

# **Code of Practice for the Self-Laying of Water Mains and Services – England and Wales**

**Edition 3.1 - May 2017**



## FOREWORD

This Code of Practice is for when a Developer appoints an independent Self-Lay Provider (known as a SLP) to undertake the contestable work of designing and/or installing water mains and services on a new development site in England and Wales. It details the delivery processes, requirements for the work and specifies the role of SLPs and Water Companies.

A safe, secure and reliable supply of water is essential for both household and non-household customers. Due to its essential nature, public water supply provision is highly regulated. Water Companies are licensed, and required by law, to undertake specified duties regarding the supply of water to the customers in their area.

Safety and public health are important in the laying of water mains and services, whether the work is done by the Water Company or a SLP. There are also important environmental aspects in taking water out of the environment for providing public supplies. These include maintaining water quality standards and minimising leakage and wastage. Social obligations in the supply of water, such as providing water for fire-fighting, also have to be met.

This is the third edition (3.1) of the Self-Lay Code of Practice. Changes in this edition include:

- Removal of any financial guidance. A move away from local Water Companies' addendums to a standardised document with common, cross Water Company processes. Local practices are specified in supplementary documents covering, for each Water Company, their:
  - a) design practices guidance; and,
  - b) schedule of permissible materials and construction arrangements.
- Cross referencing of other primary documentation, such as the WIRS Requirements, rather than duplication of wording.

This Code of Practice is structured into the following Parts:

Part 1 covers General Requirements. This includes responsibilities and overarching requirements together with details of non-contestable activities when mains and services are being laid by SLPs for adoption by a Water Company.

Part 2 outlines the Self-Lay procedures to be followed through all stages of work from making an application and designing the works to constructing the necessary mains and services and providing records of the completed work.

Part 3 covers guidance on the design and construction of mains and services. This sets out specific requirements and outlines good design practices. In following this Part all relevant national legislation should be observed and the designer should comply with all relevant CDM and Health and Safety requirements.

For self-lay works done in accordance with this Code of Practice an adoption agreement is required to be in place between the SLP and the Water Company, and also with the Developer. A National Model Agreement is in place for use alongside this Code of Practice.

In this document the following terms have the stated meanings:

|         |                                                                    |
|---------|--------------------------------------------------------------------|
| Shall:  | indicates a mandatory requirement;                                 |
| Should: | indicates a strong preference and is used to denote best practice; |
| May:    | indicates an option which is not mandatory.                        |

## ACKNOWLEDGEMENTS

Water UK wishes to acknowledge previous versions of this document which were sponsored by UKWIR (UK Water Industry Research) and Future Water Association (formerly SBWWI -Society of British Water and Wastewater Industries) and also involved WRc plc and Water UK.

This 3rd Edition has been revised by a National Forum set-up by Water UK comprising four representatives and a joint chair from both water companies and those involved in self-lay provision. The membership of the Forum comprised:

### **Water Companies:**

Steve Betteridge, Severn Trent Water and joint chair  
Neil Titchener – Thames Water  
Michela Capozzi – Affinity Water  
Kye Smith /Jane Johnson - United Utilities  
Karen Robinson – Yorkshire Water

### **Self-lay Providers:**

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Lee Crabtree – Future Energy/Energetics  
Frank McDonald – Energetics  
Gary McConnell – Aquamain  
Richard Harpley – Triconnex

Additionally David Heath, from Water UK, has provided editorial and technical support.

Water UK also wishes to thank water and self-lay companies for their valuable comments on the various drafts of this revised edition.

The Forum will continue to meet regularly to review the Code of Practice with the aim of maintaining and improving the effective and competitive delivery of self-laid mains and services for new development.

## ENQUIRIES ABOUT THIS DOCUMENT

Enquiries about this document should be emailed to: [selflay@water.org.uk](mailto:selflay@water.org.uk)

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## GLOSSARY OF TERMS

In this Code of Practice:

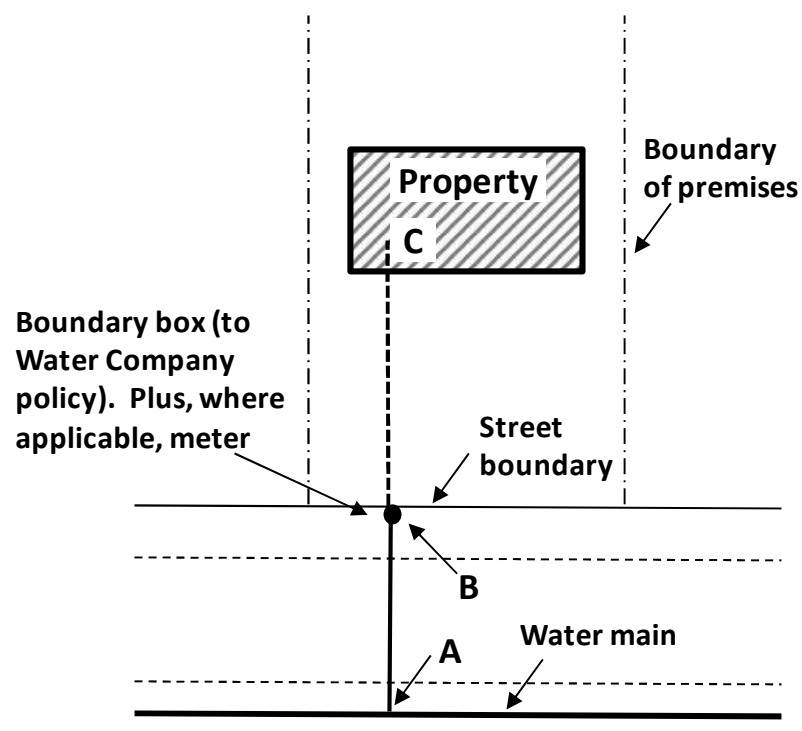
|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accredited                                                                  | Means, in respect of Contestable Works: <ul style="list-style-type: none"> <li>- Accredited under WIRS; or</li> <li>- Accredited by a Water Company in relation to its own water distribution system, in respect of a specified activity.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |
| Accreditation Body                                                          | The organisation appointed by Water Companies (through Water UK) to accredited SLPs as being competent to undertake self-lay works (against the specific accreditation scopes held by the SLP).                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Adoption                                                                    | The process by which Water Companies take over responsibility for infrastructure such as water mains and services.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Adoption Agreement                                                          | Means an agreement for the Water Company to adopt the Contestable Works subject to the satisfaction of certain conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Application Deposits                                                        | Any advance deposit required by the Water Company which will be refunded as part of the Net Asset Payment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Asset Payment<br><br>Covers<br>- Gross Asset Payment<br>- Net Asset Payment | <p>The payment made on adoption of the mains to the party who has entered into the self-lay agreement with the Water Company for supplies of water for domestic purposes taking into account any income offset due when the mains are adopted.</p> <p>Part payments apply as each section of main is connected.</p> <p><b>Gross Asset Payment</b> is the amount calculated before any Non-Contestable Works costs are deducted.</p> <p><b>Net Asset Payment</b> is the amount payable to the SLP after deduction of any costs and uplifted by any credits (such as Application Deposits and pre-commencement payments).</p> |
| Associated Works (at the Point of Connection)                               | Any necessary works, typically to connect new mains or to provide a short connecting spur, which the Water Company does to supply self-laid mains. (This is separate to Extensions and Network Reinforcement works).                                                                                                                                                                                                                                                                                                                                                                                                        |
| Capacity Apportionment                                                      | Sharing of cost of providing upsized provision (typically for multiple developments or phases) which determines costs on the basis of the proportion of capacity needed to supply each development (or phase).                                                                                                                                                                                                                                                                                                                                                                                                              |
| Charging Arrangements                                                       | Is a Water Company document setting out their charges, Income Offsets and Asset Payment arrangements, or the methodologies for calculating those, set in accordance with Ofwat Charging Rules.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Commissioned Pipe                                                           | A pipe which has passed pressure and chlorination tests and been brought permanently into use by means of connecting it to a water distribution system operated by the Water Company.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Communication Pipe                                                          | That part of the service pipe which is owned by the Water Company and laid in the same street as the main to which it is connected. (See Figure 1).                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Construction Allowance                                                      | The assessed amount to construct the works (used in the asset payment calculation and thereby paid to the SLP).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Contestable Work                                                            | Work which may be carried out by the SLP, i.e. a provider other than a Water Company.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Damage                                                                      | Physical harm caused after commissioning that impairs the value, usefulness, or normal function of installed mains, services and associated works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Defect                                                                      | A fault caused by poor workmanship or flaw in the installed materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Defects Liability Period                                                    | Twelve months from the date when the water main was satisfactorily commissioned and connected to the public water supply network or, in the case of a communication pipe, 12 months from the date of the communication pipe connection.                                                                                                                                                                                                                                                                                                                                                                                     |
| Developer                                                                   | Is any person or business which is responsible for a New Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Diversion                                                                   | Re-routed pipeline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                  |                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domestic Purposes                | In relation to water supplies, domestic purposes includes the use of water for drinking, washing, cooking, central heating and sanitary purposes (with certain exceptions). This term is defined fully in the Water Industry Act 1991.                                                                                                                       |
| Easement                         | A legal right of way over another person's property to install and maintain pipework.                                                                                                                                                                                                                                                                        |
| Extension                        | A main laid from the existing water distribution system to supply a development. (Short connecting spurs, associated with connecting self-lay works, are not classed as 'extensions').                                                                                                                                                                       |
| Fire and Rescue Authority        | The relevant Fire Authority, or Fire and Rescue Service, responsible for the area supplied.                                                                                                                                                                                                                                                                  |
| Highway                          | That part of the street including the carriageway, verge and footpath (as defined by the Highways Act 1980).                                                                                                                                                                                                                                                 |
| Household Premises               | (Defined by Ofwat ) as premises in which, or in any part of which, a person has his home.                                                                                                                                                                                                                                                                    |
| Income Offset                    | Is a sum of money offset against the charges that would otherwise be applied for the provision of a Water Main in recognition of revenue likely to be received by the Water Company in future years for the provision of supplies of water to premises connected to the new Water Main.                                                                      |
| Main Under Construction          | Any pipe currently under construction and not yet connected which will be adopted as a main.                                                                                                                                                                                                                                                                 |
| Minimum Cost Design              | The works necessary just to supply the proposed development and meet required service standards either through a single feed or, where it reduces the size of that feed, multiple connections.                                                                                                                                                               |
| Network Reinforcement            | Work to provide or modify such other water infrastructure as is necessary in consequence of providing an adequate supply to a development.                                                                                                                                                                                                                   |
| New Development                  | Are premises on which there are buildings, or on which there will be buildings when proposals made by any person for the erection of any buildings are carried out, and which require connection with, and/or modification of, existing water distribution systems.                                                                                          |
| Non-Contestable Costs            | Recoverable costs, payable by the SLP, for Non-Contestable Works done by the Water Company.                                                                                                                                                                                                                                                                  |
| Non-Contestable Work             | Work (see Section 1.8) which is the responsibility of the Water Company but may be contracted out to the SLP by the Water Company.                                                                                                                                                                                                                           |
| Off-site (Mains)                 | Those mains contained in a public highway or in land owned by people other than the Developer.                                                                                                                                                                                                                                                               |
| Ofwat                            | The Water Services Regulation Authority which is the economic regulator of the Water and Sewerage Companies in England and Wales.                                                                                                                                                                                                                            |
| On-site (Mains)                  | Those mains contained wholly within the boundary of the development site, i.e. the land occupied by the Developer.                                                                                                                                                                                                                                           |
| Phasing                          | Discrete parts of a New Development which the Developer chooses to separately progress.                                                                                                                                                                                                                                                                      |
| Point of Connection              | The point, determined by the Water Company, on an existing water supply network capable of providing supplies (possibly only after reinforcement) to a New Development.                                                                                                                                                                                      |
| Pre-commencement Payments        | Payments, capped at the level of any advanced monies that would apply had the works been requisitioned, which a Water Company may require to provide surety on any Non-Contestable Work.                                                                                                                                                                     |
| Requisitioning                   | The process, as detailed in the Water Industry Act 1991, by which an owner or occupier or local authority, who owns buildings or proposes to construct buildings on their land and requiring a supply of water for domestic purposes, can apply to the Water Company to provide supplies of water (via an extension of the mains system) to those buildings. |
| Routine/In-Line Mains Connection | A connection made to a newly laid main that does not supply customers and where the supplying main can be controlled by a valve, or can be squeezed off, without affecting existing customers.                                                                                                                                                               |

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safe Construction of Routine Mains Connections (SCRMC) procedure | Procedure to be followed by a SLP wishing to undertake Routine/In-Line Mains Connections.                                                                                                                                                                                                                                                                                                                                       |
| Service Connection                                               | Pipe connection between a water main and the premises being supplied. (See Figure 1). The service pipe includes accessories such as the ferrule, boundary box or other apparatus.                                                                                                                                                                                                                                               |
| Self-Lay Provider (SLP)                                          | A provider, other than the Water Company, who is appropriately Accredited to undertake Contestable Works in relation to the provision of new water connections, i.e. mains, services and associated works.                                                                                                                                                                                                                      |
| Site-Specific Works                                              | Works necessary to supply a development, i.e. from the Point of Connection through to the premises being supplied.                                                                                                                                                                                                                                                                                                              |
| Source of Water Connection                                       | Connection of the new mains to the existing mains network. (Usually this is a branch connection which may feed a spur, or an extension, from which the SLP may make a Routine/In-line Mains Connection).<br>Note – Source of Water Connections may not be required to supply phased New Developments (where connection through Routine/In-line Mains Connections could be appropriate).                                         |
| Street (as defined by the New Roads and Street Works Act 1991)   | The whole or any part of any of the following, irrespective of whether it is a thoroughfare:<br>(a) any highway, road, lane, footway, alley or passage;<br>(b) any square or court; or<br>(c) any land laid out as a way whether it is for the time being formed as a way or not.                                                                                                                                               |
| Street Furniture                                                 | Any associated chamber, frame and cover, for example on valves, fire hydrants, washouts, stop taps and meter chambers installed as part of a Water Distribution System.                                                                                                                                                                                                                                                         |
| Supply Pipe                                                      | That part of the service pipe which is not the communication pipe and is owned by the property owner whose premises are supplied by that pipe. (See Figure 1).                                                                                                                                                                                                                                                                  |
| Surety                                                           | Any financial security reasonably required, by means of a bond or cash deposit, by the Water Company to fulfil any obligation within the legal agreement to provide Non-Contestable Works. (See also Pre-Commencement Payments).                                                                                                                                                                                                |
| Terms offer                                                      | A formal offer by a Water Company in response to an application by a SLP for self-lay water mains and/or services setting out the Water Company's costs and conditions and any payments it will make to the SLP for the assets which are provided by the SLP and are to be vested by the Water Company. It also includes an approval of the SLP's design where the SLP has undertaken this.                                     |
| Vesting Date                                                     | The date which confirms the date of transfer of ownership to the Water Company as the date of permanent connection-                                                                                                                                                                                                                                                                                                             |
| Vesting Certificate                                              | A document, due on mains connection, confirming the transfer of ownership of the self-laid mains to the Water Company. (See Section 1.9).                                                                                                                                                                                                                                                                                       |
| Water Company                                                    | A company operating in England and Wales that is licensed by the Secretary of State to develop and maintain an efficient and economical system of water supply within the area from which the New Development is supplied and that is responsible for ensuring that all arrangements have been made for providing supplies of water to premises in that area and for making such supplies available to persons who demand them. |
| Water Distribution System                                        | The network of pipes, storage, boosting facilities and ancillaries necessary to deliver water from a supply source to customer premises.                                                                                                                                                                                                                                                                                        |

