

Guidance on self-lay design, permissible materials and construction arrangements.

Version 2, February 2018



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Introduction

1. Background

1.1 – This document has been written to reflect edition 3.1 (May 2017) of the national ‘Code of Practice for the Self-Laying of Water Mains and Services – England and Wales’ available at www.water.org.uk/developer-services/self-lay-code-practice.

Its purpose is to specify design practice guidance, permissible materials and construction arrangements in the Thames Water area.

The requirements specified here should be followed as if they formed part of the Code of Practice.

2. Competence of self-lay providers

2.1 – We only recognise WIRS-accredited self-lay providers and don’t operate any local accreditation arrangements.

If a self-lay provider (SLP) requests to undertake works where there is no scope-specific accreditation for the activity, we’ll carry out a technical assessment and, subject to approval, assign a company representative to supervise the work.

3. Communication

3.1 – Please email developer.services@thameswater.co.uk for all correspondence relating to applications, design, self-lay agreements and site-specific activities, as using this email address makes sure we have a log of all communications for the purpose of regulatory reporting. We’ll assign you an account co-coordinator, so please copy them into communications via their corporate email address, as this can give them early visibility and help to prioritise workload.

4. Initial enquiry stage / capacity check (pre-development enquiry)

4.1 – We require developers and SLPs to make an initial enquiry or a capacity check with us in advance of a self-lay application. This will help make sure there is capacity available in our water network when needed and indicate the potential costs of providing this, or of using any previously installed capacity needed for the development. Checking capacity at planning stage will also help avoid delays in supplying the site when you reach construction stage.

4.2 – Making an application for a self-lay project

We welcome applications from any of the parties involved in a self-lay project – this could be the developer, the SLP or a consultant. Please complete our application form at developers.thameswater.co.uk/Self-lay-providers/Mains-design-and-points-of-connection/Apply-for-mains-design and either email it to developer.services@thameswater.co.uk along with the supporting documentation.

Where our records show that a requisition or self-lay quotation has previously been issued to the developer or landowner, we

may require them to give permission before we can share this information with a third party.

4.3 – Self-lay design

You can ask us to prepare a self-lay design or request a WIRS-accredited design company to prepare one. It will assist our designer if you provide details of any relevant service corridors on your application layout.

When a WIRS-accredited design company chooses to submit a self-lay design, we’ll need to consider this and either approve it or comment on those areas where it doesn’t comply with our specifications.

If the submitted self-lay design is not to our specifications, we’ll return it, indicating areas that need to be amended. Once the design has been re-worked by the SLP, it will need to be re-submitted for approval.

4.4 – Self-lay offer

When the approved self-lay design is returned, we’ll provide the following information:

- The amount we pay you, known as the ‘asset payment’ (Discounted Offset Amount)
- The developer’s payment (covering the new infrastructure we provide at the point of connection of the self-laid main and any work we carry out to provide additional capacity)
- The self-lay agreement

Our offer is valid for 180 days from the date of issue.

Design

5. Design guidance

5.1 – The standards specified in this document are our minimum requirements for the design of new water mains, including guidance on our preferred materials and (where appropriate) limitations of use, to enable a rapid assessment of materials that may be used.

5.2 – Routing, positioning and location

When deciding on the optimum pipeline route, the designer needs to consider the following:

- Hydraulic gradient
- Terrain and subterranean conditions
- Hazards and obstacles, including contaminated ground
- Existing and future land use
- Permanent access
- Transport facilities
- Utility services
- The laying of pipes in agricultural land
- Environmental impact
- Industrial and commercial development
- County structure plans

You should consider the above factors in your design so that any new mains don't cause potential problems with, for example, future land use or access.

In circumstances where you're unable to work around any of the above constraints, you'll need to include a report with the design proposal to justify your decisions.

5.3 – Pressure, flow and hydraulic gradient

The pressure within the network must be maintained above 1.5 bar at all times. The design of the network must not result in pressures above 10 bar unless previously agreed with us.

