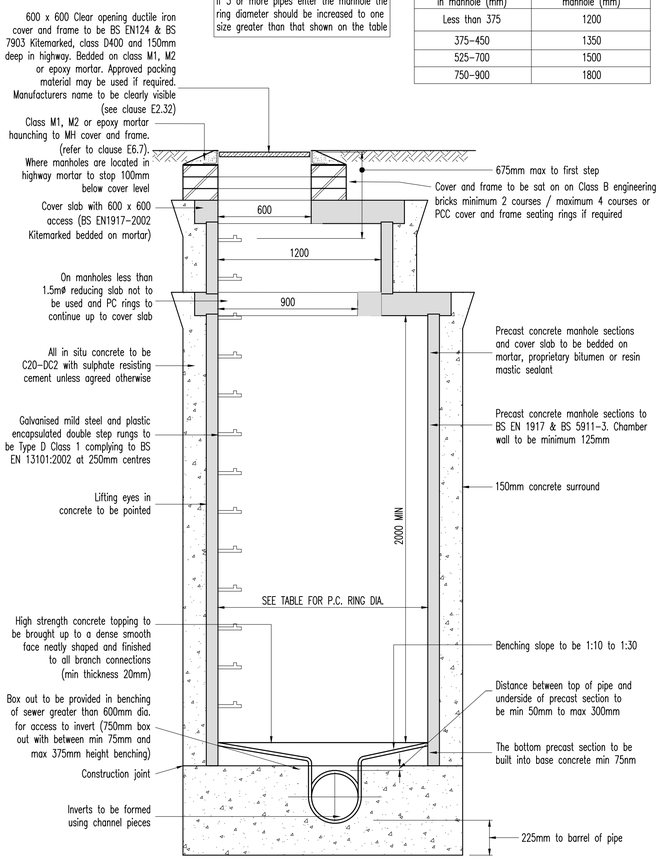
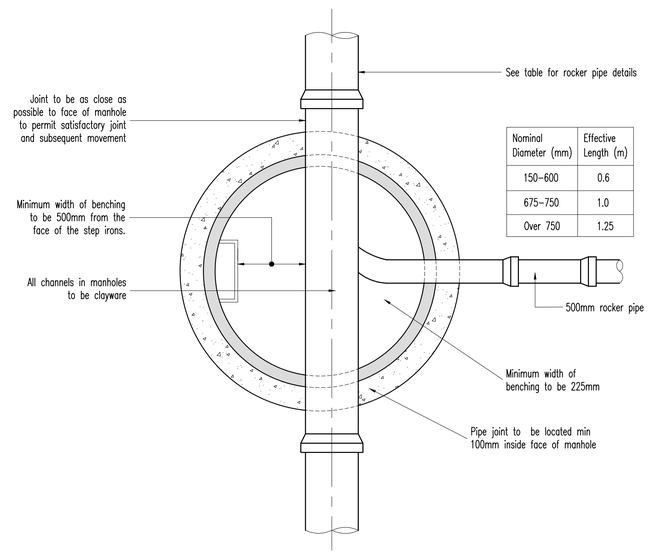
NOTE:
If 3 or more pipes enter the manhole the ring diameter should be increased to one size greater than that shown on the table

ø Of largest pipe in manhole (mm)	Minimum internal ø of manhole (mm)
Less than 375	1200
375–450	1350
525–700	1500
750–900	1800





Nominal Diameter (mm)	Effective Length (m)
150–600	0.6
675–750	1.0
Over 750	1.25

TYPICAL MANHOLE DETAIL–TYPE A

Max depth from ground level to soffit of pipe 3.0m to 6.0
The design of the manhole will need to comply with the undertakers safety policy

NOTE:
All PCC units in oversize manholes must have a design working life of 100 years (min) in accordance with BS8500–1:2015+A2:2019–Table A.5.

