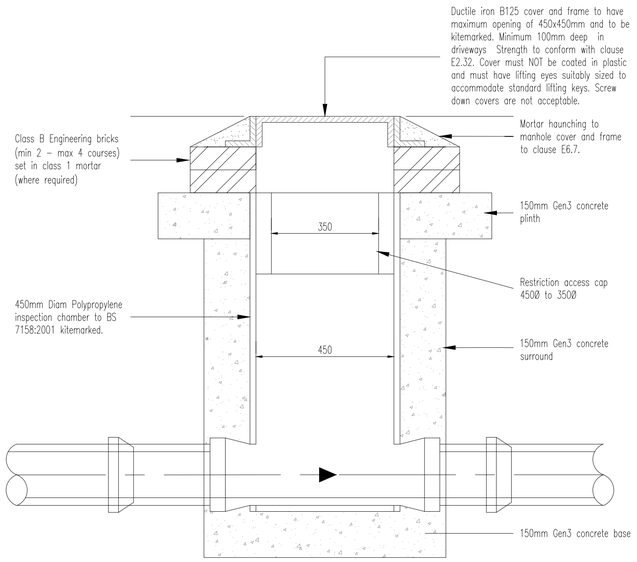
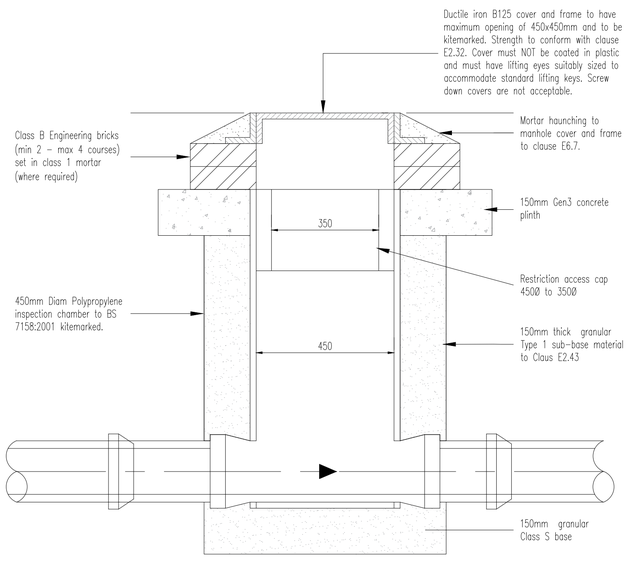


DEMARCATION CHAMBER LOCATED IN DRIVEWAY
(1:10)

For depth of chamber greater than 1200mm maximum depth 3000mm

Note:
Where depth to soffit exceeds 2.0m on the lateral connections a type B manhole is to be installed



DEMARCATION CHAMBER LOCATED IN GARDENS
(1:10)

For depth of chamber greater than 1200mm maximum depth 3000mm

NOTE
Lateral sewers to be Plastidrain (110 & 160 O.D.) in UPVC manufactured by Hepworth and approved by Yorkshire Water. Demarcation chamber to be polypropylene Non-Entry Inspection Chamber up to 2.0m depth manufactured by Wavin and approved by Yorkshire Water to BS EN 13598-1:2003.

Manufacturer List

PIPES

Product Name	Diameter (mm)	Manufacturer	Material
Supersleve	100 & 150 (I.D.)	Hepworth	Vitrified Clay
Superseal	150 & 225 (I.D.)	Hepworth	Vitrified Clay
Densleeve	100,150 & 225 (I.D)	Naylor	Vitrified Clay
Denseal	100,150 & 225 (I.D)	Naylor	Vitrified Clay
Ultra-Drain	110 & 160 (O.D.)	Uponor	uPVC
Plastidrain	110 & 160 (O.D.)	Hepworth	uPVC
OsmaDrain	110 & 160 (O.D.)	Wavin	uPVC
Osma UltraRib	150 & 225 (I.D.)	Wavin	uPVC
Solid Wall	110 & 160 (O.D.)	Marley	uPVC
Quantum	150 & 225 (I.D.)	Marley	uPVC
Underground Drain	110 & 160 (O.D.)	Polypipe	uPVC
Ridgisewer	150 & 225 (I.D.)	Polypipe	uPVC