The design must limit the hydraulic level across the area at peak instantaneous flow, to avoid unacceptable pressure changes throughout the day. Hydraulic gradients need to accommodate areas with significant ground level changes or tall buildings.

We'll notify you when a pressure management system is required.

The velocity of flow should be between 0.4m/s and 0.6m/s under average daily operating conditions, and between 0.6m/s and 1.0m/s under peak daily operating conditions, excluding emergencies.

5.4 – Sizing of mains and service pipes

We apply pipe sizes against the number of individual dwellings as per Table 4 Section 3.5.3.3 in the National Code of Practice.

We also apply sizes of incoming supplies to manifold chambers as per Table 5 Section 3.6.3.2 in the National Code of Practice.

Under the Water Industry Act 1991, we can refuse to supply premises requiring water for non-domestic use. However, we always look to accommodate customers' requirements and refusal is only in extreme cases. You must ensure you match our requirements – for example, regarding storage – before we agree to supply the premises.

When a new development has non-standard domestic properties, you should calculate the overall demand of the development and size the pipes accordingly.

Where non-domestic premises are being supplied, we'll individually specify the sizing of mains based on our modelling analysis.

5.5 – Spacing of surface fittings

You must provide combinations of isolation valves and washouts / fire hydrants to enable the isolation and flushing of sections of the main.

- Valves should generally be positioned at road junctions and off the branch of all tees, working to the principle that they can be used to isolate no more than 50 properties.
- The maximum distance between surface fittings (i.e. valves and washouts / fire hydrants) must be no more than 100 metres, so that we can accurately correlate leakage on PE mains.
- The maximum distance between fire hydrants must be no more than 180m. This distance is measured as a fire hose length and must follow public streets. Variations to this will require consultation with the relevant fire authority.

- A washout must be included at every dead end of a main.

5.6 – Air valves

Air valves as a minimum must be located at high points and where the pipeline gradient changes. For the design and maintenance of air valves, please refer to UKWIR report 13/WM/04/10 Air Valve Management: www.ukwir.org/reports/13-WM-04-10/67121/Air-Valve-Management.

5.7 – Chamber locations

When designing chambers, you must consider the following:

- Details of underground and above-ground utilities information, to ensure there is sufficient room in the ground to build the chamber, and that access isn't restricted
- The utilities diversions required for construction
- Future access to the site
- Highway authority requirements for construction, operation, maintenance and demolition
- Traffic management and/or road closures for construction, operation, maintenance and demolition
- Operational and maintenance requirements for access
- Parking bay suspensions
- The need to make sure access covers aren't positioned beneath parked vehicles
- Parking space for operational vehicles when accessing the chamber

5.8 – Water quality at design stage

Mains designs should avoid dead legs wherever possible. New mains should be designed to ensure that the last service connection point is no more than one metre away from any end washout.

Mains should not be laid and commissioned in anticipation of future development, as this would constitute a dead leg. Tees can be installed for future phasing of a development, providing they have a valve and temporary washout on the outlet.

5.9 – Backflow prevention measures on non-household supplies

In order to make sure you comply with current Water Regulations please contact our Water Regulations team – water.regulations@thameswater.co.uk – or visit our website for more information: thameswater.co.uk/Help-and-Advice/Home-Improvements/Water-fittings-regulations.

5.10 – Standard detail drawings

A range of standard detail drawings covering the most common development applications are available: developers.thameswater.co.uk/Self-lay-providers/Mains-design-and-points-of-connection/Our-technical-drawings.

If you need more information please email developer.services@thameswater.co.uk or ask your account co-ordinator. For non-standard applications, please see our waiver process (section 9).

Materials

6.1 – Permissible materials (pipe)

Mains

Our preferred material for distribution mains is polyethylene PE100 SDR17 (10 bar) unless the maximum continuous operating pressure (PMA) requires a higher rating (PN).