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water Main                                | Any pipe owned by a Water Company which is (or is to be) used by the Water Company for the purpose of making a general supply of water available to customers or potential customers of the Water Company, as distinct from for the purpose of providing a supply to particular customers and as defined in the Water Industry Act 1991.                                                                               |
| Water Supply (Water Fittings) Regulations | Regulations made under the Water Industry Act 1991 applying to any water fittings installed or used for domestic or food production in premises to which water is supplied by a Water Company.                                                                                                                                                                                                                         |
| Water Supply (Water Quality) Regulations  | Regulations made under the Water Industry Act 1991 covering the supply, quality, monitoring, recording and responsibilities with respect to the supply of water for domestic purposes.                                                                                                                                                                                                                                 |
| Wholesome Water                           | Water complying with the requirements of the Water Supply (Water Quality) Regulations for domestic purposes and/or food production. The term 'wholesome water' and 'potable water' are the same, i.e. fit to drink.                                                                                                                                                                                                    |
| WIRS (Water Industry Registration Scheme) | An assessment scheme, operated by the Accreditation Body, on behalf of Water UK and the Water Companies, which technically assesses SLPs wishing to undertake contestable works associated with the installation of water infrastructure under self-lay. SLPs who hold WIRS accreditation are recognised by all Water Companies as being technically competent to do work appropriate to their accreditation scope(s). |
| Works                                     | The performance of activities (contestable and non-contestable) needed to supply New Developments.                                                                                                                                                                                                                                                                                                                     |

**Figure 1: Example service pipe layout (to demonstrate terminology)**



| SERVICE CONNECTION PIPEWORK                  | RESPONSIBILITY |                | REGULATIONS                                                                                                                     |
|----------------------------------------------|----------------|----------------|---------------------------------------------------------------------------------------------------------------------------------|
|                                              | INSTALLATION   | MAINTENANCE    |                                                                                                                                 |
| A – B Communication Pipe                     | SLP            | Water Company  | Water Supply<br>(Water Quality)<br>Regulations 2016                                                                             |
| Boundary Box (plus, where applicable, meter) | SLP            | Water Company  |                                                                                                                                 |
| B – C Supply Pipe                            | Developer      | Property owner | Water Supply<br>(Water Fittings)<br>Regulations 1999<br>and Water Supply<br>(Water Fittings)<br>(Amendment<br>Regulations) 1999 |
| Internal Plumbing                            | Developer      | Property owner |                                                                                                                                 |

Notes:

1. Water Companies have different metering policies which are detailed in their company specific design practice guidance. Most require the installation of a boundary box but some meter within the property boundary, either internally or externally.
2. Any supply pipe laid over third party land is the responsibility of the property owner.
3. It is the responsibility of the developer to ensure that, where required, certificates confirming compliance against Water Supply (Water Fittings) Regulations are issued to the SLP prior to requesting a water service connection.

## **PART 1 - GENERAL**

### **1.1 INTRODUCTION**

1. This Code of Practice is for use where Developers appoint Self-Lay Providers (SLPs) to lay new water mains and services to supply premises on their developments. The practices covered in this document are those needed for the operation of the competitive water connections market whilst taking into account the long-term operation of the water distribution system.

2. Water Companies operating across England and Wales have committed to follow the procedures detailed in this Code of Practice. In addition to working to this Code of Practice Water Companies may separately provide documents specifying their:

- a) design practice guidance; and
- b) schedule of permissible materials and construction arrangements.

The requirements specified in these local documents shall be followed as if they formed part of this Code of Practice.

3. There shall be no departure from the provisions of this Code of Practice by the SLP except where formally approved by the Water Company, such departure being technically justifiable or representing advances in knowledge.

4. For self-lay work to proceed, a SLP is required to enter into a mutually acceptable legal agreement issued by the Water Company at the Terms Offer stage.

5. This Code of Practice covers the design and installation of contestable work (detailed in Section 1.8 of this Code of Practice). This includes new on-site water mains plus associated works and communication pipes including boundary boxes and/or meter chambers and the installation of site specific off-site works.

6. The SLP has a responsibility to comply with all national legislation and any Code of Practice called up by that legislation, the provisions of which take precedence over this Code of Practice.

7. Details of all reference documents referred to in this Code of Practice are listed in the Appendices.

8. When the Adoption Agreement is entered into, all documents referred to in this Code of Practice shall be to the version current at the time of the Adoption Agreement.

9. All timescales measured in days in this Code of Practice refer to calendar days unless otherwise stated.

10. All website addresses are current at the time of publication.

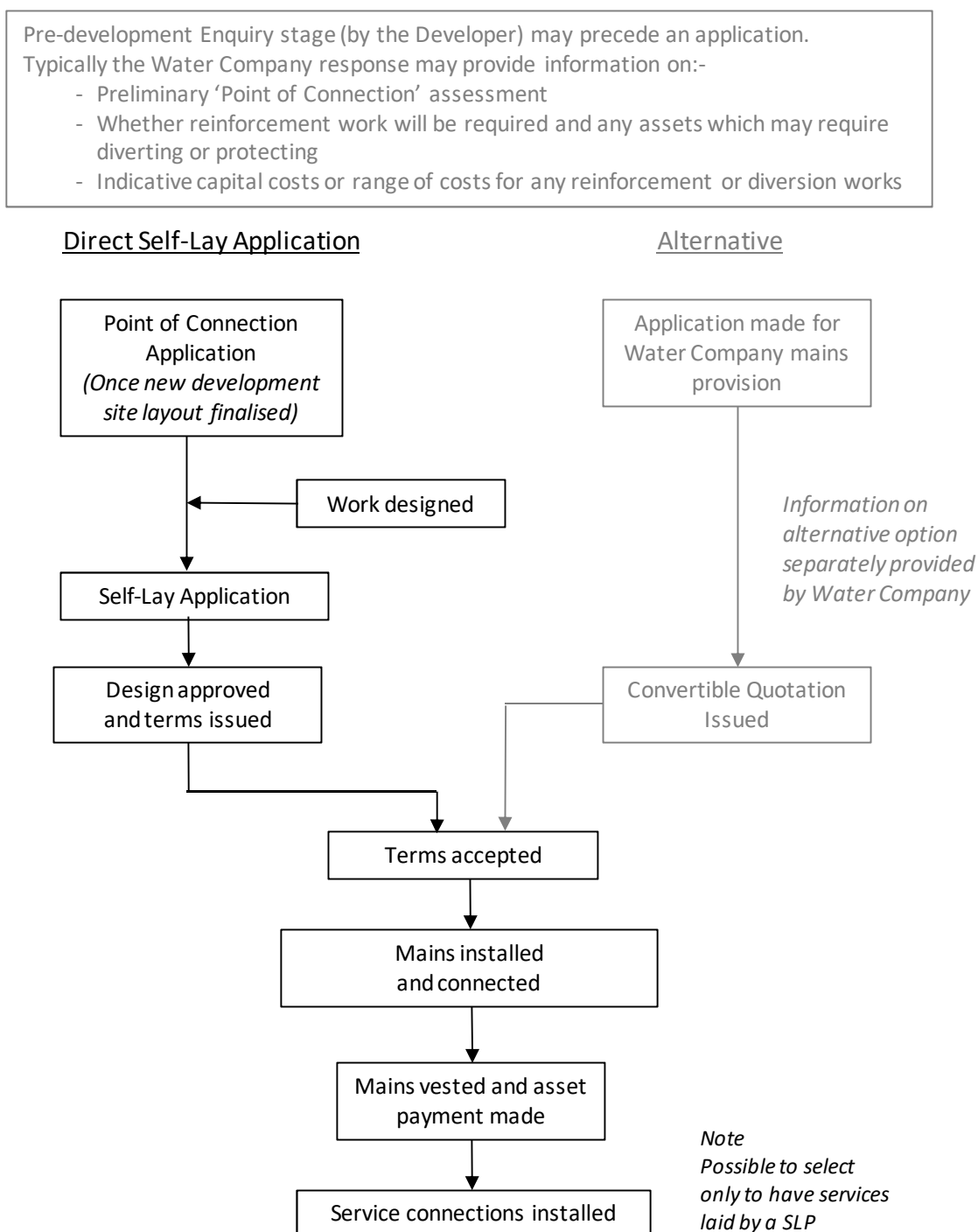
#### **Notes:**

- 1. Connection charging arrangements are separately issued by each Water Company and are not covered in this Code of Practice.
- 2. SLPs should be aware that overarching charging guidance issued to Ofwat by Defra in 2016 for those Water Companies operating wholly or mainly in England differs from that issued by the Welsh Government for those Water Companies operating wholly or mainly in Wales. As at the time of publication, English Water Companies are required to have new charging arrangements in place in accordance with Ofwat's rules from April 2018 whereas Welsh Water Companies are required to follow a year later. Any differences this creates will be covered in local construction arrangements. Terminology in this document currently anticipates operation under the new

charging rules as they apply to those companies operating wholly or mainly in England. Any changes will result in this document being updated.

3. SLPs should be aware that it is now a mandatory requirement for fire sprinklers to be installed in all new homes in Wales. This affects all Water Companies that operate within Wales.

**Figure 2: Overview of Self-Lay Provision Process**



## **1.2 OWNERSHIP OF MAINS**

1. Any water mains constructed under self-lay provisions remain the responsibility of the SLP until the mains are permanently connected. On connection a Vesting Certificate will be issued confirming the date of transfer of ownership as the date of connection.

2. After connection, operation and maintenance of the water mains rests with the Water Company.

Notes:

1. Following connection the SLP remains responsible for any defective materials and workmanship for a 12 month Defects Liability Period starting on the connection date stated on the Vesting Certificate.
2. The SLP will only be permitted to operate connected works in accordance with approved SCRMC activities.

## **1.3 OWNERSHIP OF SERVICES**

1. After connection of a service pipe to the water main, ownership, operation and maintenance of the service connection and the communication pipe rest solely with the Water Company. However, it should be noted that:

1. The SLP remains responsible for any defective materials and workmanship on services they have laid for a 12 month defect liability period (starting from the date of connection).
2. Ownership of the supply pipe (see Fig 1) will not be transferred to the Water Company.

## **1.4 RESPONSIBILITY FOR DAMAGE AND PROTECTION OF STREET FURNITURE**

1. On vesting of mains and services, the SLP should instruct the Developer about the apparatus that has been installed and the need to protect any street furniture including covers, lids, frames and chambers, until such time as the street is fully constructed. The SLP should also instruct the Developer of the need to provide the Water Company and for fire hydrants, the Fire and Rescue Authority, access to all chambers and associated fittings.

Note: Water Companies may recover the cost of any damage to connected works from the Developer, or party which caused the damage.

## **1.5 COMPETENCE OF SELF-LAY PROVIDERS**

1. As required for their accreditation SLPs shall be competent in the range of design, project management, construction, testing, commissioning and connection activities necessary for them to provide new water distribution systems on sites where they are engaged by Developers.

Notes: -

1. Through WIRS, the Accreditation Body awards scope specific accreditation against the criteria detailed in the Water Industry Registration Scheme Requirements Document. (Details of the WIRS scheme can be found at <http://www.lr.org/en/utilities-building-assurance-schemes/uk-schemes/water-industry-registration-scheme/> )
2. Water Companies will provide details of any local accreditation arrangements in their company specific schedule of permissible materials and construction arrangements.

2. For accreditation compliance SLP personnel shall satisfy the role specific competency requirements specified for the scopes of work they undertake.

3. Where the SLP either sub-contracts work, or uses a third party supplier, they retain responsibility for ensuring that the work is done by competent personnel and carried out in accordance with accreditation requirements and this Code of Practice.
4. SLPs holding accreditation who fail to comply with this Code of Practice can expect, if a systemic failure is substantiated, to put their accreditation at risk.

Notes:

1. SLPs holding WIRS accreditation should expect Water Companies to inform the Accreditation Body about their performance.
2. SLPs with Partial WIRS accreditation should expect a higher level of scrutiny of their work than SLPs who have successfully undertaken many projects.
3. SLPs may notify Ofwat if they consider water companies are not fulfilling their obligations under this Code of Practice.

## 1.6 PROTECTION OF WATER QUALITY

1. The Water Company has a statutory duty to provide 'wholesome' water as defined in the Water Supply (Water Quality) Regulations. This is regulated by the Drinking Water Inspectorate. To enable water companies to meet their water quality obligations SLPs shall satisfy the requirements in this Code of Practice.
  2. The SLP shall produce and maintain procedures to satisfy all regulatory requirements with respect to the laying of water mains and/or services.
  3. The SLP shall follow the current version of Water UK's 'Principles of Water Supply Hygiene and Technical Guidance Notes' at <http://www.water.org.uk/publications/reports/principles-water-supply-hygiene> and any supplementary operational requirements of the Water Company detailed in their company specific schedule of permissible materials and construction arrangements.
  4. The SLP shall inform the Water Company immediately of any person employed on the Works known to have a waterborne disease or gastric disorder. Such a person shall immediately cease to be employed on the Works and shall not return until granted medical clearance.
  5. All materials in contact with water intended for human consumption should comply with the Water Supply (Water Quality) Regulations.
  6. To safeguard water quality the Source of Water connection of the self-laid main to the existing off-site water distribution system shall, unless otherwise agreed, only be carried out by the Water Company.
  7. Connection of self-laid mains to the water distribution system shall not be carried out until satisfactory disinfection, pressure test and water sample results and as-laid drawings have been provided to the Water Company.
  8. The SLP should submit sufficient information to the Water Company before any new main is connected, to enable the Water Company to establish that adequate future turnover in the new network will be achieved to safeguard water quality. The reasonable cost of any flushing that may be required to maintain water quality, following connection of the main, may be recoverable from the SLP until such time as the development demand is sufficient.
  9. If a water sample taken prior to any mains connection does not meet the standards in the Water Supply (Water Quality) Regulations, then a new sample should be taken. If the connection is not made
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within 14 calendar days of the sample date, a new sample should be taken and the disinfection process repeated, if required.

