

# Addendum to the self laying of water mains and services guidance notes

## Introduction

Severn Trent Water Ltd (STW) is committed to the provision of cost effective self lay mains and services to Developers and their self lay organisations whilst ensuring that the standards of the installation and water quality are not compromised. Consequently we require all self lay work to be carried out in accordance with the UK Water Industry Research (UKWIR) “Self Laying of Water Mains and Services, a Code of Practice for England & Wales 2nd Edition” (CoP) and its national addendum for the safe Control of Routine Mains Connections (CRMC) published by WRc Plc May 2009. This document is an addendum to the Code (‘the Addendum’) and all Developers/Self Lay Organisation (SLOs) must agree to the requirements set out in the Code and this Addendum prior to undertaking any self lay works.

## Section 1: Contact details

Severn Trent Water Ltd  
New Connections  
PO Box 5311  
Coventry  
CV3 9FL

Telephone: **0800 707 6600**  
Email: [newconnections.selflay@severntrent.co.uk](mailto:newconnections.selflay@severntrent.co.uk)  
Website: [www.stwater.co.uk/newconnections](http://www.stwater.co.uk/newconnections)

## Section 2: Supplementary clauses

**NOTE: the structure and numbering of these clauses corresponds to the structure and numbering of the CoP and CRMC 2009.**

### Part 1 – General

#### 1.5 Competence of self lay organisations

SLOs are required to have obtained membership of Lloyds Register Water Industry Registration Scheme (WIRS) and hold a current approval certificate granting at least partial accreditation before they are allowed to proceed with the design and/or construction of any new mains and service connections with STW’s operational area.

#### 1.11 Finances

1. The Asset Payment is normally paid to the Developer; however this payment can be made to the SLO, on receipt of written authorisation from the Developer.
8. Self laying of mains and services charges are detailed in our New Connections Charges leaflet (available on our website).

### Part 2 – Self lay procedures

#### 2.1 The procedure

Application forms are available at both the enquiry and application stages. These are available by contacting our New Connections Department or are available on our website.

### 2.1.3 Self lay levels of service

The current levels of service can either be obtained from OFWAT's website: [www.ofwat.gov.uk](http://www.ofwat.gov.uk) or are included in the CoP.

## 2.2 Initial enquiry

Where the application is made on behalf of the Developer by the SLO, the Developer is required to provide written authorisation to STW that the SLO is acting as an agent on their behalf. The Developer will be required to agree in writing to STW's terms together with the SLO. If the Developer requires the Asset Value payment to be made to the SLO, they must also confirm this in writing to STW.

## 2.4 Construction stage

### 2.4.1 Notification of start

Before works start on site a pre-construction site meeting must be held between the Developer, his accredited SLO and an STW representative.

The following actions are needed to organise this meeting:

- (i) a minimum of 15 working days notice (in writing) should be given of the proposed commencement of the works
- (ii) within the notification a date needs to be incorporated, giving at least five working days notice for the pre-construction meeting to take place.

**2.4.3.2** SLOs that have met the Lloyds WIRS requirements for this work are permitted to make routine in-line connections subject to the Code of Practice 2nd Edition national addendum for Safe Control of Routine Mains Connections. The criteria for routine in-line connections comprise:

- to a newly laid main (either laid by STW as a spur off an existing main or by themselves or another SLO at the end of a previous phase of main laying)
- to mains which are controlled by a valve or mains that can be squeezed off without affecting existing customers; and
- where there is no interruption to supply to existing customers.

### 2.4.4 Service pipe installation

8. Whilst STW gives installers the flexibility to programme the timing of service connections to suit their own construction programme, the activity is subject to each job being performed in accordance with an approved programme. This is required to enable us to inspect the work when it is being performed.
9. The programme of service connections must be provided to the STW representative at least five working days in advance of the work being performed and any changes to the programme must be notified to STW within 48 hours of the planned date.
10. Where we arrange to inspect the work and find that the activity is not proceeding in accordance with the agreed programme, our abortive inspection charges will be recharged and the work will be subject to verification before being accepted.
11. Self lay service connections, which should meet installation requirements specified in Table 1 and Section 2.4.4. of the code contestable activities in the design and construction of water mains and services of the Code, are generally restricted to connections up to and including 63mm nominal bore.

12. Details of our requirements and procedures for connecting service pipes directly to existing off site mains adjacent to the new development are as published on our website.

## Part 3 – Design and construction guidance

### 3.2 Design requirements

3. Polyethylene should be the default material for all diameters up to 180mm nominal bore however, when ground conditions are not suitable for PE80/PE100 the following products are approved for use within STW's operating area: Standard sizes we prefer are 63mm, 90mm, 125mm, 180mm PE. All other varieties must have approval from STW.