All pipes must be marked with the standard dimension ratio. High-performance polyethylene (HPPE) must be blue in colour, as per NJUG guidelines Volume 2. HPPE pipe must be designed in 90mm, 125mm, 180mm, 250mm, and 355mm external diameter.

Marker tape must be used within the trench in order to provide a means of tracing HPPE pipe.

Services

Our preferred material for service pipes is polyethylene PE80 SDR11 (12.5 bar) unless the maximum continuous operating pressure (PMA) requires a higher rating (PN).

Medium-density polyethylene (MDPE) should be used for service connection pipes up to and including 63mm.

Neither HPPE mains nor MDPE service connections are to be laid in sites which have been deemed contaminated following analysis of the site-specific soil report.

If service pipes are to be laid in ducts, the duct must be blue in colour. All services must be laid perpendicular to the parent main.

6.2 – Permissible materials (associated fittings)

Valves / air valves

Valves should comply with BS EN 1563, and internal and external protection must be provided by blue fusion-bonded epoxy powder coating. All valves should be right-hand (clockwise) close only, and of the sluice variety.

Valves and air valves don't require marker posts.

Washouts and fire hydrants

Washouts and fire hydrants must be the squat type (nominal size 80mm inlet/65mm outlet) or the through bore type (nominal size 80mm inlet/80mm body/65mm outlet) and suitable for connection to the water mains at a working head of up to 16 bar.

Washouts and fire hydrants should generally be located in footpaths or verges and not in carriageways.

Fire hydrant covers must be yellow in colour. If this isn't applied at the factory then yellow lining paint can be used in situ.

Fire hydrants need to be appropriately marked with a polymer type marker post and plate by the fire authority.

Washouts don't require a marker post.

Duckfoot bends

The Fusion duckfoot bend kit is our standard for duckfoot bends to be used with PE pipe. The kit comprises a duckfoot bend with an electrofusion socket at each end together with a PE puffed flange which can be cut to the desired length for

the riser. Kits are available up to 180mm in size. This kit has the advantage of eliminating at least one flanged joint on the assembly, reducing the potential for leakage.

In certain circumstances, such as congested working areas, ductile iron pipework may be more suitable. Our preferred sizes are 80, 100, 150, 200, 250mm and 300mm internal diameter.

6.3 – Contaminated ground

Please refer to the following documents:

- UKWIR report 10/WM/03/21 Guidance for the selection of water supply pipes to be used in brownfield sites, 2010
- CIRIA publication C682 VOCs Handbook: Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination
- Water UK Contaminated Land Assessment Guidance, 2014

Wherever contamination is identified, new mains and service connections must be in plastic barrier pipe. Please note that polyethylene is our preferred material for barrier pipe.

For service connections where the pressure is greater than 12.5 bar, you must use copper pipes to BS EN 1057 R220, coated with factory-applied PVC or equivalent approved material.

Construction

7. Construction arrangements

7.1 – Overview

It is assumed that pipe laying for the vast majority of new development work will be by open cut trench. You must notify us if you plan to use an alternative method, as this may require a technical assessment.

If you're planning significant work near our assets, it's important you minimise the risk of damage. We'll need to check that your development doesn't reduce capacity, limit repair or maintenance activities, or inhibit the services we provide in any other way. This is important so that we can meet our obligations under Section 174 of the Water Industry Act 1991.

Whether you're working near our pipes, building over them, or need to request a diversion, please read our guidance notes on our web-site to understand the process you'll need to follow: developers.thameswater.co.uk/Self-lay-providers/Planning-your-development/Working-near-our-pipes.

7.2 – Depth and proximity of mains and services

Reference to section 3.5.2.1 of the Code of Practice, distribution mains must be laid in trenches with a cover of between 0.9 metres and 1.2 metres, in order to give service connections a minimum cover of 0.75 metres protection from frost as detailed in section 3.6.2 of the Code of Practice.

You must tell us if any new main has to be laid at a reduced depth due to underground obstructions, bridge decking restrictions or any other type of unavoidable obstruction.