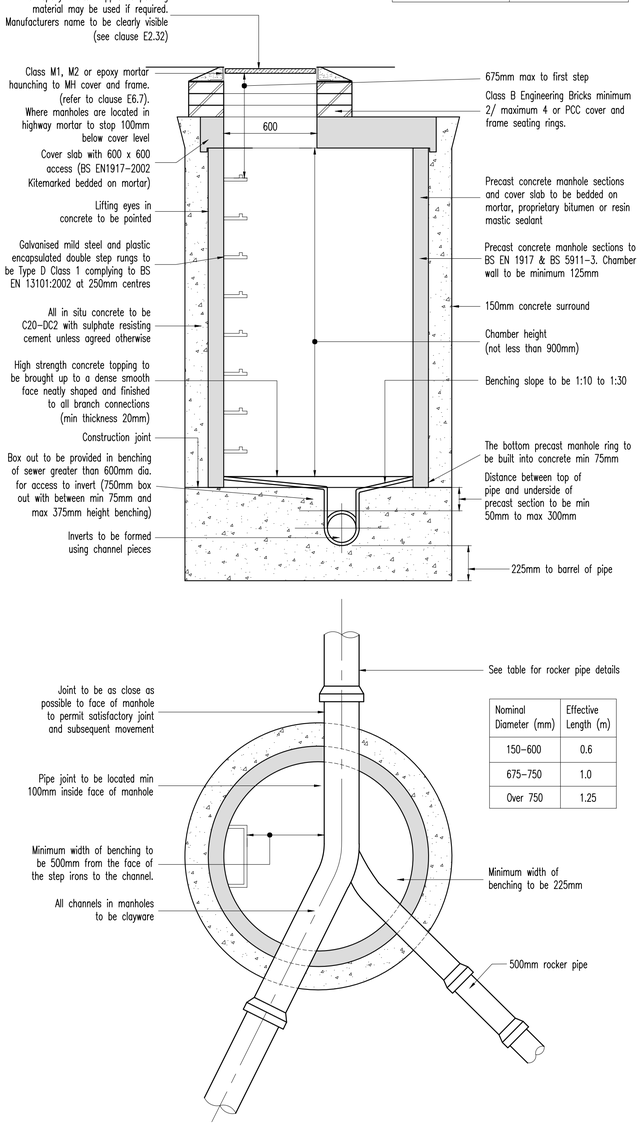
All oversize precast concrete manhole circular vertical units and cover slabs including all ancillary concrete products must be in full compliance with "BS EN 1917" & "BS 5911–3 +A1".

The manholes cover and frame should be in accordance with Brickhouse "Silent Knight" or similar approved

All custom built ironwork to be Hot Dipped Galvanized prior to fixing

NOTE:
If 3 or more pipes enter the manhole the ring diameter should be increased to one size greater than that shown on the table

ø Of largest pipe in manhole (mm)	Minimum internal ø of manhole (mm)
Less than 375	1200
375–450	1350
525–700	1500
750–900	1800