Mains up to 110mm diameter	Puriton, Protectaline
Mains 180mm diameter	Protectaline
Mains 100mm to 300mm diameter	Ductile Iron

### 3.4 Design guidance – general

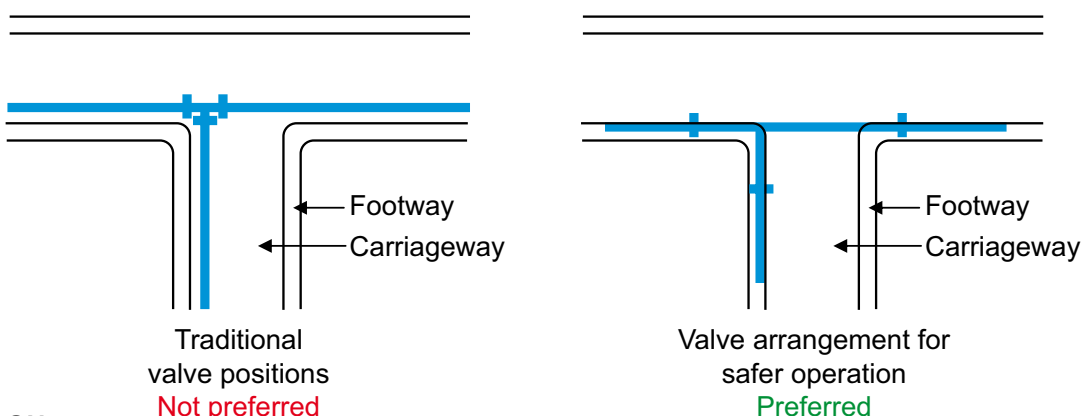
6. Recommendations for tree and surface planting:
- Poplar and willow trees should not be planted within 10m of the water main
  - The following trees should not be planted within 6m of the pipeline – ash, beech, birch, most conifers, elm, horse chestnut, lime, oak, sycamore, apple and pear
  - No shrubs or bushes should be planted within 1m of the centre line of the pipeline
  - The following shallow rooted shrubs/bushes are suitable for screening purposes in close proximity to water mains – blackthorn, broom, cotoneaster, elder, hazel, laurel, privet, quickthorn, snowberry and most ornamental flowering shrubs.

### 3.5 Design guidance – mains

#### 3.5.1 Mains design

2. As a general guide, it should be possible to limit the loss of supply to about 50 properties when isolation valves are closed due to operational or emergency situations.
3. Recommended valve location at road junctions where valves are required to be installed at road junctions, the diagram below shows the preferred locations for safer operation.

#### Safer operation of valves at junctions



Valve operation – closing direction of valves by STW district



1	West Shropshire and Montgomeryshire	Clockwise
2	East Shropshire	Anticlockwise
3	Wolverhampton	Anticlockwise
4	Birmingham	Anticlockwise
6	Worcestershire	Anticlockwise
7	Gloucestershire	Anticlockwise
8	South Warwickshire	Clockwise
9	Coventry & North Warwickshire	Clockwise
10	Leicestershire	Clockwise
11	Nottinghamshire	Anticlockwise
12	Sherwood	Anticlockwise
13	North Derbyshire	Clockwise
14	Derby	Clockwise
15	Staffordshire	Anticlockwise

4. Fire hydrants – the types of fitting shall be loose jumper. In built up areas marker posts will only be provided where requested by the fire service.
5. Pressures within the distribution system are maintained as low as possible but should provide a minimum pressure of 20m head at the outlet of the stop tap on the boundary for all services.
6. Maximum flow velocity should be 1m/sec. Minimum velocity should be 0.2m/sec achieved at least twice per 24 hour period (not withstanding pipe sizes).
7. Connections should be designed so that once installed there is no need to disrupt the live system again in order to make the final piece through. Piece up lengths should be kept to less than 5m in length.

### **3.5.2 Depth of cover**

1. All water mains are to be laid to a minimum cover (to finished ground surface) of 900mm. The maximum cover should not be greater than 1200mm. In addition:
  - Consideration should be given if mains will be subject to wheel and point loads and especially from construction traffic
  - In fields which are likely to be ploughed the minimum cover shall be 1200mm
  - Mains may be laid outside the above specified depths in exceptional circumstances (e.g. geological conditions or crossing of existing utilities) with the prior agreement, in writing, of STW.