Please note that our minimum and maximum depth requirement differ from that stated in the NJUG section covering work on development sites. This is to find a balance between exposure to third party damage and minimising risk of working in deep excavations.

Any other utilities must be at least 270mm away from a water pipe and, with exception to perpendicular crossings, not directly above.

Services pipes must be laid at a minimum depth of 750mm and a maximum depth of 1,200mm as per the Code of Practice. In instances where this may not be possible, please submit a waiver request (see section 9 below).

7.3 – Jointing

Butt fusion is our preferred method of jointing polyethylene pipe, which must be of identical diameter and pressure rating. Butt fusion can only be carried out outside the trench, and electrofused couplings should therefore be employed where butt fusion is not practicable. Electrofusion couplings can be either blue or black in colour.

7.4 – Chambers located in soft ground

When installing a valve/air valve within a verge or soft ground, the chamber should be adequately supported. This must be achieved by providing a one-square-metre layer of concrete to 150mm depth around the chamber, to prevent foliage growing over the chamber and damage to the fitting when operating.

7.5 – Pressure testing

Referencing section 2.6.6 of the Code of Practice, we require a type 2 pressure test to be carried out in accordance with CESWI and C02 Civil Specification.

Reference can be made to the 'Water Industry Information & Guidance Note (IGN 4-01-03): Guide to Pressure Testing of Pressure Pipes and Fittings for use by Public Water Suppliers'.

7.6 – Mains Disinfection (90mm external diameter and above).

Referencing section 2.6.6 of the Code of Practice, pipes and fittings must be stored and transported with the minimum risk of contamination. Pipes must remain capped until laid and all associated fittings must be stored directly off the ground and in their sealed delivery bags, where applicable, until installation.

Swabbing (using a chlorinated swab) and flushing twice the mains volume is required prior to disinfection.

The complete section of main needs to be dosed with a 50mg/l chlorine solution and left for a contact time of between seven hours (minimum) and 24 hours (maximum). This must be timed from when the required residual shows at the downstream washout.

Following the full contact period, the chlorine residual must be checked. If the residual has dropped below 50 per cent of the original strength, the disinfection process will need to be repeated.

Referencing 1.6.9 of the Code of Practice, a newly laid main which has been disinfected can remain in its un-commissioned state for a period of up to 14 days. If there is a

delay in commissioning, then the main can remain in its un-commissioned state, providing it has been flushed by twice its volume no later than day 14 from the date of disinfection. This process can be repeated every 14 days until the main has been commissioned. We'll require you to demonstrate that you've carried this out, showing dates and flush volumes.

If a flushing operation is missed (i.e. it has been more than 15 days since the initial disinfection), you can flush and re-sample the main. You'll need to show us a satisfactory sample result, after which you can continue flushing within 14 days.

If 22 days have passed without sampling or flushing (or you can't demonstrate this), you must re-disinfect and re-sample the main.

7.7 – Surface (spray) disinfection procedure

The surface or spray disinfection method should be used for localised repairs or on sections of main no longer than 10 meters.

Fittings, valves, manifolds and pipe ends must be fully spray disinfected using a hand-held spray unit or a 'Hozelock' type lance sprayer with chlorine solution at 1,000mg/l.

Please make sure that any chlorine solution diluted from a 10-to-15% stock solution to 1000mg/l is only kept for one month. After this, please dispose of the old solution and make a fresh dilution.

Chlorine tablets (Instachlor 1,000s) may also be used.

7.8 – Dechlorination

This is carried out using sodium thiosulphate, sodium bisulphite or sulphur dioxide. Final chlorine residual of discharge must be no greater than 0.2mg/l.

7.9 – Disinfection of service pipes

Service pipes up to 52mm external diameter do not require disinfection.

For service pipes of 63mm external diameter, please note the following -

You need to disinfect your pipework prior to connection to the water main, under the Water Supply (Water Fittings) Regulations 1999, to ensure there is no detriment to public health.