Note: The SLP is responsible for additional samples apart from where the delay is due to the Water Company when the cost of additional disinfection and sampling should be borne by the Water Company.

10. To safeguard water quality, service connections shall only be made to premises where the private pipework complies with the arrangements specified in the Water Company specific schedule of permissible materials and construction arrangements.

11. If foul water from a fractured sewer or drain is suspected of having entered the main, this shall be regarded as a serious pollution risk. In such cases the Water Company shall be informed as soon as possible to safeguard public health.

## 1.7 THE ADOPTION AGREEMENT

1. Where a SLP chooses to design and/or lay water mains, communication pipes and associated apparatus the SLP and Developer should enter into an Adoption Agreement with the Water Company prior to the commencement of the works.

2. For phased developments, and works commissioned in stages, separate Adoption Agreements may be required.

## 1.8 CONTESTABLE AND NON-CONTESTABLE WORK

1. The Water Company should allow the SLP to do all elements of work to provide water supplies to New Developments other than those defined as non-contestable in Table 1.

**Table 1: Non-contestable activities in the design and construction of water mains and services**

|                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DESIGN</b>                                                                                                                                                                                                                               |
| Design work for Network Reinforcement.                                                                                                                                                                                                      |
| Sizing pipes – Water Companies retain responsibility for this part of the design work (see Sections 3.5.3 and 3.6.3).                                                                                                                       |
| <b>DESIGN APPROVAL</b>                                                                                                                                                                                                                      |
| Approving on-site water distribution systems designs (except where self-certification arrangements are in place).                                                                                                                           |
| <b>INSTALLATION</b>                                                                                                                                                                                                                         |
| Network reinforcement works (i.e. to secure an adequate supply to the site) whose construction heightens the risk of damage to existing water distribution systems or interrupting supplies to existing customers. (See note below).        |
| Mains connections that involve heightened risk to existing assets or could affect supplies to existing customers. (See note below).                                                                                                         |
| Source of water connections to Water Companies' existing assets.                                                                                                                                                                            |
| Service connections larger than 63mm diameter.                                                                                                                                                                                              |
| Service connections less than 63mm on existing mains where the Water Company assess that the condition of the main or the material heightens the risks to existing assets or could affect supplies to existing customers. (See note below). |
| <b>COMMISSIONING</b>                                                                                                                                                                                                                        |
| Decommissioning redundant mains following a diversion.                                                                                                                                                                                      |

Note – Restrictions on SLPs undertaking work apply when the Water Company assesses that the construction works significantly heightens either the risk of damage being caused to their existing assets

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or the works interrupting the supplies to existing customers. The thresholds for this assessment will be set in accordance with the Water Company policies for all work on their water distribution systems and allowing SLPs to do work on pipework with such assessments maybe subject to accreditation requirements and controls specified in the terms offer.

2. Where a SLP carries out water sampling and quality testing they shall comply with the sampling procedure detailed in the Water Company's specific schedule of permissible materials and construction arrangements. Testing should be by a UKAS accredited laboratory.

3. Where the SLP has the necessary access permissions installing the new part of diversions made necessary by a development should be considered as contestable work provided that doing this work does not significantly heighten either the risk of damage being caused to existing assets or this works interrupting the supplies to existing customers.

Note – the connection of diversions into network systems and the decommissioning of diverted mains are non-contestable works as they are likely to affect supplies to existing customers.

### **1.9 VESTING CERTIFICATE**

1. Ownership of a new water main shall transfer to the Water Company on connection . Confirmation of the transfer of ownership should be by issue of the Vesting Certificate, which confirms the date of each mains connection.

### **1.10 DEFECTS LIABILITY PERIOD**

1. A Defects Liability Period shall apply to the water mains, communication pipes and associated apparatus. The Defects Liability period applies for 12 months after connection for mains and for services.

2. All repairs required during the Defects Liability Period to the live network should be carried out by the Water Company. If appropriate, repairs to covers, lids, frames and chambers should be offered to the SLP to rectify, within a maximum of 10 days, subject to other legislation and regulations.

3. The SLP should pay the reasonable costs of remedying any defects to the water mains, services and associated apparatus installed under the self-lay agreement identified prior to completion of the Defects Liability Period.

4. If during the Defects Liability Period, work or materials are found not to comply with the design specification, the Water Company should agree these with the SLP without delay (to be confirmed in writing) and defects should be remedied.

5. SLPs are only responsible for rectifying defects identified to them before the end of the Defects Liability Period. Any damage to connected water distribution systems should be the responsibility of the Water Company to rectify.

Note – Best practice occurs, when merited by the work, for a works inspection to be undertaken jointly between the SLP and the Water Company.

### **1.11 FINANCES**

1. Water Companies should separately provide a document specifying their charging arrangements for self-lay work. This document should set out their charges, Income Offsets and Asset Payment arrangements, or the methodologies for calculating them.

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2. A best practice framework setting out how contestable and non-contestable costs, plus any allowances, should be set-out is provided in Appendix 8. This framework should be used for both terms issued following a direct self-lay application and when convertible quotations (following a requisition application) are issued.

### **1.12 STATUTORY CONSENTS**

1. The SLP should obtain all necessary consents and other permissions. Relevant bodies might include:

- utilities with a statutory right to consultation, including: the British Pipeline Agency, electricity/gas distribution companies, telecommunications companies, National Grid;
- emergency services;
- highway authority (public roads) or street managers (private streets);
- local authority (e.g. for hedge removal);
- bridge authorities;
- Canal & River Trust;
- county, metropolitan, borough and district councils;
- Network Rail and rail operators;
- transport companies (e.g. bus operators);
- sewerage companies;
- private landowners and tenants;
- Environment Agency;
- Countryside Council for Wales; and
- Natural England.

2. The SLP shall confirm to the Water Company any third party land access agreements which may impact on future maintenance. Such agreements should clearly state:

- location and ownership of land in question;
- purpose for which the land is required;
- responsibility for final reinstatement; and
- any other special conditions.

### **1.13 INTERFACES WITH LOCAL FIRE AND RESCUE AUTHORITY**

1. The SLP is responsible for ensuring that the designer liaises with the Fire and Rescue Authority and that arrangements for the provision of water for fire fighting is agreed to ensure compliance with the requirements of the Water Industry Act and the Fire and Rescue Services Act before mains laying is commenced.

2. Water Companies may refuse to connect any new main where the required fire fighting equipment has not been installed in accordance with the Fire and Rescue Authority's request, or where a Fire and Rescue Authority has not been provided with adequate opportunity to detail their requirements.

3. If the Fire and Rescue Authority requests upsizing mains to meet fire fighting requirements, the SLP should inform the Water Company as their approval is needed for increased capacity to be provided. The Water Company should, where necessary then liaise with the Fire and Rescue Authority to resolve any issues.

### **1.14 REGULATIONS**

1. The SLP and Water Company should comply with all current relevant legislation.

2. Relevant legislation includes (but is not limited to):

- New Roads and Street Works Act (NRSWA), Regulations and Codes of Practice;
- Traffic Management Act and permit schemes;

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- Construction (Design and Management) Regulations (CDM);
- health and safety;
- public safety (including signing, pedestrian re-routing, barriers);
- Water Supply (Water Quality) Regulations;
- Water Supply (Water Fittings) Regulations;
- Fire and Rescue Services Act;
- Environmental Protection Act;
- Control of Pollution Act;
- Waste Duty of Care Code of Practice

3. As required by the Construction (Design and Management) Regulations (CDM) the following information should be provided to enable the Water Company and/or SLP to fulfil its duty under the Regulations:

- name of the Principal Designer (at the design stage if the SLP is undertaking the design);
- name of the Principal Contractor: and
- relevant section of the CDM Health and Safety File.

### **1.15 STANDARDS**

1. All goods and services (unless as classified below as new or innovative) should be in accordance with a relevant European Standard published in the UK as BS EN. Where there is no relevant European Standard, goods and services should be in accordance with a British Standard (BS), a Water Industry Specification (WIS) or equivalent, where one exists.

2. A SLP shall discuss and agree the proposed use of newly developed products with the Water Company before they are incorporated in any design.

Notes:

1. In the case of recently developed or innovative products a European or British standard will not generally be available. This does not necessarily preclude the use of a product where its performance or properties align with its intended duty and design life. Careful consideration will be given by the Water Company to any independent assessment or evidence of product performance.
2. Additional quality assurance requirements, including third party certification, may be sought by the Water Company as a cost effective means of ensuring compliance with Standards.

3. Currently, national regulations apply where European Standards refer to requirements for protecting against any deleterious effect of materials on the quality of water intended for human consumption.

### **1.16 CESWI**

1. The design and construction shall conform with the version of the Civil Engineering Specification for the Water Industry (CESWI) current when the design is submitted for approval.

### **1.17 RESOLUTION OF DISPUTES**

1. The Water Company's internal procedure for resolving disputes should initially be followed. If this fails to resolve the dispute to the satisfaction of the SLP then the dispute escalation procedure detailed in the Adoption Agreement may be followed.

2. The SLP can also appeal to Ofwat before the work starts if the Water Company:

- refuses to enter into an agreement to adopt the main or service pipe;
- offers terms and conditions to which the applicant objects; or

- does not provide terms and conditions or approve the application within two months.

3. Either party may refer disputes to Ofwat about associated financial arrangements.

4. Where the work is being done under local Charging Arrangement terms SLPs can refer to Ofwat any Water Company whose terms look to be at variance with the Charging Rules issued by Ofwat.

Note: - Apart from the breach of duty which arises should the Water Company not be able to connect a self-lay main within 3 months of agreement acceptance and the right of a SLP to appeal to Ofwat if self-lay terms are not issued within 2 months of application, Levels of Service performance relating to self-lay is not a statutory obligation on a Water Company. However concerns about such performance can be reported to Ofwat who may, within their powers, take appropriate action.

#### **1.18 LEVELS OF SERVICE**

1. Water Companies have agreed to monitor their performance against 12 self-lay specific target standards of service in addition to the other developer services standards they report performance against quarterly on the Water UK website. These standards are set out in Appendix 1 and target times are also set out in the various procedural flow diagrams in this document.

## **PART 2 – Self-lay Procedures**

### **2.1 THE PROCEDURE**

1. There are six main stages in the provision of new water supplies through self-lay. Additionally the SLP may be involved at the pre-development stage (which the Developer normally does prior to appointing a SLP).

The self-lay delivery procedural stages are:

- Point of Connection Enquiry;
- Application and Terms Issue (including Design);
- Terms Acceptance;
- Mains Construction;
- Mains Vesting and Asset Payment Processing; and
- Service Pipe Installation

Each of these phases is described more fully in Sections 2.2 to 2.8.

Details of the Water Company service level standards for self-lay activities can be found in Appendix 1.

### **2.2 PRE-DEVELOPMENT ENQUIRY STAGE**

1. A pre-development enquiry stage, where the Developer (or SLP working on their behalf) establishes the feasibility of supplying the site and the extent of any necessary off-site works, is normally done in advance of detailed self-lay preparation.

2. Best practice occurs when the SLP verifies that a pre-development enquiry stage has been completed and is valid for the current development proposals and where the SLP takes account of the information provided by the Water Company in their planning of the self-lay works.

Note: The pre-development enquiry response, provided by the Water Company, should provide the Developer with sufficient information to enable them to establish how the site can be supplied and to make choices about whether they wish the work to be done by a SLP or the Water Company. Typically it should comprise:

- details of the envisaged connection point for the site; and
- information about any engineering difficulties or other matters that could delay the provision of water to the site; and
- if any reinforcement work will be required to supply the site together with any existing assets which may require diverting or protecting;
- the indicative capital costs or range of costs for any necessary reinforcement or diversion works
- lead times for the site to be supplied and any temporary supply arrangements that would enable the site to proceed sooner than full off-site works provision would allow.

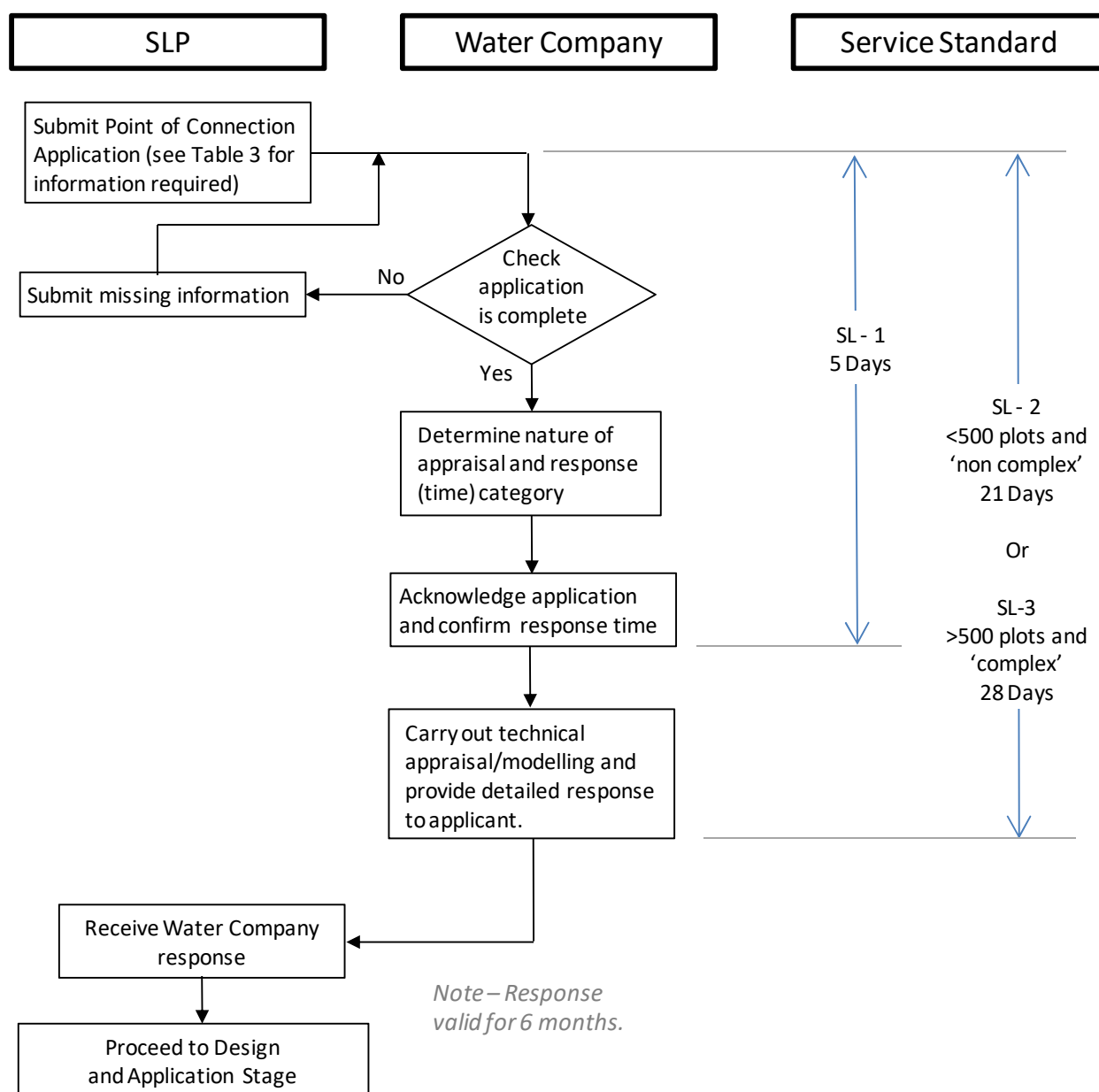
### **2.3 POINT OF CONNECTION ENQUIRY STAGE**

1. Before any design work can be started a technical appraisal should be carried out to establish the point(s) on the existing network from which the New Development can be supplied and whether any off-site work is needed. Response times and the confidence levels on costs and asset payment information depend on the size of the New Development and whether off-site work will be required or specific engineering factors (see 2.3.5) are likely to be encountered.