## **3.6 Design guidance – services**

### **3.6.1 Service design**

8. Under normal conditions blue MDPE pipework to BS 6572 shall be used. Where the ground is contaminated then metal sheathed MDPE should be used. This is standard MDPE pipe factory-sheathed with an aluminium barrier coating protected with an outer layer of blue MDPE incorporating 4 brown identification stripes. Various sizes are available between 25 – 110mm nominal bore inclusive.

If copper tube is used as the alternative, it must be to BS 2871 Table Y for underground use and be factory coated with blue PE. The pipe must bear a BS Certification Mark which states that it has been effectively cleaned internally.

### **3.6.3 Sizing of service pipes**

1. The head loss due to friction should not exceed 1m per 10m head at average flow. The minimum size for service pipes is 20mm nominal bore.

### **3.6.4 Multiple service connections**

4. Where multiple connections (4 and above) are required, manifolds should be installed.

### 3.6.5 Meter boxes

1. All connections to new properties require a boundary box to be fitted, normally on the edge of the property boundary to control flows and enable a meter to be fitted.  
For apartments or flats where a single incoming service is provided into the building, internal meters shall be fitted to each property in accordance with STW metering specification.
2. Boundary boxes/stop taps should be situated no more than 300mm from the footway boundary. Boundary boxes to comply with WIS 4-37-01 and shall be rigid Type R. The box shall provide continuously variable height adjustment up to 150mm. Boxes for installation in normal ground conditions shall be Class 2 and in contaminated ground shall be Class 1 sealed units with metal union connectors.

## 3.7 Construction

### 3.7.1 General

8. Joints in PE pipes – The layout of the pipe system should be designed to minimise the number of joints. Butt fusion joints are the preferred method. Electrofusion joints shall only be designed into the pipework where site specific circumstances dictate that welding cannot be carried out outside the excavation. The design should allow for sufficient room to undertake the process.
9. Joints in PE barrier pipes (Puriton, Protectaline) – All joints should utilise fluid compression fittings in accordance with the pipe manufacturer's specification.
10. When installing ductile iron fittings to PE mains, joints should be by stub flange thereby maintaining a fully end loaded system.

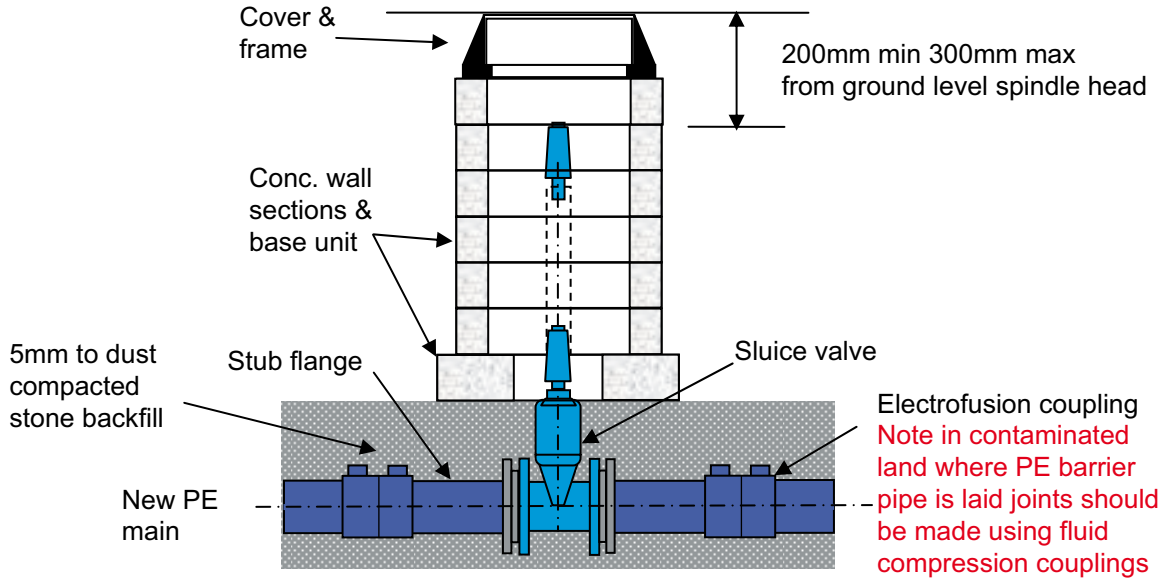
### 3.7.4 Service connections to the water distribution system

1. The service pipe should be laid at right angles to the main and ferrules.
2. The minimum spacing between tappings should be 500mm apart.
3. Service connections to Puriton or Protectaline mains shall only be made using the pipe manufacturers self tapping ferrules designed specifically for use with their own barrier pipe system.