Demarcation Chamber

Manufacturer	Product Name	Material	Max depth	Cover Type
Naylor	Plastic Inspection Chamber	Polypropylene	Up to 1200mm	Class B125
Hepworth	PPIC	Polypropylene	Up to 1200mm	Class B125
Uponor	Inspection Chamber (450mm Ø)	Polypropylene	Up to 1200mm	Class B125
Marshalls	Inspection Chamber To BS 5911 pt 2	Precast concrete	Up to 1000mm	Class B125
Wavin	Osma UltraRib Inspection Chamber	Polypropylene	Up to 1200mm	Class B125
Wavin	OsmaDrain Universal Inspection Chamber	Polypropylene	Up to 1200mm	Class B125
Wavin	Non Entry Inspection Chamber	Polypropylene	Up to 2000mm	Class B125
Marley	Inspection Chamber (450mm Ø)	Polypropylene	Up to 1200mm	Class B125
Polypipe	110 Inspection Chamber (460mm Ø)	Polypropylene	Up to 1200mm	Class B125
Polypipe	Non man Entry Deep Inspection Chamber System	Polypropylene	Up to 2000mm	Class B125

Note:
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.

Extract from Table A2 WIS 4-08-02

Processed granular bedding and sidefill materials for flexible pipes.

Pipe nominal bore (mm) see note (d)	Nominal maximum particle size (mm)	Materials specified in British Standards see note (a)
100	10	10mm nominal single size
Over 100 to 150	15	10-14mm nominal single size or 14mm to 5mm graded
Over 150 to 300	20	10-14mm or 20mm nominal single size or 14mm to 5mm graded or 20mm to 5mm graded
Over 300 to 500	20	14 or 20mm nominal single size or 14mm to 5mm graded or 20mm to 5mm graded
Over 550	40	14 – 20mm or 40mm nominal single size or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded

Notes:

(a) Processed granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS1047 and lightweight aggregates to BS 3797

(b) For the purpose of this table, PE pipe of 630mm O.D. can be regarded as having nominal bores of over 550mm, irrespective of wall thickness.

(c) Nominal bore is used in preference to DN because of the different nominal size classifications for flexible pipes

Minimum recommended trench widths for structured wall pipes in poor ground conditions

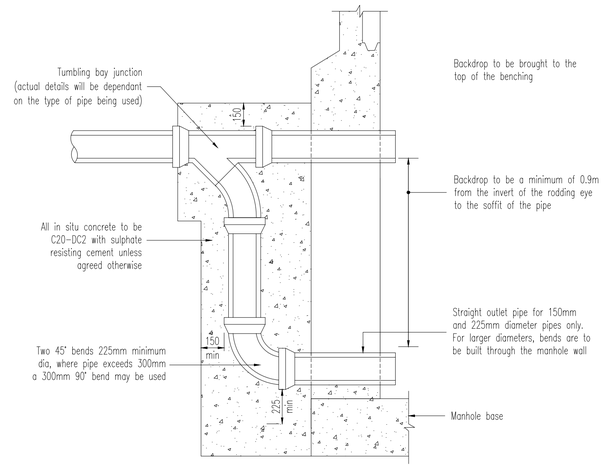
Native Soil Modulus between 3 and 4 Mpa
Typical Soil Classifications : Very loose gravel, loose sand, medium dense clayey silty sand, firm clay

Nominal Pipe Diameter (mm)	150	225	300	375	450	525	600	750	900
Minimum Trench Width (mm)*	450	525	600	750	900	1050	1200	1500	1800

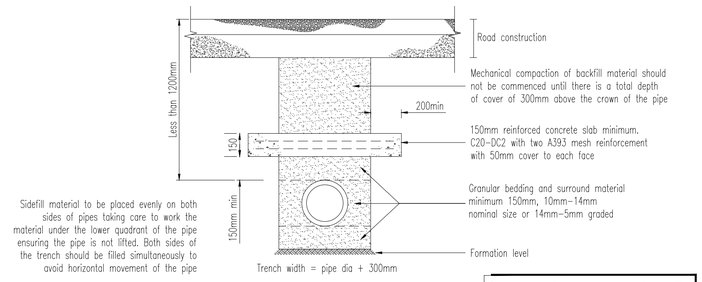
* A vertical trench face has been assumed to allow a modulus of 7 Mpa to be achieved for the pipe bedding and sidefill material.

