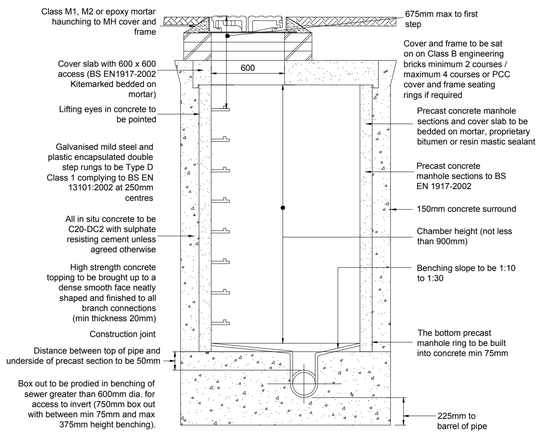
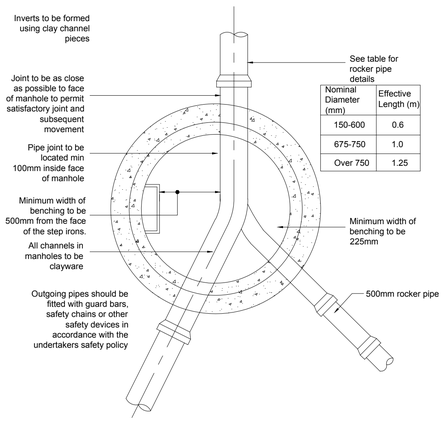
600 x 600 Clear opening ductile iron cover and frame to be BS EN124-200 Kitemarked, class D400 and 150mm deep in highway. Bedded on class M1, M2 or epoxy mortar. Approved packing material may be used if required. Manufacturers name to be clearly visible



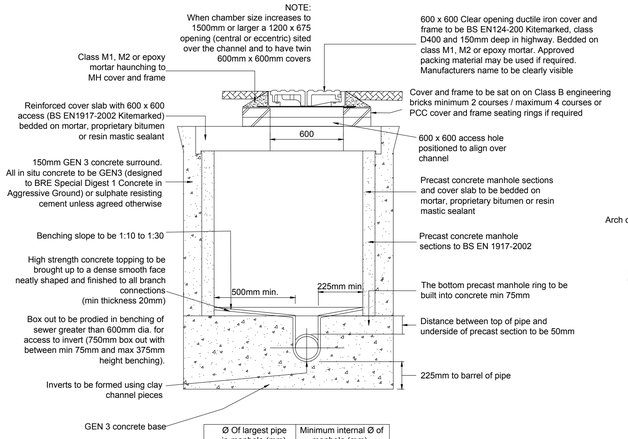


Nominal Diameter (mm)	Effective Length (m)
150-600	0.6
675-750	1.0
Over 750	1.25

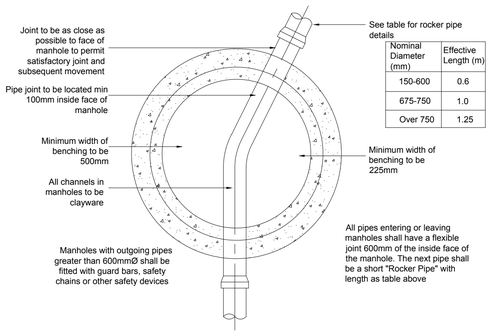
TYPICAL MANHOLE DETAIL-TYPE B

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 1500mm or larger a 1200 x 675 opening (central or eccentric) sited over the channel and to have twin 600mm x 600mm covers



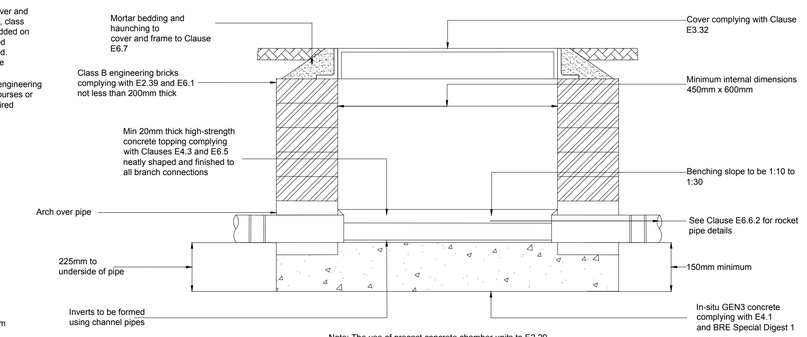
Ø Of largest pipe in manhole (mm)	Minimum internal Ø of manhole (mm)
Less than 375	1200
375-700	1500
750-900	1800



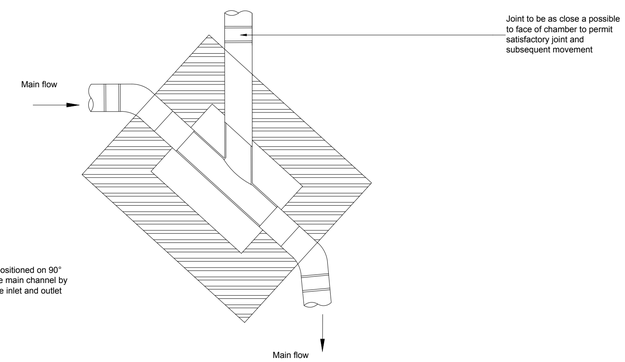
Nominal Diameter (mm)	Effective Length (m)
150-600	0.6
675-750	1.0
Over 750	1.25

TYPICAL MANHOLE DETAIL-TYPE B1 SHALLOW MANHOLE

Code for adoption 2020
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



Note: The use of precast concrete chamber units to E2.29 with 150mm GEN3 in-situ concrete surround complying with E4.1 and BRE Special digest 1 in place of brickwork construction is permitted



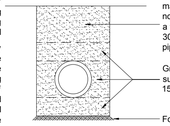
Note: Where the access chamber is in the highway (including any footway), the highway authority can have specific requirements.