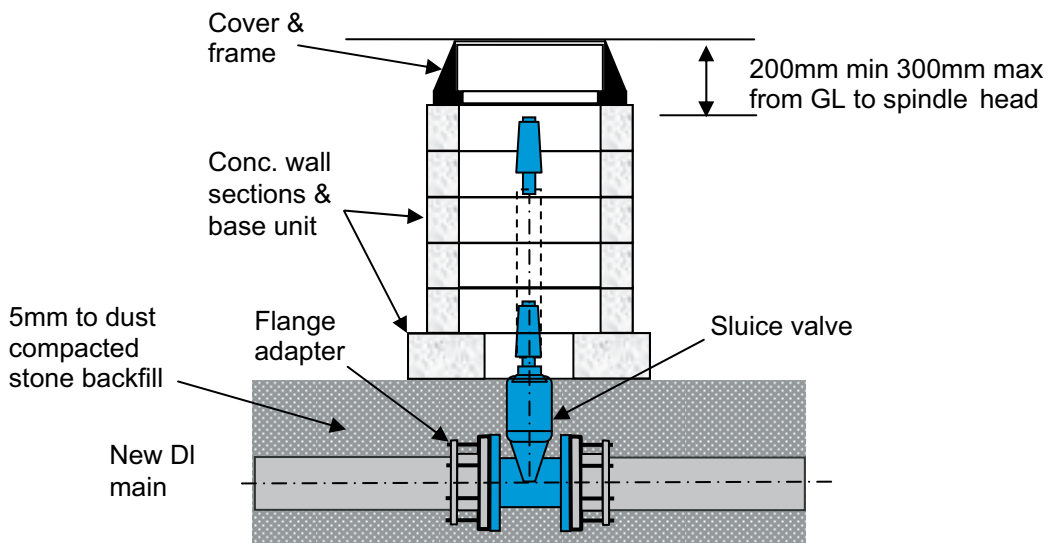
**STW standard constructional details are shown on the following pages.**

# Main laying typical details

## Sluice valve – installed with new PE:



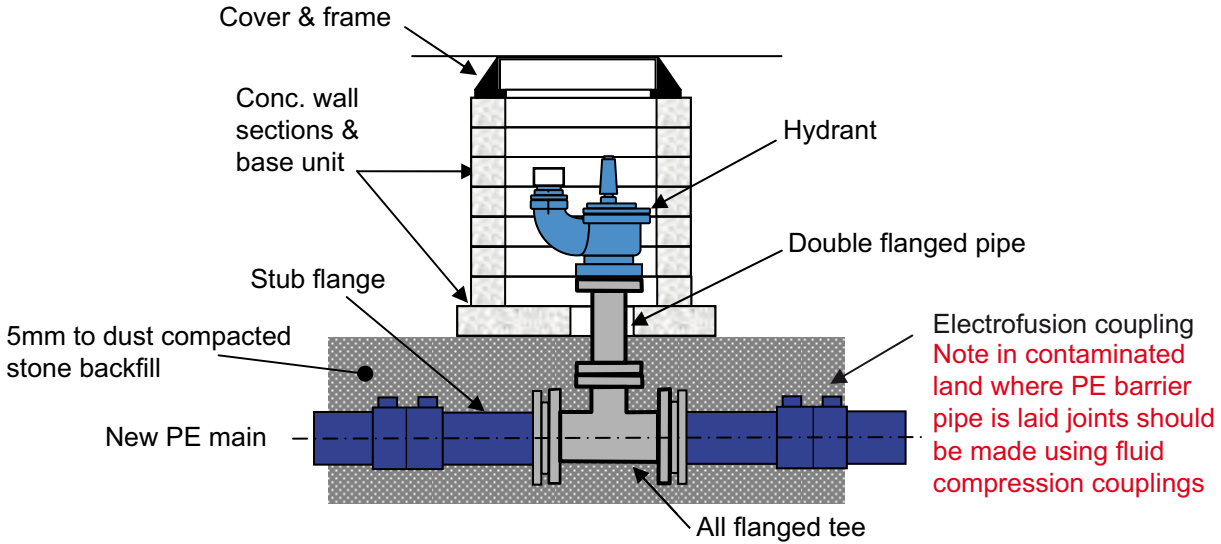
## Sluice valve – installed with new DI:



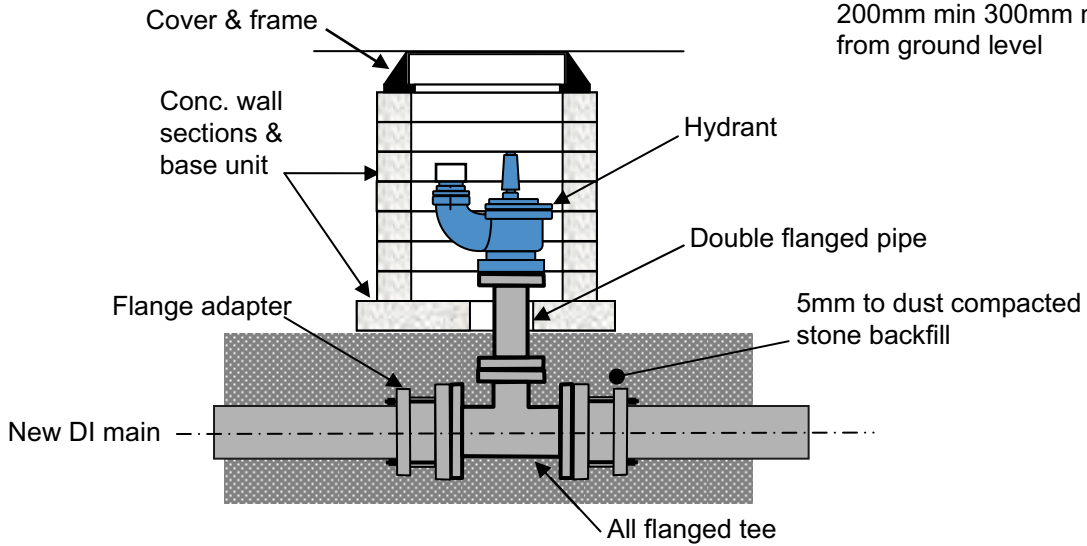
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# Main laying typical details

## Hydrant washout – installed with new PE:



## Hydrant washout – installed with new DI:



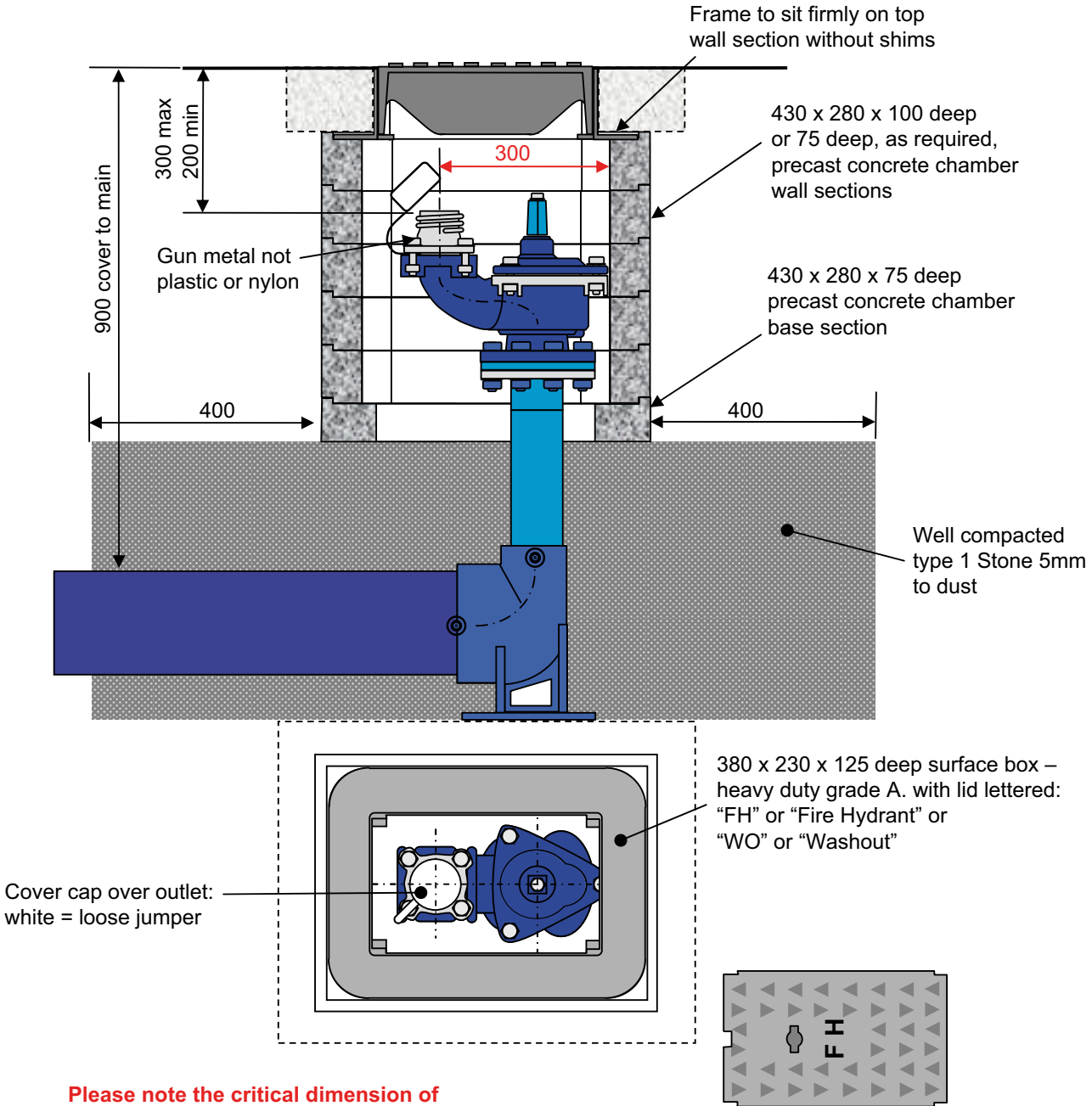
**NOTE**  
Hydrant outlet to be 200mm min 300mm max from ground level