Note: At the earlier planning stage the Developer should have requested a Pre-development enquiry assessment. This will have helped the Developer determine the feasibility of the site being supplied and identified any abnormal supply costs. Whilst output from any Pre-development enquiry may inform a Point of Connection enquiry, an updated technical appraisal based on the actual development details, should be completed prior to the Design Stage.

2. The Point of Connection enquiry procedure is summarised in Figure 3.

**Figure 3: Point of Connection Application Procedure**



3. A Point of Connection enquiry application should provide all the information set out in Table 2. Where there are significant variations to the information provided at the Pre-development enquiry stage it may be necessary for the Water Company to re-evaluate the feasibility of supplying the proposed New Development.

4. Where the SLP, or Developer, has a preference for where the Point of Connection is located, and this can be accommodated in the supply arrangements, the preferred location should be stated in the application.

5. Point of Connection responses may take longer where specific engineering factors make them 'complex'. Such situations include where one or more of the following apply:

- the site has over 500 plots, or is part of an overall New Development of this size;
- the site has specific geotechnical conditions or topographical considerations; or
- the site is higher than the supplying reservoir on a gravity-fed system; or
- there is a need for off-site reinforcement that may require more than simply laying or upsizing of a main, e.g. booster pump; or
- the necessary work is near highways, e.g. major trunk road/motorways and where a site meeting with a highway authority is specifically required to scope out when/where the works may be carried out and the cost of traffic management; or
- there are environmental issues, especially in respect of SSSI or other designated sites; sites of archaeological interest; or
- the works involves Third Party or Crown Estate land or Common Land; or
- is on the land of protected undertakers or Network Rail or is in streets with special engineering difficulties (as classified by the Department of Transport)

6. The Water Company response will confirm the feasibility of supplying the proposed New Development. The information provided to the SLP should include:

- confirmation of how the site is to be supplied/points of connection; and,
- details of any required off-site works; and
- indicative costs; and
- indicative Asset Payment value
- validity period.

Note 1– Where options exist for supplying a New Development the rationale for any recommended supply proposal should be provided in the Water Company response.

Note 2 - At the Point of Connection stage, the Water Company is not required to design any works. Therefore all on-site costs, off-site costs and the Asset Payment value are indicative only, particularly where one or more of the situations in section 2.3.5 exist.

7. Should the Water Company require the subsequent site design to incorporate:

- a) specific fittings, such as flow meters, pressure or flow valves, or additional sluice valves; and/or
- b) mains to be upsized and/or additional cross connections beyond those needed for a minimum cost design,

these should be identified in the Point of Connection response.

8. Any constraints that will prevent a supply being provided to the site within 3 months of terms acceptance should be detailed in the Point of Connection enquiry response, along with envisaged timescales.

9. A Point of Connection response is valid for 6 months from the date of issue. Once the validity has expired a fresh enquiry application will need to be submitted.

**Table 2: Information required when making a capacity or Point of Connection enquiry**

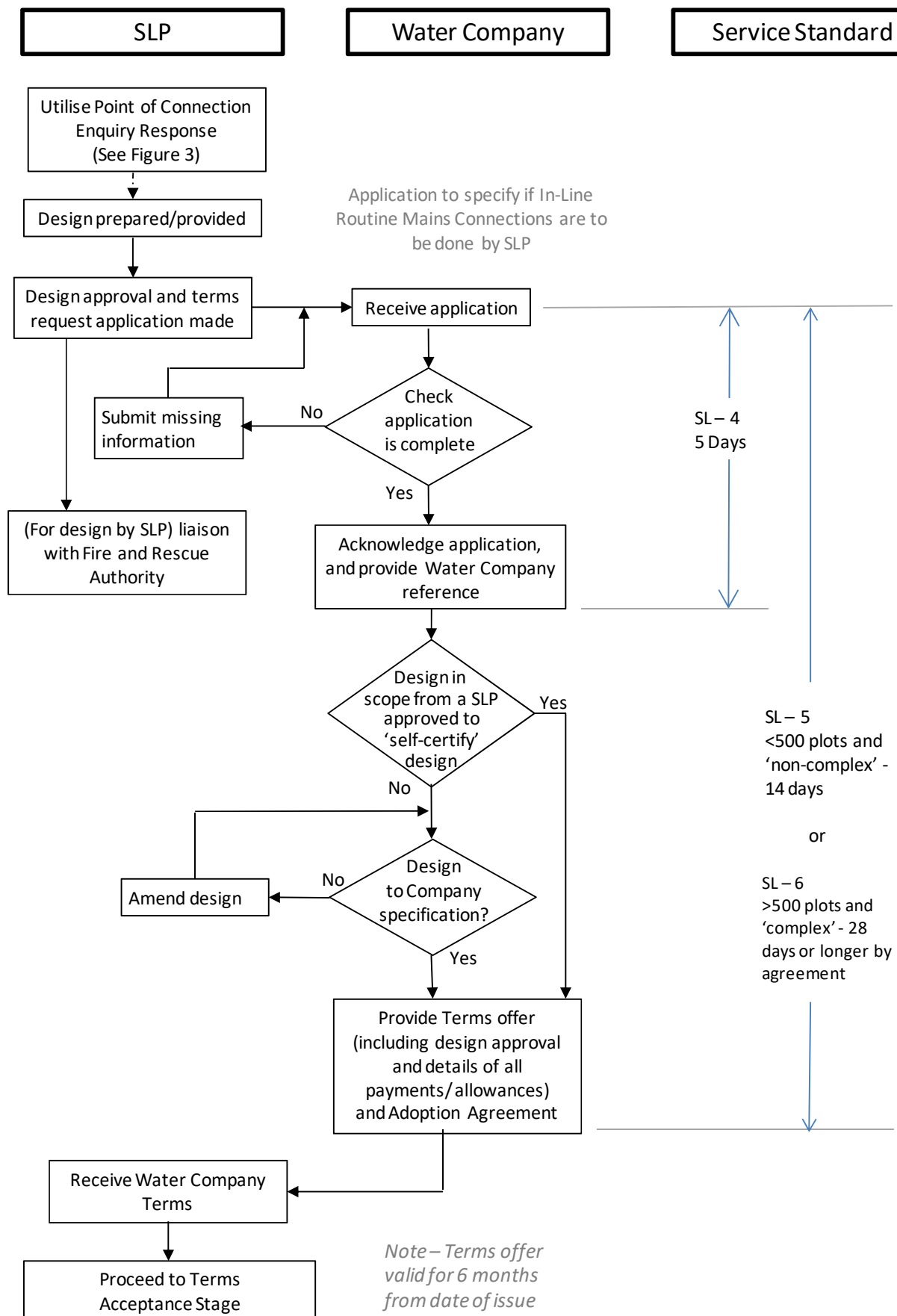
| Information Required              | To Include                                                                                                                                                                                                                                                                                                 |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant details                 | <ul style="list-style-type: none"> <li>• SLP applicant name and contact details</li> </ul>                                                                                                                                                                                                                 |
| Developer details                 | <ul style="list-style-type: none"> <li>• Name of Developer</li> <li>• Address of Developer</li> <li>• Contact name and contact number</li> </ul>                                                                                                                                                           |
| Planning details                  | <ul style="list-style-type: none"> <li>• (Where available) planning permission reference</li> </ul>                                                                                                                                                                                                        |
| Pre-development enquiry reference | <ul style="list-style-type: none"> <li>• Reference provided by the Water Company</li> </ul>                                                                                                                                                                                                                |
| Location of New Development site  | <ul style="list-style-type: none"> <li>• Full address of site</li> <li>• Grid reference of midpoint of site</li> <li>• Previous land usage including contamination report, etc. if required</li> <li>• Site ownership</li> <li>• Any previous water usage (within the last 5 years) on the site</li> </ul> |
| Number and type of units          | <ul style="list-style-type: none"> <li>• Number and types of domestic units</li> <li>• Number of commercial / industrial units, stating proposed usage</li> </ul>                                                                                                                                          |
| Timescales                        | <ul style="list-style-type: none"> <li>• Proposed construction start date</li> <li>• Details of phasing</li> <li>• Date when first connection required</li> <li>• Envisaged date of site completion</li> </ul>                                                                                             |
| Location plan                     | <ul style="list-style-type: none"> <li>• Boundary of area to be developed to be marked</li> <li>• North point marked</li> <li>• Proposed main entry route</li> </ul>                                                                                                                                       |

## 2.4 APPLICATION AND TERMS ISSUE STAGE (INCLUDING DESIGN)

1. The procedure for design by the SLP is summarised in Figure 4.

Note: SLPs who do not have design capability may choose to have designs done by others satisfying the competence criteria (see 2.4.5).

**Figure 4: Application and Terms Issue Procedure (including Design)**



2. Designs shall be prepared in accordance with the Water Company specific design practice guidance and should incorporate any required upsizing and/or additional fittings and/or works beyond that needed to satisfy the Minimum Cost Design criteria specified by the Water Company at the Point of Connection enquiry stage (see 2.3).
  3. Before a design is able to be assessed a Point of Connection enquiry, which matches with the demand criteria used in the design and is within the issue validity period, should have been completed (see Section 2.3).
  4. The SLP should submit the information detailed in Table 3 thereby providing a full and complete application so that vetting can be carried out. Where the SLP intends to carryout Routine In-Line Mains Connections this should be stated in the application.
  5. Designers should hold accreditation for design and operate to procedures compatible with the complexity of the works being designed. SLPs may subcontract design activity to other SLPs who hold WIRS design accreditation or request a Water Company, whose designers can evidence that they hold an appropriate level of competence, to provide a design service.
  6. Where the designing SLP is not approved to self-certify their work, designs may be checked by the Water Company who should either approve or reject them. Should a design be rejected the reason(s) for the rejection should be clearly stated in the rejection notification.
  7. Once a SLP's design has been finalised Fire and Rescue Authority requirements should be sought and received by the designer prior to commencement of construction work.
- Note: Under the Fire and Rescue Services Act a minimum of 42 days notice should be given to the Fire and Rescue Authority. With a SLP design, the designer is responsible for all Fire and Rescue Authority liaison, and should send copies of the mains design to the Fire and Rescue Authority to ascertain if fire hydrants are required. The SLP should send a copy of the Fire and Rescue Authority response to the Water Company.
8. The Water Company will normally only agree to the provision of fire fighting take-offs on the basis that only water within the capacity of the local water distribution system will be required at any given time. Any Fire and Rescue Authority requests which exceed this criteria require Water Company approval before being incorporating in the design.
  9. Fire and Rescue Authorities are responsible for paying for any additions, such as hydrants, they specifically require to be incorporated in the design. The SLP is responsible for the implementation and recovery of the costs from the Fire and Rescue Authority of any other changes to the design required as a result of the Fire and Rescue Authority liaison.

Note: 1. There is no charge to the Fire and Rescue Authority when the design is changed to convert washouts to hydrants.

2. Water Companies normally apply a standard charge for installing hydrants as part of mainlaying work and details of this charge are available on request.

10. The designer shall provide all the information, drawings, schedules etc., needed for the works to be constructed to the specification of the Water Company. This should detail the extent of the Contestable works and staged works boundaries.

11. Terms offers will provide SLPs with a schedule of all costs and full details about how the estimated Asset Payment has been determined. This should include details of how the Income Offset has been calculated and whether costs are separately payable or worked through the Asset Payment calculation.

Note: Best practice guidelines are provided in Appendix 8 which detail the financial information to be provided at the terms offer stage.

12. Allowances for any upsizing and works beyond that needed for a Minimum Cost Design are to be separately identified in the Terms offer along with detailing the mechanism for making such payments to the SLP.

13. Any Pre-commencement Payments, typically where off-site works are required and provision through requisitioning may have required the Developer to pay a contribution, should be separately detailed in the Water Company's terms.

15. The need for any significant off-site works should be confirmed at this stage and arrangements made, between the Water Company and SLP, for this work to be advanced. As a minimum this should ensure that the design of such works is progressed.