Other assumed values: Depth of cover = 6.0 metres (max)
Traffic Loading = Main Road
Pipe stiffness = SN8

Note. Where the native soil modulus is below 3Mpa or the depth of cover exceeds 6 metres guidance should be sought from the pipe manufacturer regarding structural design and installation details.

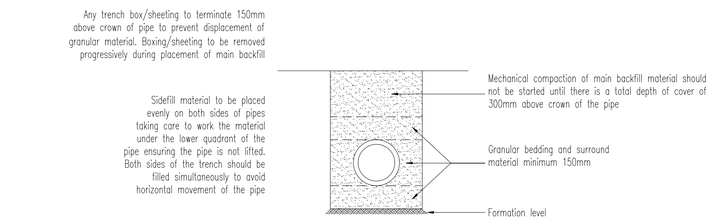


TYPICAL BACKDROP DETAIL
(1:20)

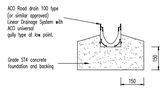


Concrete protection required when depth to soffit is less than 1.2m in roads/vehicular access and less than 0.9m in non vehicular access areas

CONCRETE PROTECTION FOR PIPES AT DEPTHS OF COVER LESS THAN 1.2m
(1:20)



TYPICAL DETAIL THROUGH CLASS S BEDDING
(1:20)



ACO DRAIN
(1:10)

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

N O T E S

Yorkshire Water Notes

1. All adoptable sewer works and material to be in accordance with "Code for Adoption". The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked.
2. 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.
3. Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.
4. Yorkshire Water is not obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (directly or in-directly). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section regarding the disposal of the filter drain/land drainage run-off.
5. The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
6. Sewers must have 5 metres clearance from trees and hedges or the width of the canopy at mature height.
7. 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 nonvehicular access areas) then a concrete slab should be provided above granular bed and surround.
8. Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).
9. Yorkshire Water policy is that Type "C" brick manholes and 1050mm diameter manhole rings are not preferred. Instead, it is preferred that you use a type "B" manhole with 1200mm diameter or 1500mm diameter rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 – 1.5m.
10. 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 lengths. Plastic channel sections in manholes are not acceptable and Yorkshire Water would require clay ware channel in manholes.
11. 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.
12. 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.
13. There must be enough clearance at crossovers to accommodate bedding to both pipes, approx. 300mm : if crossover is near the rocker then the clearance needed may need to be increased".

General Notes

14. Precast concrete manhole units shall comply with the relevant provisions of BS EN 1917 and BS 5911-3 and shall be manufactured from concrete with a Design Chemical Class DC-4 unless the sewerage company can be satisfied that a lower class will resist attack from soils and groundwater. 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.
15. All levels of existing drainage to be confirmed prior to work commencing on site.
16. The contractor must allow for any fee's required for road and sewer opening permits, sewer connections and make the appropriate applications.

KMC Structures AIP – For MH chambers of 1500mm diameter and above.

Technical approval for the design of circular RC cover slabs up to and including 3.0m (internal diameter) will not be required subject to the following conditions:

1. Proof that the circular RC cover slabs units to be used at this site are marked with "BS EN 1917" & "BS 5911-3" R to confirm that the product represents a manufacture's declaration that the product meets the requirement of the standards.
2. Confirmation of Design Chemical Class (DC-Class) of concrete in the cover slab units.
3. Submission of a satisfactory Design & Check Certificate (Category 0) in compliance with BD2/12-Technical Approval of Highway Structures.
4. Submission of a satisfactory Construction Compliance Certificate in accordance with BD2/12 upon the completion of works.

Rev	By	Date	Revision	Chk	Apvd
/	IC	14.11.25	Preliminary issue	MI	MI

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ARP Associates is a trading division of ARP Geotechnical Ltd, a company registered in England and Wales with company number 3771811, whose registered office is at 5/6 Northwest Business Park, Servia Hill, Leeds LS6 2QH

TITLE
TYPICAL DRAINAGE DETAILS SHEET 2 OF 2

PROJECT
COCKLEY HILL, KIRKHEATON

CLIENT
GLEESON HOMES

DRAWING STATUS
APPROVAL

Scale: AS SHOWN @ A1
Date: NOV 25
Drawn: IC
Chk.: MI

Drg. No. 2298/03/07.02
Rev /