TYPICAL INSPECTION CHAMBER-TYPE E

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

Any trench box/sheeting to terminate 150mm above crown of pipe to prevent displacement of granular material. Boxing/sheeting to be removed progressively during placement of main backfill

Sidefill material to be placed evenly on both sides of pipes taking care to work the material under the lower quadrant of the pipe ensuring the pipe is not lifted. Both sides of the trench should be filled simultaneously to avoid horizontal movement of the pipe



Trench width = pipe dia + 300mm

TYPICAL DETAIL THROUGH CLASS S BEDDING

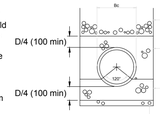
Pipes

Diameter Ø (mm)	Gradient	
	Foul	S.W
100	1:80	-
150	1:80	1:80

NOTE:
Vitrified clay pipes to BS EN 295 kitemarked.
Unplasticised PVC pipes to BS 4660:200 &BS EN 1401-1 kitemarked.
Structured Wall Unplasticised PVC pipes to WIS 4-35-01 kitemarked.

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

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
(If in doubt refer to ARP schedule)

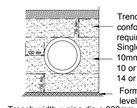


Class A2

Design bedding factor 3.4

Pipe Bedding

(Details to be read in conjunction with relevant notes & tables)



Trench width = pipe dia + 300mm

LATERAL DRAIN BEDDING DETAIL

Type A Granular Bedding Material	
Pipe nominal diameter	Granular Material
100	10mm single-size
100 - 150	10 or 14mm single-size or 14 - 5mm graded
150 - 500	10, 14 or 20mm single-size or 14 - 5mm or 20 - 5mm graded

Rigid Pipe Trench Widths	
Pipe nominal diameter	Max. Trench width at 300mm above top of pipe
100	700mm
150	750mm
225	825mm
300	900mm

Flexible Pipe Trench Widths	
Pipe nominal diameter	Min to Max Trench width at 300mm above top of pipe
100	400mm to 700mm
150	450mm to 750mm

Pipe Diameter	Rocker Pipe Length
100 - 450mm	0.5 - 0.75m

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

(c) 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.

(d) 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

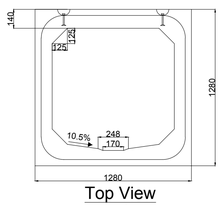
Minimum Trench Width (mm)* 450 525 600 750 900 1050 1200 1500 1800

* 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 = SNB

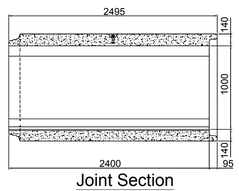
Note. Where the native soil modulus is below 3Mpa or the depth of cover exceeds 6 metres guidance should be sought from the pipe manufacturer regarding structural design and installation details.

Socket View



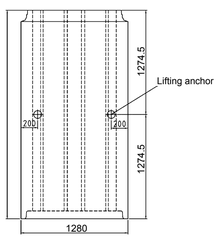
Top View

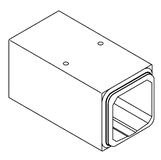
Longitudinal section



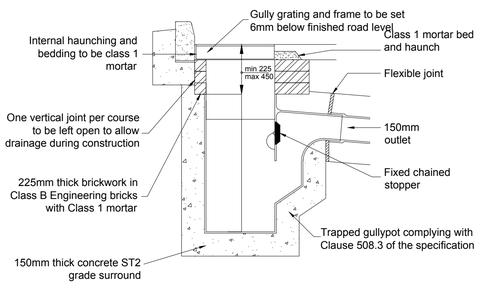
Joint Section



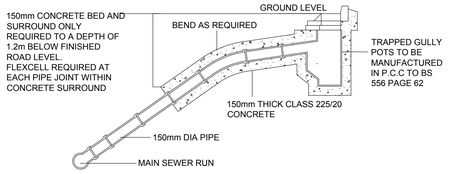




TYPICAL BOX CULVERT



TYPICAL ROAD GULLY



GULLY CONNECTION

Gully gratings and frames shall comply with the requirements of BS EN124, Class D400, manufactured in ductile iron.

Grating and frame shall be single piece with an anti theft captive hinge and shall be hinged to close with the direction of traffic flow .

Gratings shall have 100mm deep frame.

Gratings and frames shall be coated with black bitumen.

Minimum clear opening between gully pot and gully frame to be 370mmØ x 430mm in any direction.

Trapped gully pot manufactured in pre-cast concrete.

Gully grating and frame must be located centrally over the gully pot

Pedestrian/cycle friendly gully grating to be specified in shared surface areas and adjacent drive crossings

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- Service connections are not shown but their presence should be anticipated.
- Reference to any third party equipment shown on this drawing was only relevant at the time the drawing was prepared.
- It is the client's responsibility to ensure that any equipment ordered meets the design.

Rev	Amendment	Drawn	Date	Checked

PRELIMINARY DRAWING

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Client
HJK Construction

Project Title
Hallsteads, Dove Holes

Drawing Title
S104 Typical Drainage Details

Scale	Drawn By
N.T.S	TOD
Drawing Size: A1	Checked By: JEM
Date: October 2022	Approved By: JEM

Drawing Number: 301174A-S104-0506
Rev:

FILE REF:

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