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# Main laying typical details

End hydrant/washout general arrangement for use on self lay/multi utility sites:

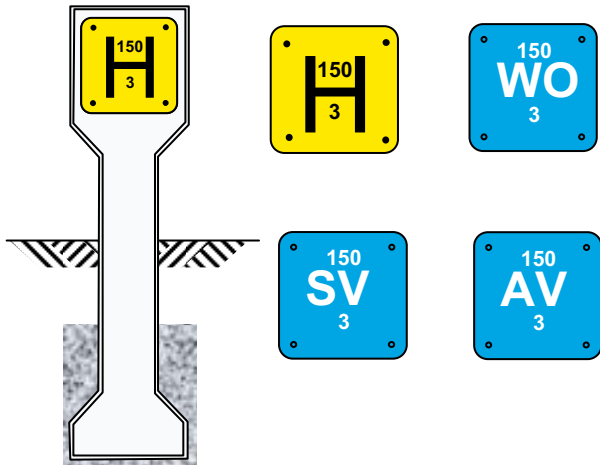


**Please note the critical dimension of 300mm from inside face of chamber to the centre of the hydrant outlet to allow clear access for fitting of standpipe.**

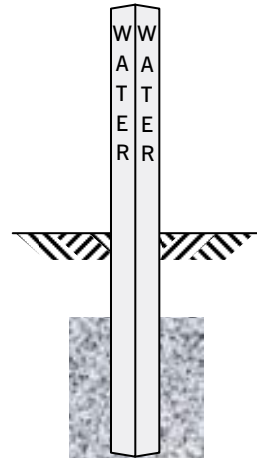
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# Main laying typical details

Marker post and plate details for use on self lay/multi utility sites:



Marker post & plate for hydrant washout, sluice valve

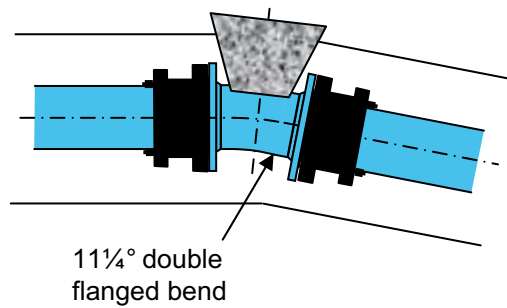
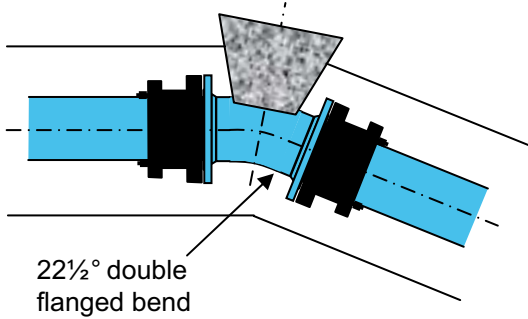
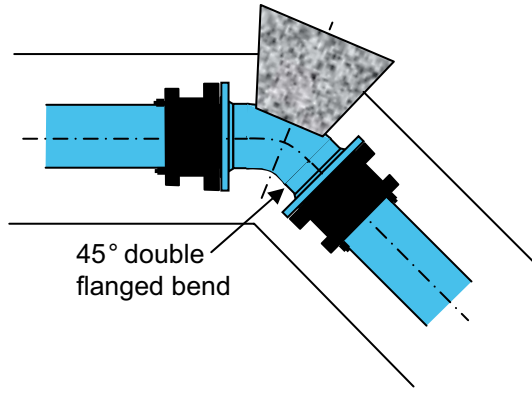
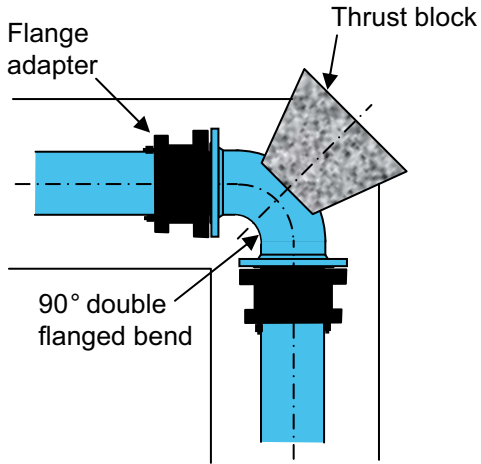