**Table 3: Information to be submitted by SLP at Terms Offer/Design Checking stage**

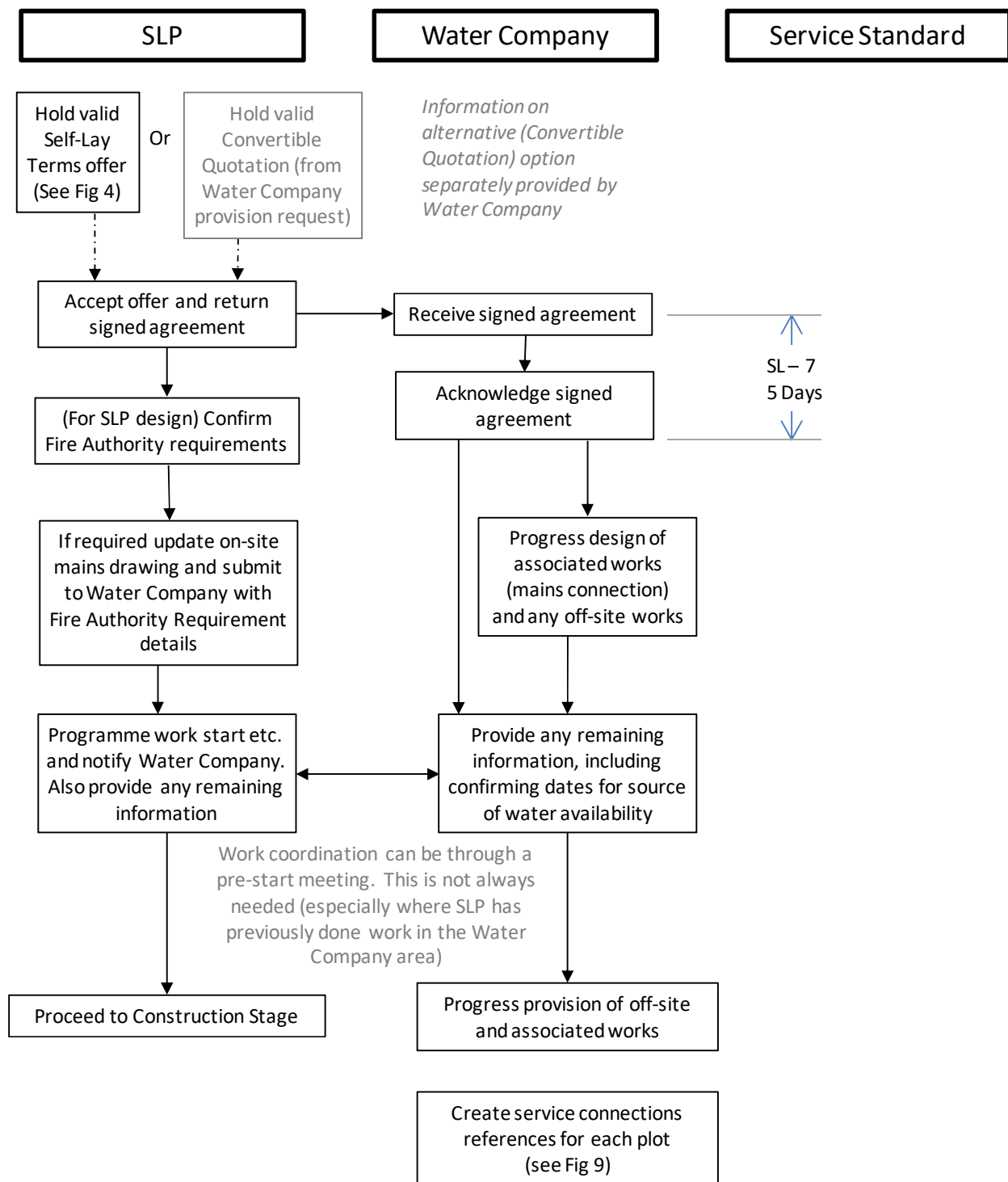
| Information Required                                                                               | To Include                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fully completed Water Company Self-lay application form (providing the information detailed below) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Applicant details                                                                                  | <ul style="list-style-type: none"> <li>• Applicant's name and contact details</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Developer details                                                                                  | <ul style="list-style-type: none"> <li>• Developer's name and contact details</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Site Name and Developer Reference                                                                  | <ul style="list-style-type: none"> <li>• Site name details</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Point of Connection Enquiry                                                                        | <ul style="list-style-type: none"> <li>• Point of Connection reference details</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Site location plan                                                                                 | <ul style="list-style-type: none"> <li>• Site boundary clearly marked</li> <li>• Existing utility apparatus</li> <li>• North point</li> <li>• Grid reference of mid-point of site</li> <li>• Any change in ground levels</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Number and type of units                                                                           | <ul style="list-style-type: none"> <li>• Number and types of domestic units</li> <li>• Number of commercial / industrial units, stating proposed usage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Timescales                                                                                         | <ul style="list-style-type: none"> <li>• Proposed construction start date</li> <li>• Details of phasing</li> <li>• Date when first connection required</li> <li>• Envisaged date of site completion</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Detailed design                                                                                    | <ul style="list-style-type: none"> <li>• Proposed streets, defining whether they are to be adopted or whether they are to remain private</li> <li>• Service strips / service corridors</li> <li>• Site phasing</li> <li>• House types and plot numbers</li> <li>• Line of proposed water main(s), including positions of sluice valves, wash outs, fire hydrants, air valves and any other fittings required.</li> <li>• Mains to be clearly marked with mains material and mains size</li> <li>• Clear demarcation showing main to be constructed by SLP and mains to be constructed by Water Company</li> <li>• Locations of services pipes, showing size of any service pipe if above 25mm</li> </ul> |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <ul style="list-style-type: none"> <li>• Location of boundary boxes, manifold boxes, and other meter chambers</li> <li>• Details of type of service connection for each plot, i.e. wallbox, boundary box, manifold</li> <li>• Details of any Rainwater Harvesting or Grey Water reuse systems</li> <li>• Details of any new off-site mains designed by the SLP</li> </ul>                                                                                                                                                                                                                                                                                                                                                     |
| Soil condition report | <ul style="list-style-type: none"> <li>• Information as per Contaminated Land Assessment Guidance Protocol published by Water UK and the Home Builders Federation (see <a href="http://www.water.org.uk/contaminated-land-assessment-guidance">http://www.water.org.uk/contaminated-land-assessment-guidance</a> ) or</li> <li>• Details of soil analysis carried out.</li> <li>• Results of analysis in tabulated format</li> <li>• Plan showing location of where soil samples taken</li> <li>• Details of any known contaminants</li> <li>• Details of any potential areas for contamination</li> <li>• Previous land usage / history of land usage</li> <li>• Details of water-logging and ground water levels</li> </ul> |
| Materials schedule    | <ul style="list-style-type: none"> <li>• Schedule of materials to carry out the construction of the mains design, detailing size and material where applicable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Land ownership        | <ul style="list-style-type: none"> <li>• Details of land owner if not the Developer.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Fire Service liaison  | <ul style="list-style-type: none"> <li>• Evidence that the Fire and Rescue Authority has been consulted on fire hydrant positions</li> <li>• A copy of the Fire and Rescue Authority response, when available</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 2.5 TERMS ACCEPTANCE STAGE

1. The procedure for terms acceptance is summarised in Figure 5.

**Figure 5: Terms Acceptance Procedure**



2. The SLP should verify that the Water Company offer is valid and the New Development proposals are unchanged before returning the acceptance documentation, including a signed self-lay agreement, to the Water Company.

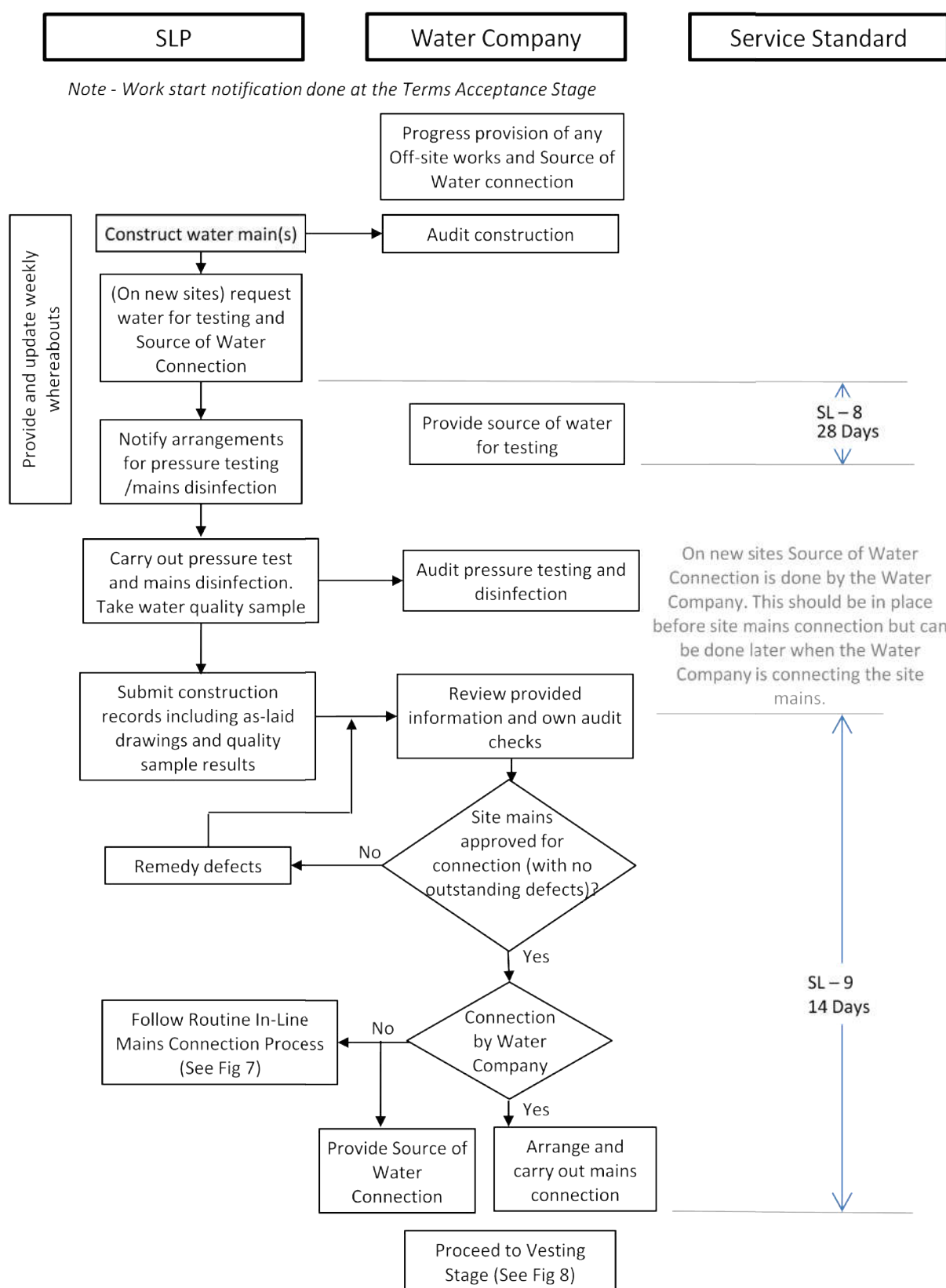
Note: Where the terms offer has expired, or the New Development layout has changed, the SLP should request updated terms.

3. The terms acceptance returned by the SLP to the Water Company should include notification of their intention to carry out routine in-line mains connection work.
4. Once acceptance has been received the Water Company should progress the design of any associated works, including the site connection, and all other work necessary for the site to be supplied. As early as possible the Water Company should provide the SLP with details of when a supply of water for testing will be able to be made available to them and when the Source of Water Connection will be done.
5. The SLP should be notified by the Water Company of the flows and pressures that will be available at the mains commissioning stage.
6. It is the responsibility of the SLP designer to ensure that any Fire and Rescue Authority requirements are captured in the scheme drawings and material specifications that are issued for construction.
7. Where a Water Company design is being used the SLP should obtain the final construction drawings (which should be marked as approved for construction) and a full works specification, including material schedules, from the designer.
8. Pre-start meetings are an opportunity to ensure that all required information has been exchanged between the Water Company and the SLP (and that the Developer is kept informed about work progress and Regulations compliance arrangements on the private pipework they are to install). Such meetings are not always necessary, typically with ongoing sites or where the SLP has well established working procedures in the Water Company area. Where a pre-start meeting is not held the SLP is responsible for updating the Developer and confirming sign-off arrangements for all private pipework with them. The SLP is also responsible for issuing to the Water Company details of the self-lay work programme and any other required notifications.
9. A log of outstanding information from either the Water Company or SLP should be maintained.
10. Work programmes, covering both the self-lay and Water Company works, should be regularly updated and shared between the SLP and the Water Company.
11. Registering of service connection details and confirming reference numbers against each plot to the SLP should be initiated by the Water Company at this stage (see Section 2.8).

## **2.6 MAINS CONSTRUCTION STAGE**

1. The procedure for mains construction is summarised in Figure 6.

**Figure 6: Mains Construction Procedure**



2. Prior to work commencing information should be exchanged between the SLP and Water Company about the intended work programme and when a supply of water will be made available.

Note: The Water Company is responsible for progressing their works in accordance with the programme issued to the SLP.

3. The SLP shall construct the water mains in accordance with the agreed design and notify the Water Company of any changes to the programme and the intended pressure testing and disinfection dates.

4. If site changes or conditions do not allow the main to be constructed as designed, the Water Company and SLP shall agree a solution and the Water Company should confirm acceptance of the variation in writing.

5. The Water Company may carry out on-site audits to ensure compliance with the design.

Notes:

1. Should Water Company audits identify compliance issues these should be immediately reported to the SLP for rectification prior to the connection stage.
2. SLPs should expect compliance issues to be reported by the Water Company to the Accreditation Body (for whatever follow-up, and investigation, is considered appropriate).

6. Testing and disinfection practices shall comply with the practices specified in the Water Company schedule of permissible materials and construction arrangements.

7. The Water Company may choose to witness the pressure testing and disinfection of the main.

8. If fire hydrants cannot be installed where requested by the Fire and Rescue Authority, the agreement of the Fire and Rescue Authority to alternative locations should be sought prior to installation by the SLP.

9. If actual soil conditions are found to differ from those allowed for in the design, no further construction should take place until the design is re-evaluated and approved by the Water Company.

10. Where a Source of Water connection of a new main is needed to an existing water distribution system, the Water Company should in accordance with the programme issued to the SLP, make the connection and construct a section of main ending with a temporary washout, either at the site boundary or, if off-site main laying by the SLP is being done, at a suitable agreed location.

11. Where an In-Line Routine Connection is to be done by the SLP they shall submit a completed Self-Lay Routine Inline Mains Connection Notification Form. If the connection is not being done by the SLP the Water Company should progress the work.

12. The procedure for the Routine Inline Mains Connections is shown in Figures 7 and 8.

13. Regardless as to who commissions the mains the Water Company shall be provided with:

- as-laid drawings showing all of the mains which are to be connected; and
- a copy of the pressure test results for the newly laid main(s); and,
- a copy of the disinfection results for the newly laid main(s); and,
- (where the SLP is responsible for the analysis) a copy of the passed sample result following disinfection of the newly laid main(s); and,
- the proposed service connection programme.

Note – Where a SLP is responsible for the analysis a satisfactory water quality sample result should be within the maximum allowable concentration parameters for coliforms, E.coli, colour, odour, taste and

turbidity, as prescribed in The Water Supply (Water Quality) Regulations and certified by a UKAS accredited laboratory.

14. The Water Company should check a SCRMC notification submitted by the SLP and either approve it or reject it, together with reasons for rejection.