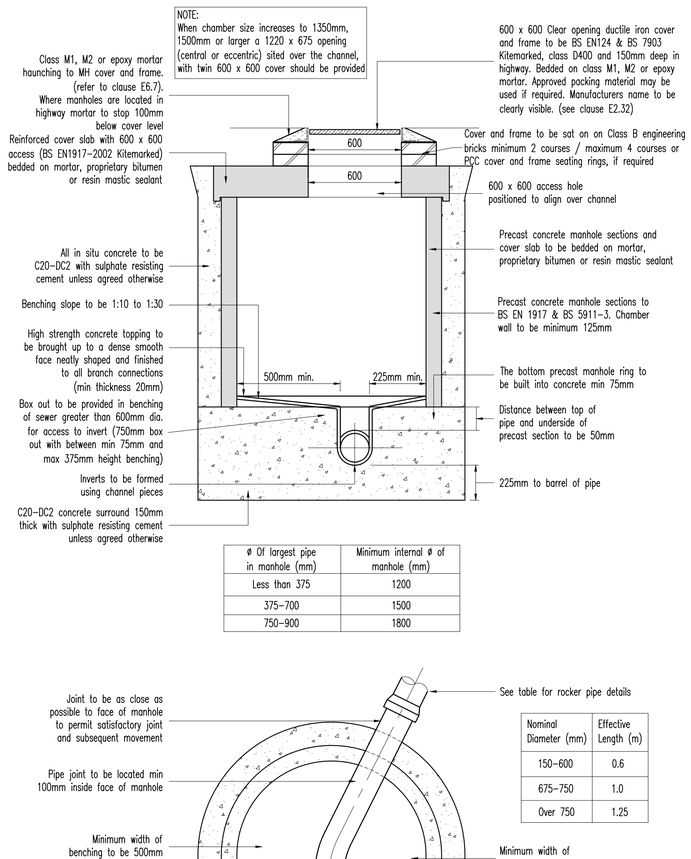


Nominal Diameter (mm)	Effective Length (m)
150–600	0.6
675–750	1.0
Over 750	1.25

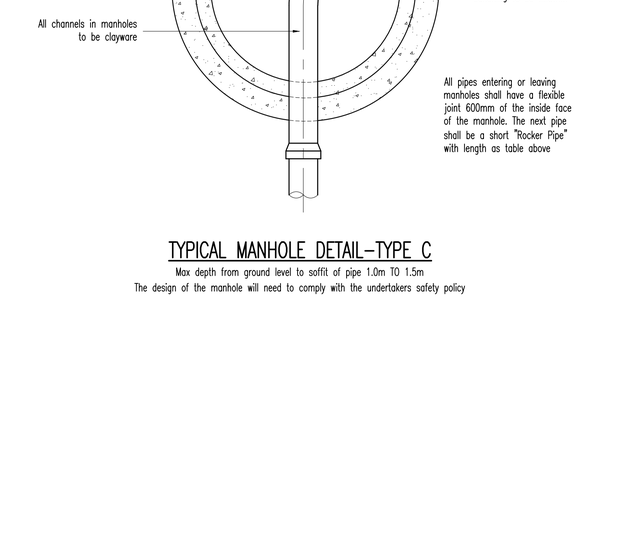
TYPICAL MANHOLE DETAIL–TYPE B

Max depth from ground level to soffit of pipe 3.0m
The design of the manhole will need to comply with the undertakers safety policy

NOTE:
When chamber size increases to 1350mm, 1500mm or larger a 1220 x 675 opening (central or eccentric) sited over the channel, with twin 600 x 600 cover should be provided



ø Of largest pipe in manhole (mm)	Minimum internal ø of manhole (mm)
Less than 375	1200
375–700	1500
750–900	1800



Nominal Diameter (mm)	Effective Length (m)
150–600	0.6
675–750	1.0
Over 750	1.25

TYPICAL MANHOLE DETAIL–TYPE C

Max depth from ground level to soffit of pipe 1.0m TO 1.5m
The design of the manhole will need to comply with the undertakers safety policy