Marker post for field boundary

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# Main laying typical details

Thrust block layout details for ductile iron pipe work used on self lay/multi utility sites:

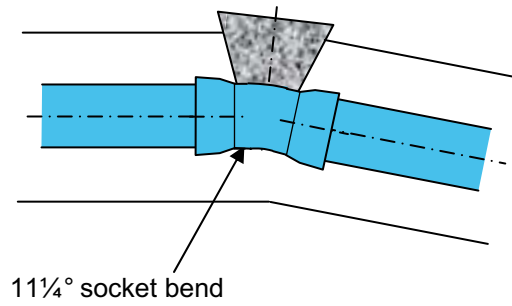
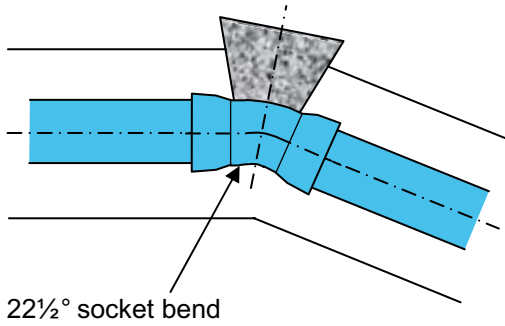
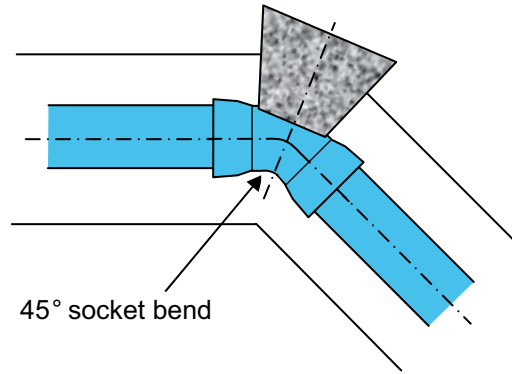
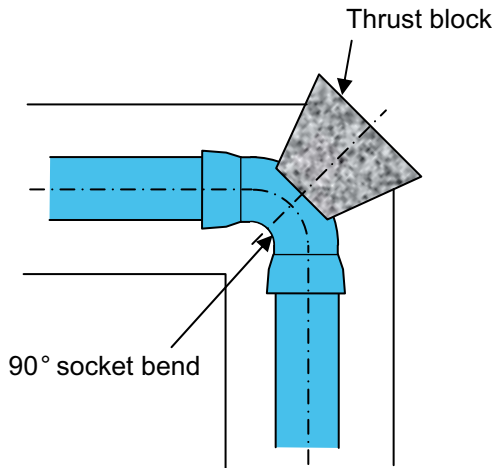


Flanged bends (ductile iron)

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# Main laying typical details

Thrust block layout details for ductile iron pipe work used on self lay/multi utility sites:



Socket bends (ductile iron)

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# Main laying typical details