63mm supplies should be swabbed (where practicable), flushed, filled with chlorinated water not less than 50mg/l and allowed to stand for one hour. The chlorinated water should then be flushed out, the pipe refilled and a sample taken.

A disinfection certificate should be provided in the format detailed below before connecting to the parent main together with a satisfactory water quality sample pass result.

For service pipes greater than 63mm external diameter, the disinfection process is the same as for mains – see section 7.6 above.

7.10 – Disinfection certificates

Disinfection certificates for mains and services above 50mm must contain the following information:

- Length of pipe
- Size of pipe
- Flush time prior to disinfection (min)
- Flush rate prior to disinfection (l/min), where practicable
- Disinfection dose (mg/l)
- Standing time exposed to elevated disinfection concentration (h)
- Residual at the end of disinfection time (mg/l)
- Flush time to clear elevated disinfection concentration (h)
- Residual after flushing of disinfectant (mg/l)
- Date of disinfection
- Disinfectant used
- Confirmation that the pipe was capped after disinfection, if necessary
- Company or individual who carried out the disinfection

7.11 – Water quality samples

You must carry out water quality testing as required in the Drinking Water Inspectorate's Principles of Water Supply Hygiene. Testing must be carried out by a UKAS-accredited laboratory showing the following results:

- 1) Total coliforms per 100ml (must be zero)
- 2) E coli per 100ml (must be zero)
- 3) Turbidity (maximum 4.0 NTU)
- 4) 37°C colony counts per 1ml (maximum 200)
- 5) 22°C colony counts per 1ml (maximum 200)
- 6) Total chlorine measured in mg/l (+/- 0.2 mg/l of source water)

Water samples must be set up for analysis within 24 hours of the sample being taken, otherwise the result will default to a failure.

The actual sample quantities of water required for analysis and the bottle types used will be dictated by the laboratory used.

We'll require bacteriological samples to be taken from a 25mm standpipe fitted with a gunmetal bib-tap which does not have an in-line check valve assembly.

We recommend SLPs are equipped with turbidity meters. Turbidity isn't always easy to assess by the naked eye, so we suggest you carry out your own test before taking the physico-chemical sample. This should prevent the laboratory you use from failing a sample because the turbidity is too high, which could cause you delays.

We also recommend that samples are kept between 3°C and 7°C during transit, in either a compact fridge or cool box which does not share space with food and drink.

We do not require post-connection samples.

We require SLP personnel who are taking samples be able to demonstrate competency - please contact us to confirm arrangements.

If you would like us to take and analyse the water sample for you, we require seven calendar days' notice with a plan highlighting the section of main and terminal end points. There is a charge for this service.

For more details, see developers.thameswater.co.uk/Self-lay-providers/Connection-processes/Water-quality-and-commissioning.

7.12 – Repair of new main damaged by third party

Pre-vesting the repair work should be carried out by the SLP, who can recharge the party responsible for the damage. Repairs to sections of main will require 'full contact' disinfection.

Post-vesting the repair work should be carried out by Thames Water. However, in some circumstances it may be beneficial for the SLP to do the work. We'll discuss this with you on a case-by-case basis. Please contact us to review and advise on each specific scenario. We'll require a post-repair water quality sample analysis.

7.13 – Service connection requirements

We do not have a formal approval requirement to connect services to your self-laid mains, but please note the requirements in section 8 if you are connecting to our existing asset.

However, it is your responsibility to make sure the service complies with Water Regulations and has been either inspected and passed by us, or certified by a TAPS-accredited plumber.

Services can only be connected after the main has been vested and external Water Regulations inspection has passed (or self-certification documentation is available to you).

The minimum allowable separation between service connection tappings is 500mm.

Corrosion resistant tracking systems are not required for services.

If manifolds are being used they can be constructed in a chamber. We don't require a controlling valve on the incoming supply providing it can be squeezed off.

For non-revenue bulk metered supplies to flats, we require a controlling valve both upstream and downstream of the meter.