N O T E S

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

DO NOT SCALE | ORIGINAL DRAWING SIZE A1

Water Authority's General Notes

1. This drawing is to be read in conjunction with all relevant OEC Consulting Engineers and Architects drawings and project specifications.
2. All adoptable sewer works and material to be in accordance with Sewerage Sector Guidance Design and Construction Guidance [Code for Adoption]. The Relevant British/European and the Water Authority's Standards/Requirements/Local Practice for the Adoption of Small Submersible Foul and Surface Water Pumping Stations and must be Kitemarked.
3. The location, size and depth of all existing drains/sewers and services shall be established by the contractor prior to commencement of works on site. Any discrepancies from the information indicated on these drawings shall immediately be brought to the attention of the engineers.
4. All levels and dimensions shall be verified on site prior to commencement of any works. Any discrepancies shall immediately be brought to the attention of the engineers.
5. Sewers must have 5 metres clearance from trees and hedges or the width of the canopy at mature height. (please also refer to Figure 2.3 on page 33 in "Sewers for Adoption" 6th Edition for restrictions on tree planting adjacent to Sewers).
6. The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
7. All connections to public sewers to be a minimum of 150mm ø via a 45° junction.
8. 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 provided above the granular bed and surround.
9. The Water Authority's policy is that brick manhole and 1050mm dia manhole rings are not preferred. Instead it is preferred that you use a type "B" manhole with 1200mm dia, 1350mm dia or 1500mm dia rings, with the opening sited over the channel where depth of cover to pipe soffit is 1–1.5m.
10. 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.
11. Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways. 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.
12. Cover slabs must carry the BSI Kitemark or will be rejected by the Water Authority's 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 600x600mm for the Water Authority's specified cover size. Please refer to the Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued autumn 2004 for kitemarked cover slab opening sizes.
13. Plastic channel sections in manholes are not acceptable and clayware is preferable. Plastic channels are difficult to set in concrete and a satisfactory finish cannot be obtained on the benching.
14. Maximum depth of demarcation chamber to be 2m, where depth exceeds 2m, manhole to be constructed as type B manhole.
15. Demarcation chambers to be a min. 450mmø chambers for 100mmø foul & 150mmø surface water pipes up to 1.2m deep. For depths greater than 1.2m, restricted access opening to 350mm is required for safety reasons.
16. Where plastic pipes are proposed for adoptable sewers, structural calculations for the plastic pipes and a site investigation report to prove that the ground condition is suitable for the plastic pipes are to be produced.
17. There should be enough clearance to accommodate the bedding for both pipes, approx 300mm. If the crossover is near the rocker then the clearance needed may be increased.
18. If plastic pipes are to be used then the following should apply:–
    a) All adoptable sewers to be BSI Kitemark (certified to WIS 4–35–01 and BS EN13476)
    b) Bedding and backfill material to conform to the requirements of the Water Industry Specification 4–08–02 (Table A1)
19. Adoptable plastic sewer pipes to be BSI Kitemarked (Certified to WIS 4–35–01 and BS/EN13476). Adoptable plastic sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer.
20. Filled ground or soft spots must be excavated, backfilled and consolidated under the supervision, and to the satisfaction, of the Water Authority before any sewer works are carried out.
21. Sulphate resisting cement (C20–DC2) and precast concrete products must be used or a laboratory report provided proving that such precautions are not necessary.
22. The minimum crushing strength for clay pipes should be as follows : 100mm dia. 40KN/m, 150mm dia. 40KN/m, 225mm dia. 45KN/m and 300mm dia. 72KN/m. The minimum crushing strength for concrete pipes should be – (Class 120 to EN 1916/BS5911–1 2002). Plastic pipes should conform to WIS 4–35–01 and BS EN13476.
23. Surface water and foul rising mains to be provided with marker tape above the rising mains.
24. The Water Authority is not obliged to accept filter drain/land drainage runoff into the public sewer network or adoptable drainage system (directly or in–directly). An alternative method of disposal of the land drainage runoff will therefore be required and you will have to liaise with the Land Drainage Authority/Land Drainage Section with regard to the disposal of the filter drain/land drainage runoff is required.
25. All excavations in areas of high water tables and granular materials with high sand/silt contents shall be wrapped with a suitable geotextile filter membrane to prevent migration of sands/silts. Full height clay stanks across trenches and/or at manhole locations at 25m intervals to restrict water movement along the excavation shall be provided.
26. All works within the public highway to be reinstated to the highway authority requirements. All drainage connections onto adoptable drainage systems shall be carried out to the water authority's approval.
27. The contractor must allow for any fee's required for road and sewer opening permits, sewer connections and make the appropriate applications.
28. Where there are double road gullies, the gully leads shall be connected onto separate pipe lengths.

Rev	By	Date	Description	Chk
/	RB	11.05.26	Issued for approval	WW

CONSULTING ENGINEERS LTD
Wakefield T: 01924 792312 Leeds T: 01138 194842
W: www.oecconsult.co.uk • E: info@oecconsult.co.uk

Client KEEPMOAT HOMES WEST YORKSHIRE

Project GOMERSAL

Title TYPICAL DRAINAGE DETAILS SHEET 1 OF 2

Scale	Drawn	Checked	Date
1:500	RB	WW	MAY.26

Drawing Status APPROVAL

Job No.	Drawing No.	Revision
104.019	07.01	/