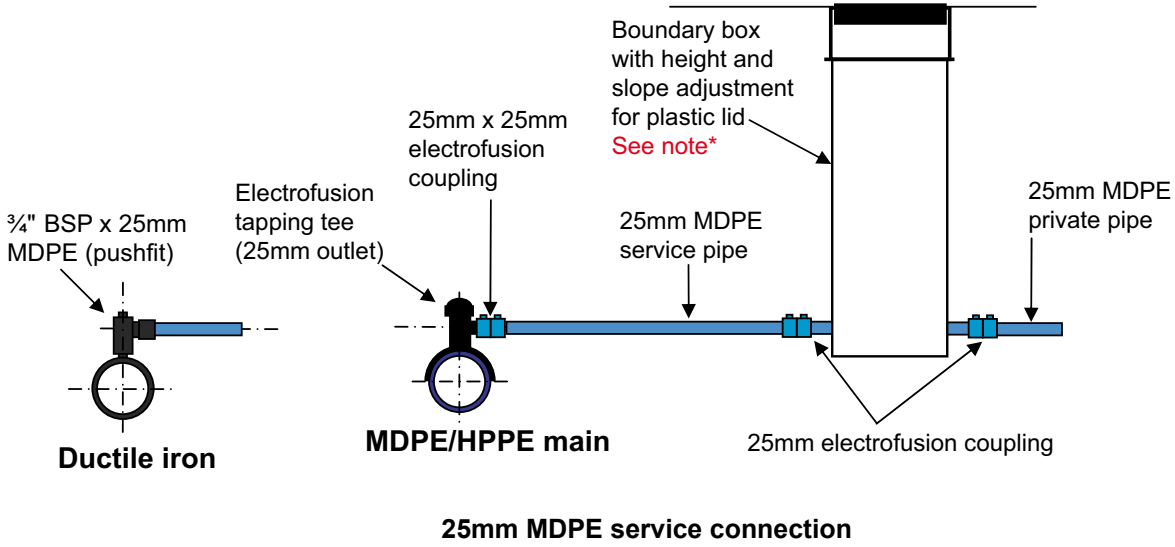
Thrust block layout details for ductile iron pipe work used on self lay/multi utility sites:

Thrust block details			
Thrust block	Bearing area		Nominal quantity
	Min. depth (mm)	Min. length (mm)	Required cubic content (m <sup>3</sup> )
BLOCK A	300	300	0.10
BLOCK B	500	600	0.30
BLOCK C	800	1000	0.80
BLOCK D	800	2000	1.30
BLOCK E	1000	3000	3.00

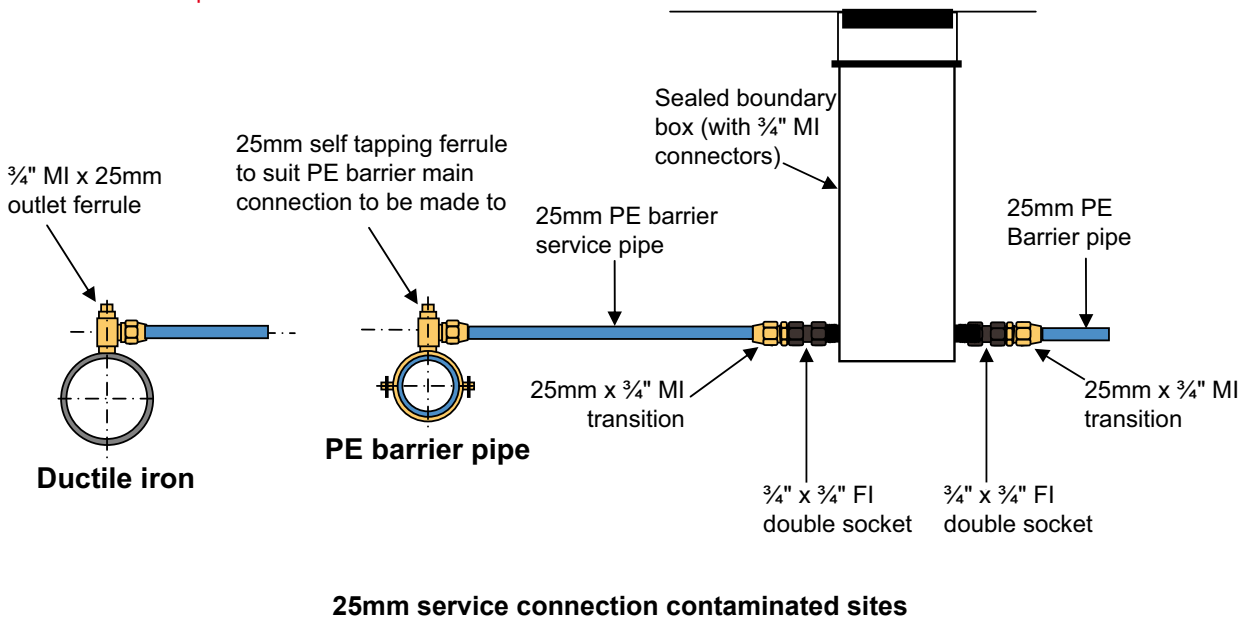
Thrust block sizes					
Nominal pipe sizes	90° bend	End cap & tee	45° bend	22½° bend	11¼° bend
80 ductile iron	B	B	A	A	A
100 ductile iron	C	B	B	A	A
150 ductile iron	D	C	C	B	A
200 ductile iron	D	D	C	C	B
250 ductile iron	E	E	D	C	C
300 ductile iron	E	E	E	D	C

# Main laying typical details

Service connection general arrangements for use on self lay/multi utility sites:



Note \*Square sided metal surface box to be used in paved areas



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