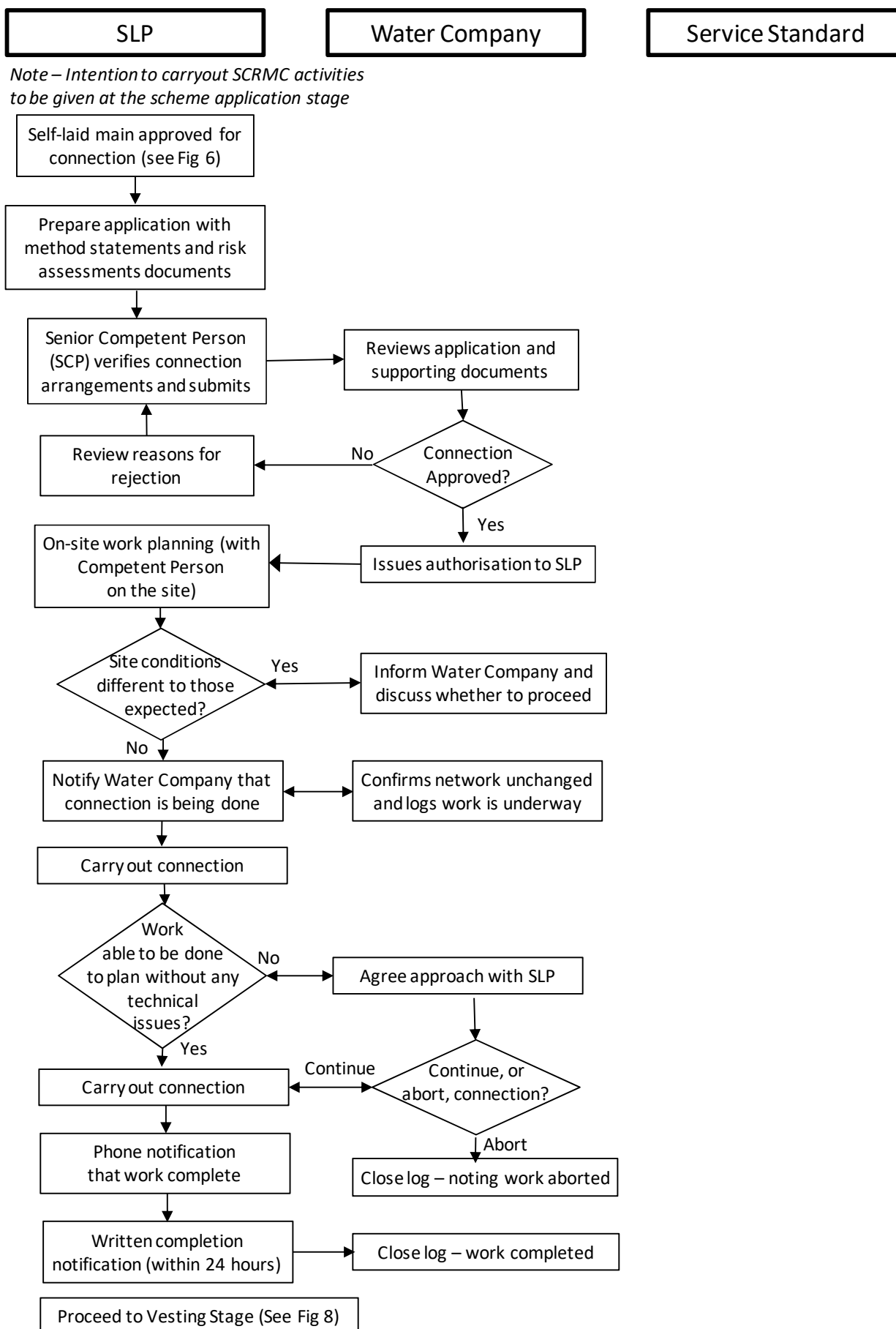
15. Routine Inline mains connections shall only be made with the permission of the Water Company.

16. The SLP shall immediately inform the Water Company that any connection done by them is complete or the connection has been aborted. Written confirmation of this notification shall be made within 24 hours.

17. The Water Company may carry out post-connection water sampling.

18 Any incidents during the routine connections' works will be attended to by the Water Company, with their legitimate costs being recharged to the SLP.

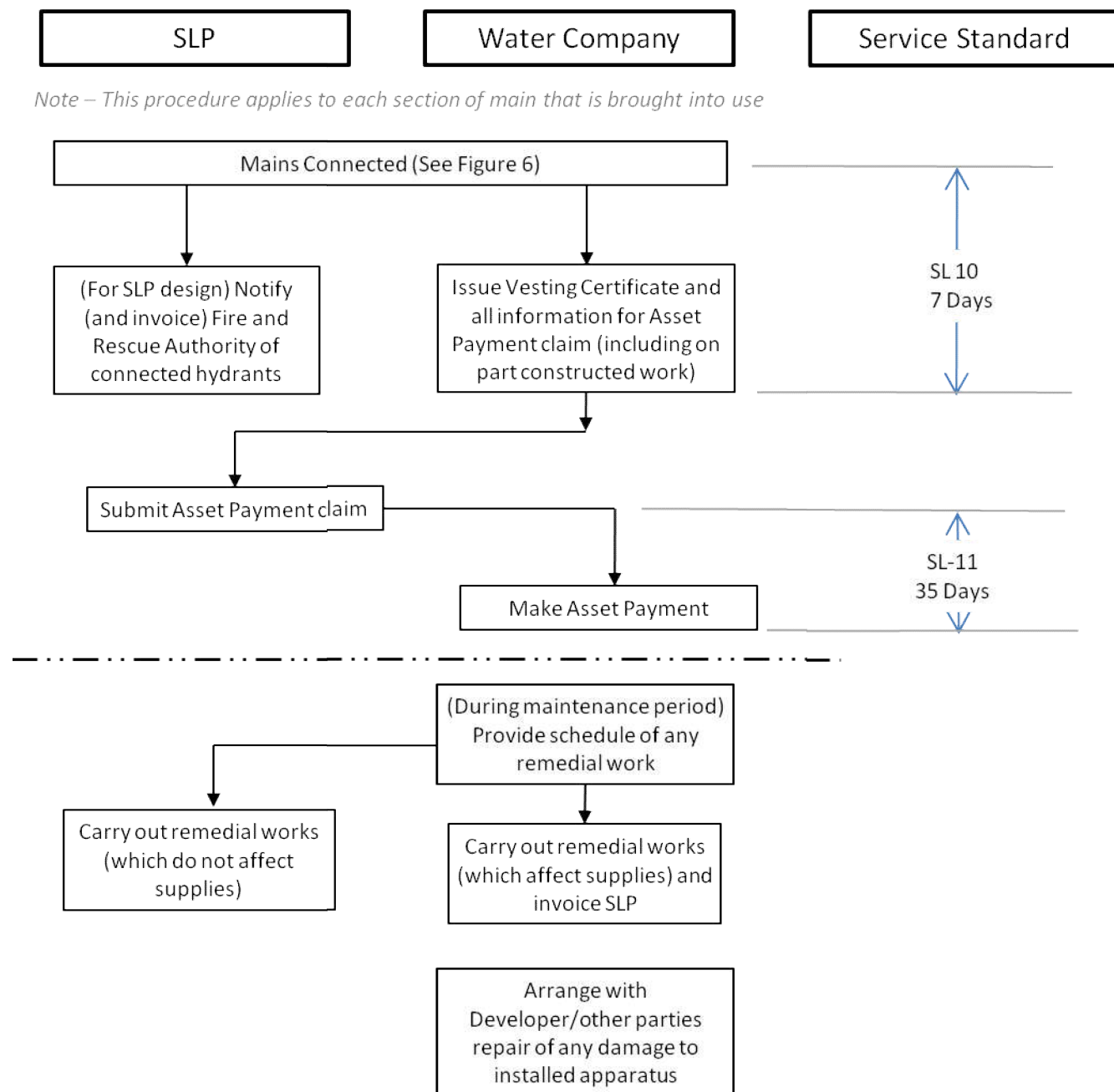
**Figure 7: Routine In-Line Mains Connection Procedure**



## 2.7 MAINS VESTING AND ASSET PAYMENT PROCESSING STAGE

1. The procedure for mains vesting and asset payment processing is summarised in Figure 8.

**Figure 8: Mains Vesting and Asset Payment Procedure**



2. On receipt of notification that works have been connected the Water Company should issue a Vesting Certificate and all information the SLP requires to make an asset payment claim for the commissioned sections of the works.

Note1: SLPs are responsible for providing all required information prior to requesting a mains connection.

Note 2: SLPs should be kept updated on when they can expect payment for all submitted asset payment claims.

3. The SLP should notify the Fire and Rescue Authority when the fire hydrants are installed and ready for inspection. All defects identified during the Fire and Rescue Authority inspection should be rectified either by the Water Company or SLP, as appropriate.

4. Should defects in workmanship and/or materials be identified by the Water Company during the maintenance period they should immediately notify the SLP and, where the work is to the main itself, arrange to carry out the necessary repairs and invoice the SLP the reasonable costs of the necessary work.

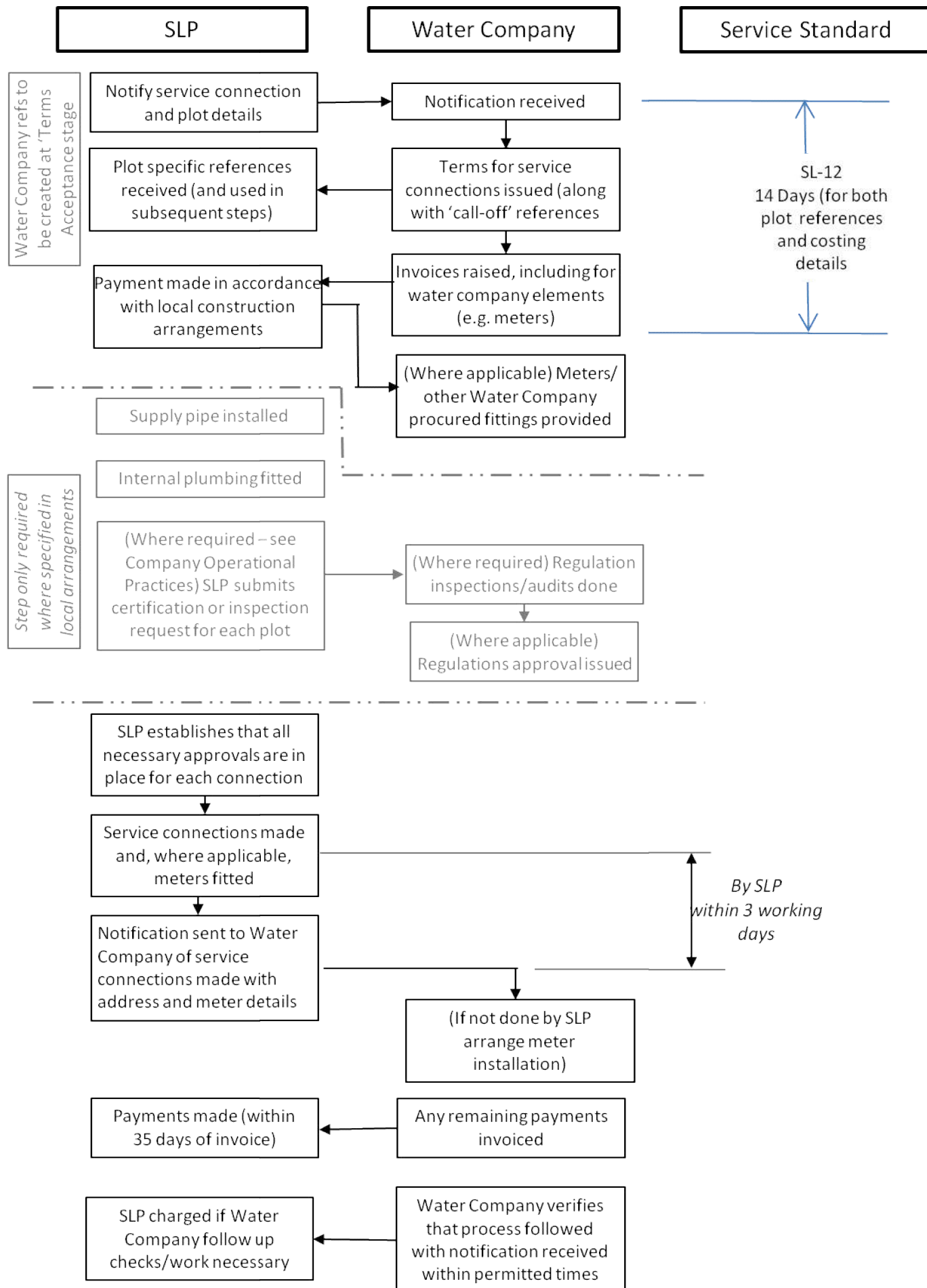
Note: SLPs should expect defects to be reported by the Water Company to the Accreditation Body (for whatever follow-up, and investigation, is considered necessary).

5. Should the commissioned installation become damaged by the Developer, or others, the Water Company should use the arrangements they have in place for recovering their repair costs from the Developer or party who caused the damage.

## **2.8 SERVICE PIPE INSTALLATION STAGE**

1. The procedure for service pipe installation and connection to Household Premises is summarised in Figure 9.

**Figure 9: Service Pipe Installation Procedure (For Household Premises)**



2. This procedure applies to connections to Household Premises. Separate Water Company specific procedures, as specified in company specific arrangements, should be used for connections to non-household premises.
3. The SLP shall ensure that the service pipe is constructed in accordance with the agreed design.
4. Service connections shall not commence until the main to which they are to be connected is vested in the Water Company. As detailed in the Water Company specific schedule detailing permissible materials and construction arrangements no service connection shall be made until:-
  - a) the SLP makes the necessary advance payments or, where permitted, has measures in place covering the making of retrospective payments; and,
  - b) either a property to be supplied is confirmed as complying with the Water Supply (Water Fittings) Regulations or meets the requirements to satisfy the company specific arrangements.
5. Boundary/meter boxes and manifolds shall be installed in accordance with the Water Company's specific design practice guidance and their schedule detailing permissible materials and construction arrangements and as agreed at the design stage. If they cannot be installed in accordance with the design, the SLP should contact the Water Company and agree an alternative position or configuration.
6. Where the SLP is responsible for meter fitting they shall ensure that the work is done in accordance with the Water Company's specific design practice guidance and its schedule of permissible materials and construction arrangements.
7. Ownership of the communication pipe shall be transferred to the Water Company at the time of connection.
8. If not been done beforehand SLPs shall supply full postal addresses for each plot, with clear reference to the preceding address/plot number, either prior to connection or (if later) when the developer receives this information. Confirmation of the connection details and (as appropriate) meter details, shall be submitted to the Water Company by the SLP within 3 working days of each service connection being made.
9. Where retrospective payment of charges associated with service connections is permitted payments should be made within 35 days of a Water Company invoice being raised after the connection has been made. Water Company procured fittings shall be paid for in advance.
10. The Water Company may carry out on-site audits to ensure service-laying work is in compliance with the design. The Water Company may also check that the notification process has been followed and invoice SLPs for any work that is necessary for them to verify which premises are connected and to determine the plot and/or meter details.