8. Working on our existing assets

8.1 – Under pressure service connections up to 63mm off our existing asset

Fully (CS) accredited SLPs can make service connections up to 63mm under pressure off our existing network.

Restrictions on SLPs undertaking this work apply when we assess that the construction work significantly heightens either the risk

of damage to our existing assets or of interrupting supplies to existing customers in the event of an unplanned incident.

The limits for these thresholds are as follows:

The works can proceed providing that

- Parent main is no larger than 250mm polyethylene
- Parent main is no larger than 250mm ductile iron
- Parent main is no larger than 8 inches cast iron

The works will not proceed if

- Parent main is asbestos cement, GRP, PVC or MoPVC
- 200 or more properties could be affected by a mains isolation
- One or more hospitals could be affected by a mains isolation

A further limit is whether one or more 'risk industries' could be affected by a mains isolation. These are businesses that rely on water to operate, and are graded 1 to 5 (where 1 is the lowest risk) according to the impact of a loss of water. In this case, our threshold applies if the business concerned is graded 3, 4 or 5.

Following approval, the SLP must:

- Provide a site-specific risk assessment and method statement to enable us to raise an authorisation number in advance of construction
- Confirm that additional fittings are available for them to carry out a repair within a reasonable time, in the event of unplanned difficulties
- Contact our Network Management Centre at the start and end of each shift, quoting the authorisation reference number.
- Order the meters from us before starting work
- Complete details of the service pipe connection on the relevant form and pass it to us within 24 hours of the connection for non-household properties, and within three days for household properties. This must include paperwork for self-certification of Water Regulations and, for service pipe connections of 50mm external diameter and above, chlorination details and evidence that water quality tests have been passed.

8.2 – Under pressure branch connections off our existing assets

SLPs accredited for construction of routine under pressure mains connections (CRUPC) can make branch connections for source of water and large service connections (with a diameter above 63mm) off our existing network.

The under pressure tee needs to conform to relevant British standards and be made of a WRAS-approved material.

We only accept the use of ductile iron mechanical under pressure tees for all parent main materials. We don't permit electrofusion tees or steel tees.

The source of water connection must be laid into the development site as a separate operation and sampled for water quality. You must obtain a positive sample result before using the water to test and disinfect the self-laid main.

'Full contact' disinfection must always be undertaken for new branch connections over 10 metres long. If the branch (spur) is less than 10 meters long:

- All ends and fittings must be spray disinfected, using 1,000ppm chloros solution.
- The full length of the pipe must be disinfected with a chlorinated swab using 1,000ppm chloros solution, using more than one swab if required.
- The full pipe length of the pipe should then be flushed twice its volume and charged, but isolated from the supply by a shut control valve.
- New sections of main must be left to stand for 24 hours.
- Water quality samples should then be taken.

Restrictions on SLPs undertaking this work apply when we assess that the construction work significantly heightens either the risk of damage to our existing assets or of interrupting supplies to existing customers in the event of an unplanned incident.

The limits for these thresholds are as follows:

The works can proceed providing that

- Parent main is no larger than 250mm polyethylene
- Parent main is no larger than 250mm ductile iron
- Parent main is no larger than 8 inches cast iron

The works will not proceed if

- Parent main is asbestos cement, GRP, PVC or MoPVC
- 200 or more properties could be affected by a mains isolation
- One or more hospitals could be affected by a mains isolation

A further limit is whether one or more 'risk industries' could be affected by a mains isolation. These are businesses that rely on water to operate, and are graded 1 to 5 (where 1 is the lowest risk) according to the impact of a loss of water. In this case, our threshold applies if the business concerned is graded 3, 4 or 5.

Where jobs exceed these thresholds, the work will have to be done by us.

After we have confirmed the job is within our thresholds, the SLP must:

- Confirm the manufacturer and specification of the under pressure tee
- Provide a site-specific risk assessment and method statement to enable Thames Water to raise an Authorisation Number in advance of construction.
- Confirm that additional fittings are available for the SLP to affect a repair in a reasonable time, in the event of unplanned difficulties.
- Complete our 'Self-Lay Construction Routine Under Pressure Mains Connections Notification Form', which we'll provide, for final approval to connect. We'll let you know whether we

authorise this within working three days and you'll need to confirm to us that the operation has been successful.

