	675 x 675 or 675 dia
Highway Drain	≥1.5	≤300	1200 dia		
Chamber Shaft	>3.0		1200 dia	1200 dia, eccentric	675 x 675 or 675 dia
(for use on chambers 1800mm dia. & above)					