Notes:

1. Should Water Company audits identify compliance issues these should be immediately reported to the SLP.
2. SLPs should expect systemic compliance issues to be reported by the Water Company to the Accreditation Body (for whatever follow-up, and investigation, is considered appropriate).
3. Payment of Infrastructure Charges can be deferred until a premise is connected and becomes capable of receiving a supply of water.

## **PART 3 - DESIGN AND CONSTRUCTION GUIDANCE**

### **3.1 GENERAL DESIGN PRINCIPLES**

1. The SLP is responsible for ensuring that all aspects of their design of new water distribution systems meet current regulations, standards and legal requirements. If these are not met for the constructed self-lay works, the Water Company is under no obligation to adopt the new water distribution system or allow the connection of the new water mains and communication pipes.
2. The design should follow the guidance in this Part and the principles laid down in the publications listed in Appendix 2.
3. When preparing the design for new mains and services, the designer shall consider the need to:
  - provide adequate hydraulic capacity to deliver the required standards of service to customers, whilst preserving wholesome water quality by avoiding excessive retention or travel times for water supplied; and
  - provide efficient and flexible operation of the water distribution system with an optimum number of control points and surface assets to mitigate future maintenance costs whilst maintaining continuity of supply.
  - select pipes suitable for the ground conditions in accordance with the 'Contaminated Land Assessment Guidance Protocol' published by agreement between Water UK and the Home Builders Federation.
4. Design calculations, or empirical load assessments, should be included when submitting the design for approval.
5. The design shall cover all necessary associated works such as pipe supports, bed and surround, backfill, surface restoration, access arrangements, etc.
6. The Water Company will establish suitable points for connection of the new mains to the existing water distribution system. These points of connection should provide adequate flows and pressures to meet the Water Company's service levels, bearing in mind proposals for other future development.
7. Unless self-certification arrangements are in place all designs carried out by the SLP are subject to approval by the Water Company before work commences.
8. Designs should satisfy the requirements of:
  - this Code of Practice; and
  - Water Company specific design practices guidance; and
  - Water Company schedules detailing permissible materials and construction arrangements; and
  - all upsizing and enhancements notified to the SLP at the Point of Connection Enquiry stage; and
  - (as far as reasonable practicable) NJUG Guidelines on the 'Positioning of Underground Utilities' Apparatus'

### **3.2 DESIGN REQUIREMENTS**

1. Designs shall provide for:
  - the requirements of British Standard BS EN 805 (Water Supply Requirements for Systems and Components Outside Buildings);
  - site-specific conditions and requirements;
  - compliance with the Water Supply (Water Quality) Regulations;
  - compliance with the Water Company's design standards for water pressure and flow;

- compliance with local Fire and Rescue Authority's requirements (reference is made to the National Guidance Document on the Provision of Water for Fire Fighting - see Appendix 2);
- compliance with all relevant health and safety legislation including the construction (Design and Management) Regulations; and
- any additional requirements set out by the Water Company in supplementary guidelines

Note: Publications relevant to the design of water mains are given in Appendix 2.

2. If the site has previously been developed, a site investigation report is required prior to any design work being undertaken. The SLP should determine the scope of the investigation based on the Water Company's specific design practices guidance. This may, in accordance with the 'Contaminated Land Assessment Guidance Protocol' published by agreement between Water UK and the Home Builders Federation require a Preliminary Risk Assessment of the soil carried out by a person with relevant experience in the investigation of contaminated sites. They must either be a chartered member of an appropriate professional body (e.g. Geological Society of London, Institution of Civil Engineers or the Royal Institute of Chartered Surveyors) or be listed on the Specialist in Land Condition (SiLC) register administered by the Construction Industry Research and Information Association (CIRIA).

### **3.3 DESIGN DRAWINGS**

1. All drawings should be submitted in the format specified in the Water Company specific design practice guidance.

2. Design drawings shall be clear and unambiguous, showing the position of all new and existing apparatus (covering water mains, services and meter locations) in relation to all assets affected by the Works. A location map should be incorporated into the design drawing at an appropriate scale.

Note: Where a number of assets are installed adjacent to each other, suitable asset information enlargements should be incorporated and clearly referenced as a subset of information from the main plan.

3. Where appropriate, any dimensional information should comprise surveyed distance and angular measurements recorded relative to permanent geographical features displayed on the Ordnance Survey map.

4. The design drawing and supplementary design information for the work to be constructed by a SLP, regardless of who has produced the design, should include the following information:

- line of proposed water main, including position of sluice valves, washouts, hydrants, air valves and any other fittings required;
- material and size of each main;
- depth of each main;
- those mains to be constructed by the SLP and those mains to be constructed by the Water Company;
- location and size of any ducts;
- location of service pipes, showing size of service pipe if above 25mm;
- service entry Points;
- location of boundary boxes, manifold boxes and other meter chambers;
- details of type of service connection for each plot, i.e., wall box, boundary box, manifold;
- details of off-site main showing point of connection;
- details of any new off-site mains;
- north point;

- site boundary;
- individual numbered plots;
- roads/highways (adopted or proposed for adoption);
- change in ground level;
- site stages and forecast date of completion of the work;
- service strips and easements;
- design risk assessments

5. All assets to be included in the design shall have their specification stated either on the design drawing or accompanying documents, e.g. nominal size, material, class of pipe/pressure rating, length and direction of close for valves.

6. The location and type of hydrants shall be shown on the design submitted for approval. Fire hydrants and washouts should be sited in pavements, wherever possible, and be clearly labelled on the design drawing.

### **3.4 DESIGN GUIDANCE - GENERAL**

1. Mains and other utility apparatus should, wherever possible, be designed in accordance with the National Joint Utilities Group (NJUG) guidelines at <http://www.njug.org.uk>.

2. It is the responsibility of the SLP to ensure that the designer obtains all current information on the location of other existing utility or service providers' apparatus, and information on proposed works by other utilities prior to the design being carried out.

3. To permit access and to enable water connections to be made, water mains should be laid in an adoptable street or a dedicated service strip. In addition, wherever possible:

- to minimise the number of service pipes crossing the road the main should be laid on the side of the road where the density of housing is greatest; and
- single as opposed to dual mains layouts should be specified.

4. The design should take into account the impact of the Works on the environment and the impact of the environment on pipe installation. This includes ensuring that any subsequent deep rooted tree planting is kept away from the Works. This means that no trees or large shrubs should be planted over or within 3.0 metres of the works unless suitable root restriction measures are taken. If root restriction is to be considered it should extend at least 1.5 metres below finished surface level, in which case the minimum clearance between the works and the root restrictor can be reduced to 0.5 metre. Should the works have to pass between two trees/large shrubs, even with root restrictors, a minimum clearance of at least 3.0 metres must be maintained between their respective boles to facilitate vehicular access.

Note: Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees can be found at <http://njug.org.uk/wp-content/uploads/2016/09/V4-Trees-Issue-2-16-11-2007.pdf>

5. The Water Company has legal duties under Section 3 of the Water Industry Act 1991, as amended by the Water Act 2003, in respect of conservation, preservation of access for the public and facilitation of recreation associated with its assets. Therefore, for off-site works, the Water Company may require an environmental impact assessment to be undertaken. Consideration should also be given to Sites of Special Scientific Interest (SSSIs) and Special Conservation Areas.

### **3.5 DESIGN GUIDANCE - MAINS**

#### **3.5.1 Mains Design**

1. Design layouts should ensure a minimum clearance of 500 mm between the outside diameter of the water main and any boundary wall foundations, fences etc. In addition, the distance between the outside diameter of the main and the foundation of any structure (e.g. house, extension or garage) should be at least 1.5 metres for mains up to and including 150 mm diameter, and 2 metres for mains larger than 150 mm diameter up to 250 mm diameter.
2. Where the above clearances are not achievable the designer should discuss and agree with the Water Company an acceptable clearance between the line of the new water main and the proposed property constructions, and any existing structures and on-site features.
3. Branch connections should have isolation valves installed to separately control all the flows downstream of the branch. Three valves to a junction would only be required where the flow of water can be directed in both directions. The need for additional 'in-line' valves is dependent on housing density and operational requirements.
4. 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.
5. Valves, washouts, hydrants, etc., should as far as is practicable, be located in the footpath or verge for both access and safety reasons and to mitigate the impacts of traffic, surface water and silting on chambers. They should be located to prevent the fittings becoming submerged.
6. Designers shall refer to Water Company specific schedules detailing permissible materials and construction arrangements. This includes details of fire hydrant specifications, and whether full-bore hydrants are to be used. Details should also state whether clockwise or anti-clockwise closing valves are to be installed.

#### **3.5.2 Depth of Cover**

1. On-site mains depth of cover shall be laid as specified in the Water Company's specific schedule detailing construction arrangements.
2. In fields which are likely to be ploughed the depth of cover on mains should be 1200mm.
3. Any variation to permitted cover shall be agreed with the Water Company.
4. A greater cover and/or greater strength pipe and/or a higher class of bedding and surround may be required where high traffic loading is anticipated. To avoid obstructions depths may be altered by agreement with the Water Company.
5. The depth of cover to concrete thrust blocks should not normally be less than 600 mm. Depths may be altered by agreement with the Water Company to avoid obstructions.

#### **3.5.3 Sizing of Mains**

1. The sizing of mains to New Developments is governed by the requirement that there should be adequate supply to meet customer demands at all times whilst ensuring that water quality is not compromised through the use of oversized pipes.

2. The Water Company will provide sufficient flow and pressure at the Point(s) of Connection to enable the designer to design a system that meets the minimum flow and pressure for water used for Domestic Purposes at the proposed service connection locations.

3. Water Companies may have their own design criteria, as stated in their design practices guidance, for allowable minimum pipe sizes for supplying a number of dwellings. As a guide, the typical pipe size for a given number of properties is shown in Table 4. The values given should not be a substitute for conducting an adequate hydraulic assessment taking into account all pertinent factors and for verifying the pipe sizing against Water Company specific design practice guidance.

**Table 4: Typical pipe sizes against number of individual dwellings**

| Number of individual dwellings | Typical Pipe Outside Diameter<br>(PE Pipes) | Nominal Bore (Other Materials) |
|--------------------------------|---------------------------------------------|--------------------------------|
| 1                              | 25 mm                                       | 20 mm                          |
| 2                              | 32 mm                                       | 25 mm                          |
| 3-5                            | 50 mm                                       | 40 mm                          |
| 5-20                           | 63 mm                                       | 50 mm                          |
| 20-40                          | 90 mm                                       | 80 mm                          |
| 40-95                          | 110/125 mm                                  | 100 mm                         |
| 95-300                         | 160/180 mm                                  | 150 mm                         |
| 300-700                        | 250 mm                                      | 225 mm                         |

4. Water Company specific design practices guidance will specify any local variations to Table 4.

### **3.6 DESIGN GUIDANCE SERVICES**

#### **3.6.1 Service Design**

1. Service connections shall be designed with communication pipes laid in a straight line and at right angles on plan to the main to which they are connected. Continuous lengths of pipe should be used and joints kept to a minimum.

2. Where practicable, service connections should be positioned to avoid running beneath drives and parking areas (where leakage and spillage of fuels and solvents may enter the ground and permeate the buried service pipes leading to contamination of the water supplied).

3. The Water Supply (Water Fittings) Regulations require prevention of backflow within the water distribution system, for example, where:

- water is required for non-domestic purposes such as fixed fire fighting systems (e.g. sprinklers, hose reels); or
- water is also supplied from other sources (e.g. rainwater collection or recycled water)

Note: For non-household premises the Water Company's specific design practices guidance should be used to determine local backflow prevention measures.

4. Service pipes and associated chambers should preferably not be laid across third party land, i.e. land not in the ownership of the premises being supplied or a street. Where it is unavoidable to lay a service pipe or site a boundary box/meter chamber in third party land, a legal agreement which includes right of access by the customer and Water Company staff or their agents for the purposes of reading the meter, should be drawn up and attached to the deeds of the premises affected by the line of the pipe.
5. Service pipes crossing major roads and junctions (Department of Transport Road Types 0, 1 and 2) should be installed in a duct to allow ease of replacement and any future upsizing. Service pipes within a duct should be laid as a continuous, un-jointed length of pipe.
6. Ducts for service pipes should be blue thermoplastic pipe, laid with slow bends to facilitate installation and/or removal of the service pipe. Guidance should be sought from the Water Company and appropriate NJUG guidance documents.
7. Where a number of adjacent services would be required to cross the street, this should be minimised by the use of joint communication pipes or meter manifolds.
8. Where two communication pipes share a common trench, their respective supply pipes should be no more than 1.0m apart where they cross the street boundary.
9. Meters are to be installed on each service in accordance with Water Company specific design practice guidance.

### **3.6.2 Depth of Cover**

1. Unless otherwise specified by the Water Company in their design practices guidance, a service pipe should be laid with a minimum cover from finished ground level to crown of pipe of 750mm and maximum cover of 1200mm.
2. If a boundary box is to be installed on the service pipe, the pipe shall be laid with cover between 750 mm and 850 mm for a minimum of 1.0 metre on each side of the boundary box.

### **3.6.3 Sizing of Service Pipes**

1. The sizing of service pipes to New Developments is governed by the requirement that there should be adequate supply to meet customer demands at all times whilst ensuring that water quality is not compromised through the use of oversized pipes. Additional requirements such as the need for fire sprinklers (domestic) and fire fighting (non-domestic) should be taken into account when selecting the diameter.
2. Water Companies may have their own design criteria, as stated in their design practices guidance, for allowable minimum service pipe sizes. As a guide, the typical pipe size for a given number of properties is shown in Table 5. The values given should not be a substitute for conducting an adequate hydraulic assessment taking into account all pertinent factors and for verifying sizing for incoming pipes to a property or manifold chamber against the Water Company specific design practice guidance.