- Contact our Network Management Centre at the start and end of each shift quoting the authorisation reference number.

For more information on authorisation numbers, please see developers.thameswater.co.uk/Self-lay-providers/Connection-processes/Authorisation-numbers

9. Waiver process

9.1 – Background

It is possible that an opportunity may be identified for an alternative design solution to our standard, or as a result of engineering difficulties. In these circumstances, we'll need to provide a technical waiver prior to construction. If you need to ask us for a technical waiver please email am.standards@thameswater.co.uk copying developer.services@thameswater.co.uk.

9.2 – Design waivers

We'll log your request and will approve or reject it within four weeks.

9.3 –Construction waivers

We'll log your request and acknowledge it within two working days. We will approve or reject it as soon as possible, dependent on the complexity of the request.

10. Data capture / 'as-laid' drawings

We align with section 3.7.5 in the Code of Practice for data capture, but please note the following.

10.1 – Location requirements

The standard co-ordinate system must be OSGB36 and Newlyn Datum.

Global Positioning System (GPS) data is not a mandatory requirement, but if used must be transformed to OSGB36 using the OSTN02 transformation.

Values for X and Y must be recorded.

Where GPS is used, X, Y and Z must be recorded.

10.2 – File format

Ordnance Survey Data must be used as a background.

We prefer DGN CAD files, but DWG is acceptable.



































We'll also require you to submit a PDF rendition of the CAD file.

If none of the above is available to you, the format must be PDF as a minimum.

10.3 – Legend

The legend on the as-laid drawing should be consistent with the legend on the approved design drawing.

Example –

	Proposed main in different phase		WO		WO		WO	Washouts
	Existing main		FH		FH		FH	Fire hydrants
	Main to be abandoned							Temporary washouts
	Proposed main							Valves
	Duct to be provided by client							Air valves
	Service connection							Blanking plates
	Service connection manifold with number of ports							Closed Valves
								Double spade valves
								Water meters

Black symbols / proposed main - installed by Thames Water
 Blue symbols / proposed main - installed by Thames Water or SLP
 Red symbols / proposed main - installed by SLP

10.4 – Decommissioned mains

We define a decommissioned main as one which is capped at its ends and may be put back into service in the future.

We define an abandoned main as one which has been grouted and is not for re-use.

If a main has been physically removed from the ground, please mark this on the plan.

11. Purchase orders and payments

We'll raise a purchase order for 100% of the asset value once we've received the signed self-lay agreement, so that you can invoice us for partial asset payments once you've laid your first section of water main.

You can then invoice us for partial asset payments as the development progresses.

Please note that percentage invoicing information must match commissioning information sent to us prior to connection (as per the National Code of Practice) – otherwise the invoice will be rejected.

12. Water Regulations inspections

We and the SLP / developer are jointly responsible for making sure that both service pipework and internal plumbing comply with Water Regulations. We're part of the Water Industry Approved Plumbers Scheme (WIAPS), which manages the responsibilities involved in meeting Water Regulations requirements. There are two choices available:

1. Request a Water Regulations inspection from us, by calling 0800 009 3921. The first inspection is free, however further inspections may be chargeable.

2. Use a plumber from our Thames Approved Plumber Scheme list. If you choose an approved plumber, he or she will be able to provide you with a certificate (known as a TAPS5), and there will be no need for us to make an inspection. Plumbers who are not on this list should be able to provide you with an alternative WIAPS-approved certificate, which you can then present to us when the service pipe is connected.

Please call us on 0800 009 3921 if you need help finding an approved plumber, or, if you're a plumber, details on how you can join the approved list.

13. Metering

13.1 – Ordering

We'll deliver the meters within four weeks of your order. If any delays or stock issues arise, we can draw on our own stocks from metering teams across the area. There's no minimum or maximum order quantity, but we do ask that you're able to store all the meters you order, as we can't hold stock for you.

If you prefer not to store the meters on your building site, we can deliver them to any address within the Thames Water region. Sites outside this area may incur a delivery charge.

Please use our meter ordering form [here](#).

Once delivered, the meters and any fittings are your responsibility. If lost or damaged, you'll need to pay for them and place a new order with us.

13.2 – Meter installation

It is our policy to have individual meters for all properties.

Newly-fitted meters must comply with our standard approach for installing permanently sited meters used for billing purposes and non-revenue bulk meters.

Standard installations include:

- Internal installation of:
 - concentric meters of size Q3 2.5 m³/hr in a meter manifold
 - in-line meters up to Q3 of 6.3 m³/hr where a stop valve is required before and after the meter and a drain valve immediately after the meter
 - in-line meters over Q3 of 6.3 m³/hr where a stop valve is required before and after the meter
- External installation of:
 - concentric meters of Q3 2.5 m³/hr that are fitted in a boundary box or multi-box
 - in-line meters of greater than Q3 2.5 m³/hr that are fitted in a meter chamber

All newly installed meters used to calculate the consumption at an individual property must be reasonably accessible to the customer and must not require the permission of a third party to gain access.

Internal meters must:

- Be situated such that the centre line of either a horizontally or vertically orientated meter is no more than 1.5m above floor level, with a distance from the floor to the meter of no less than 300mm
- Have the orientation of the register facing upwards or outwards
- Have a clear distance from the outer edge of the meter to any fixed installation including pipework of no less than 30mm, and the connecting pipework must have a clearance of no less than 150mm
- Have adequately supported pipework, to prevent vibration
- Have no excessive strain on the fittings
- Have a stop valve installed either side of the meter
- Be tagged prior to installation, detailing which unit it supplies

Where the preferred options are not feasible, you'll need to consult with us on alternative locations before installing the meters.

13.3 – Meter location

Please make sure you follow this order of preference for locating meters:

1. External installation in new boundary box / meter chamber in the public highway
2. External installation in new boundary box / meter chamber on private property
3. Internally in a common service area (flats only)
4. Internally within the customer's property

For new connections to large blocks of flats, our policy is to fit single internal meters for each flat and fit a bulk meter at the point of supply. Where it's impractical to install a meter at the individual flats, you should agree an alternative proposal via your scheme designer in advance.

For properties where the supply connects to multiple properties, we may choose to install a bulk meter for demand monitoring purposes. In this case, the consumption will not be used for billing purposes.

13.4 – Meter menu and specification

We only allow the use of digital meters that comply with the specifications set out in our meter menu. These meters must have no external logging equipment or other equipment attached.

Meters must have equivalent certification to BS EN ISO 4064:2014 class 2.

Permanent flow rate (Q3) m ³ /hr	Meter DN (mm)	Meter Length (mm)	Connection type	Notes	Thames Water approved meter
2.5	-	-	WIS 4-37-01	Concentric (manifold)	Sensus 640
2.5	15	134	G 3/4 B	Preferred 15 mm	Sensus 640
2.5	15	134	G 3/4 B	-	Sensus iPERL
4	20	165	G 1 B	Preferred 20 mm	Sensus 640
4	20	165	G 1 B	-	Sensus iPERL
6.3	25	199	G 1 1/4 B	-	Sensus iPERL
10	30	260	G 1 1/4 B	-	Sensus iPERL
16	40	300	G 2 B	-	Sensus iPERL
25	50	Variation allowed	Flanged	-	Sensus Meistream Plus with E-register
63	80	Variation allowed	Flanged	-	Sensus Meistream Plus with E-register
100	100	Variation allowed	Flanged	-	Sensus Meistream Plus with E-register
250	150	Variation allowed	Flanged	-	Sensus Meistream Plus with E-register
>250	-	-	-	Case by case basis	-