**Table 5: Size of incoming supplies to property or manifold chamber**

| <b>Number of Individual Dwellings</b> | <b>Typical Pipe Outside Diameter (PE pipes)</b> |
|---------------------------------------|-------------------------------------------------|
| 1                                     | 25mm                                            |
| 2                                     | 32mm                                            |
| 3 – 4                                 | 63mm                                            |
| 5 - 8                                 | 63mm                                            |

### **3.6.4 Multiple Service Connections**

1. Separately occupied premises should have an individual metered supply.
2. Supplies to flats and multiple occupancy premises shall comply with the Water Company's specific design practice guidance.
3. Consideration should also be given to choosing locations for such chambers that have regard to health and safety of customers and others for fitting, reading or replacing meters.
4. Where four or more multiple service pipes are to be laid alongside each other, a manifold should be installed.

### **3.6.5 Meter Boxes**

1. Allowable metering options are detailed in the Water Company's specific design practice guidance.
2. Where a boundary meter box is to be installed, it should be in the footway or service strip as near as is practicable to the proposed highway boundary (unless otherwise specified by the Water Company in their design practice guidance) and, if possible, sited to avoid vehicle crossing points, drives and parking areas.
3. In land which is classified as contaminated boundary boxes shall be sealed units with metal union connectors.
4. Where a manifold chamber is used to provide a communal boundary box, each dwelling should have its own supply pipe and meter. All pipes should be suitably identified. All supply pipes associated with any one manifold should be ready for connection to the communication pipe in one visit. All meters in the manifold shall be tagged to indicate which property is supplied and any unused outlets are to be blanked off.
5. Unless specified by the Water Company in their design practice guidance, a controlling valve does not need to be installed on the incoming supply to the manifold. As a minimum, incoming supplies to manifolds should be sized as shown in Table 5.
6. Purpose-built manifold boxes should be installed in accordance with the manufacturer's instructions. Where allowed or specified by the Water Company in their design practice guidance, manifolds may be installed in chambers constructed in-situ (e.g. brick, precast concrete, plastic). Chambers should be large enough to enable the fitting/removal and reading of meters, and maintenance of the apparatus installed.

Note: Due to the size of such chambers, it may not be possible to locate them in footpaths, particularly existing footpaths, due to the presence of other utility services.

7. Where boundary boxes are to be installed adjacent to one another they shall be spaced to allow adequate compaction between and around them and reinstatement to the standards in the Department for Transport's 'Specification for the Reinstatement of Openings in Highways' available at <https://www.gov.uk/government/publications/specification-for-the-reinstatement-of-openings-in-highways>

### **3.6.6 Internal Meters**

1. Where internal meters are allowed or specified by the Water Company in their design practice guidance they should be installed such that they are easily and safely accessible for reading and maintenance. Care should be taken not to allow other services or structures to be constructed after installation of the meters or meter housings which will prevent such access.

## **3.7 CONSTRUCTION**

### **3.7.1 General**

1. Before construction work commences, the SLP shall either be able to self-certify the design or have obtained, in writing, the Water Company's agreement to the proposed design.
2. Works shall be constructed in accordance with the agreed design and any agreed variations.
3. The SLP takes on the responsibility for ensuring that the mains are properly constructed prior to the main being vested in the Water Company.
4. The SLP should keep accurate records during construction. The SLP should have an auditable system in place to trace materials from specification, purchase, through to delivery and use on site.
5. All waste produced as a result of the Works should be disposed of in a manner which meets the legislation covering waste disposal including the Waste Duty of Care Code of Practice
6. The mains shall be disinfected in accordance with the procedure specified by the Water Company in their schedule detailing permissible materials and construction arrangements.
7. Connection to the water distribution system should be carried out within 14 days of a satisfactory water sample being taken.

Note: Flushing and further testing is likely to be required if this period is exceeded.

8. A SLP shall not operate any valves or otherwise interfere with the existing water distribution system unless carrying out approved SCRMC activities.
9. To protect the integrity of the Water Company's network and maintain quality water in their system a risk assessment should be done by the Water Company before any mains connection is made.
10. Works in the highway, or areas which are to be adopted as highway, should comply with the New Roads & Street Works Act 1991.

### **3.7.2 Ground Contamination during Construction**

1. If contamination is suspected during construction then the works should, if possible, be isolated and the incident reported to the Water Company and Developer's site agent. An investigation should then be initiated (see 3.2.2) and an action plan, which may include a change of pipe material (and/or replacement of the apparatus already present) agreed with the Water Company before work proceeds.

2. The SLP should ensure that all employees are trained and carry out the appropriate actions when working in potentially contaminated land, in accordance with health and safety legislation.

### **3.7.3 Surface Boxes and Markers**

1. The SLP is responsible for completing the works with all street furniture correctly aligned. This includes boxes (valve, washout, hydrant and boundary/stop tap, etc. and their covers and frames).

Note: Correct alignment means that the sides of the boxes are vertical, the fittings inside the box can be operated and the surface box is flush with the finished ground surface.

2. At vesting the SLP should notify the Developer of the location of all street furniture and arrange with them for these to be protected until the site is complete and final surfaces laid.

3. Where the Developer will be completing backfilling and providing the final surface after works are vested the SLP should be responsible for ensuring that the work done by the Developer is in accordance with the design and that all street furniture is correctly aligned once the developer's work is completed.

4. The SLP is responsible for installing valve and hydrant/washout markers to the requirements of the Water Company and the Fire and Rescue Authority.

Note: Installation of markers can be delayed until final surfaces are being constructed.

### **3.7.4 Service Connections to the Water Distribution System**

1. Individual service pipes shall only be connected to the main, using under pressure tappings, once the main has passed a bacteriological sample and been commissioned.

2. The service connection should only be made once a property is substantially complete and the supply pipe is connected to a stopcock inside the property (or a sealed end cap has been fitted where permitted by a Water Company's specific design guidance) and the criteria set in the Water Company's specific schedule of permissible materials and operational arrangements has been satisfied.

3 The minimum spacing between tappings into a main should be carried out in accordance with the Water Company's schedule detailing permissible materials and construction arrangements.

4. When joining pipes of different materials, the fittings used must have been designed for the intended purpose and be installed in accordance with the manufacturer's specification.

5. When joining PE barrier pipes, only fittings which have been demonstrated to maintain the integrity of the pipe system should be used.

6. If specified in the Water Company's schedule detailing permissible materials and construction arrangements, a corrosion-resistant tracing system should be attached along the length of the service pipe and fixed at intervals of not more than 1.0m. If marker tape incorporating a trace wire has been laid above the main, the trace wire with the service pipe should be joined to this.

7. The Water Company's specification detailing permissible materials and construction arrangements will detail requirements for testing and disinfecting services.

Note: Disinfection is usually only required on services where the internal diameter is greater than 50mm and the length greater than 15m.

### 3.7.5 Data Capture/'As-Laid' Drawings

1. Water Company's asset data is recorded on a geographic information (digital mapping) or CAD system. Therefore, it is important that accurate location information is supplied to the Water Company.
2. The Water Company's schedule detailing permissible materials and construction arrangements will detail requirements for the provision of 'as-laid' drawings.
3. The position of the apparatus should be recorded to ensure locational accuracy (the position of apparatus relative to fixed geographical features appearing on Ordnance Survey maps). Positional accuracy should be measured and recorded, wherever practicable, to a minimum GPS accuracy of +/- 100mm to the centre of the apparatus.
4. Surveys for mains fittings and significant changes in pipe direction should be carried out using triangulation, i.e., two measurements taken from fixed Ordnance Survey features. They should intersect at the centre of the asset and be used in the following order of priority:
  - corners of buildings; and
  - corners of boundary walls.
5. Surveys done using offsets, i.e., using a single measurement (usually along the length of the main) should be used in the following order of priority:
  - building lines; and
  - kerb lines.
6. Temporary and natural features should only be used when no other permanent features are available, with the agreement of the Water Company.
7. Scaled survey drawings should be provided. The scale should be 1:500 to ensure clarity of measurements, features, etc.
8. Material, pipe size, external and internal corrosion protection of pipe, and the depth of cover to main (where depth differs from standard) shall be identified.
9. All valves, hydrants, washouts, meters, ducts, swab access points, tappings, tees, services and boundary boxes should be clearly identified, along with the relevant fitting on the plan or in an accompanying legend. The legend should be consistent with the Water Company's schedule detailing permissible materials and construction arrangements.
10. Where a number of assets are installed adjacent to each other, suitable asset information enlargements should be incorporated and clearly referenced as a subset of information from the main plan.
11. The full dimensional references for all pipes and fittings should be indicated (e.g. material, diameter, SDR) at any change in details. Measurements should be in millimetres.
12. Clear differentiation should be made between live and decommissioned mains and associated fittings. Decommissioned mains may be shown on a separate drawing, if required.
13. As-laid drawings should be submitted with any request to commission sections of completed work and clearly labelled with the Developer's name, scheme number, scheme name, scheme type, stage number, and date of submission. The format for submitting as-laid drawings is specified by each Water Company in their schedule of permissible materials and construction arrangements.

## APPENDIX 1 – LEVELS OF SERVICE

All times in calendar days.

Water UK will publish Water Companies' compliance with these Levels of Service targets commencing July 2016 on its website at <http://developerservices.water.org.uk/latest-reports>.

Reference numbers will differ on their website but metric definitions there will cross reference the numbers used here.

| <b>Performance Metric – SL-1</b>           | <b>Point of Connection application – % of written acknowledgements issued within target period.</b>                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Target standard 5 days<br>(Non-statutory)  | A written acknowledgement of the application to be issued within a period of 5 days commencing on the day after receipt of the application confirming either that the application is complete or, if not, requesting the missing information.                                                                                                                                                                                                                  |
| <b>Performance Metric – SL-2</b>           | <b>Point of Connection (PoC) enquiry response for &lt;500 plots (excluding off-site reinforcement / engineering difficulties/Schedule 13 Water Industry Act 1991 exclusions) – % of written PoC reports issued within target period.</b>                                                                                                                                                                                                                       |
| Target standard 21 days<br>(Non-statutory) | <p>A Point of Connection response to be issued within a period of 21 days commencing either (i) on the day after receipt of a full application, or (ii) if an incomplete application on the day after all the required information has been received.</p> <p>An application is full when all the required information and any required payment have been received.</p> <p>A Point of Connection enquiry response includes any necessary network modelling.</p> |
| <b>Performance Metric – SL-3</b>           | <b>Point of Connection (PoC) enquiry response for &gt;500 plots or where off-site reinforcement, engineering or land difficulties apply – % of written PoC reports issued within target period.</b>                                                                                                                                                                                                                                                            |
| Target standard 28 days<br>(Non-statutory) | <p>A Point of Connection response to be issued within a period of 28 days commencing either (i) on the day after receipt of a full application, or (ii) if an incomplete application on the day after all the required information has been received.</p> <p>An application is full when all the required information and any required payment have been received.</p> <p>A Point of Connection enquiry response includes any necessary network modelling.</p> |
| <b>Performance Metric – SL-4</b>           | <b>Design approval and terms request application – % of written acknowledgements issued within target period.</b>                                                                                                                                                                                                                                                                                                                                              |
| Target standard 5 days<br>(Non-statutory)  | A written acknowledgement of the application to be issued within a period of 5 days commencing on the day after receipt of the application confirming either that the application is complete or, if not, requesting the missing information.                                                                                                                                                                                                                  |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Performance Metric – SL-5</b>           | <b>Design approval and terms request application for &lt;500 plots (excluding off-site reinforcement / engineering difficulties/Schedule 13 Water Industry Act 1991 exclusions) - % of term offers issued, or written rejections provided, within target period.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Target standard 14 days<br>(Non-statutory) | <p>Written terms to be issued within a period of 14 days commencing on the day after receipt of a full application. An application is full when all the required information has been received.</p> <p>Terms includes the design approval, the amount of the asset payment and any amount to be paid by the SLP or Developer. A self-lay Adoption Agreement is to be issued with the terms.</p> <p>Rejections should fully document the reasons for the rejection.</p>                                                                                                                                                                                                                                              |
| <b>Performance Metric – SL-6</b>           | <b>Design approval and terms request application for &gt;500 plots or where off-site reinforcement / engineering difficulties/Schedule 13 Water Industry Act 1991 exclusions – % of term offers issued, or written rejections provided, within target period.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Target standard 28 days<br>(Non-statutory) | <p>Written terms to be issued within a period of either (i) 28 days commencing on the day after receipt of request or (ii) such longer period as may be agreed with the SLP where there are engineering difficulties/requirement for off-site reinforcement/Schedule 13 Water Industry Act 1991 constraints or where the SLP requests an extended period.</p> <p>An application is full when all the required information has been received.</p> <p>Terms includes the design approval, the amount of the asset payment and any amount to be paid by the SLP or Developer. A self-lay Adoption Agreement is to be issued with the terms.</p> <p>Rejections should fully document the reasons for the rejection.</p> |
| <b>Performance Metric – SL-7</b>           | <b>Self-lay signed agreement – % of written acknowledgements of receipt issued within target period.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Target standard 5 days<br>(Non-statutory)  | A written acknowledgement to be issued to the SLP within a period of 5 days commencing on the day after receipt of the signed agreement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Performance Metric – SL-8</b>           | <b>Provision of supply of water for pressure/bacteriological testing of self-lay mains – % of supplies provided within target period</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Target standard 28 days<br>(Non-statutory) | Provide a source of supply for pressure and bacteriological testing within either (i) 28 days commencing on the day after receipt of written request or (ii) such longer period as may be agreed with the SLP where there are engineering difficulties/requirement for off-site reinforcement/Schedule 13 Water Industry Act 1991 constraints or where the SLP requests an extended period.                                                                                                                                                                                                                                                                                                                         |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Performance Metric – SL-9</b>           | <b>Provision of permanent supply of water for self-lay mains – % of supplies made available within the target period</b>                                                                                                                                                                                                                                                                            |
| Target standard 14 days<br>(Non-statutory) | Provide a permanent supply connection within 14 days commencing on the day following notification in writing of satisfactory pressure and bacteriological testing of the self-laid mains.                                                                                                                                                                                                           |
| <b>Performance Metric – SL-10</b>          | <b>Issue Vesting Certificate on self-lay mains – % of certificates issued within target period</b>                                                                                                                                                                                                                                                                                                  |
| Target standard 7 days<br>(Non-statutory)  | Issue Vesting Certificate and all information for Asset Payment claim (including on part constructed work) within 7 days commencing on the day following written notification that section of main has been connected.                                                                                                                                                                              |
| <b>Performance Metric – SL-11</b>          | <b>Make asset payment on self-lay mains – % of payments made within the target period</b>                                                                                                                                                                                                                                                                                                           |
| Target standard 35 days<br>(Non-statutory) | Make asset payments due on all sections of connected mains within 35 days commencing on the day following receipt of valid invoice claim by the SLP.                                                                                                                                                                                                                                                |
| <b>Performance Metric – SL-12</b>          | <b>Self lay new connections – % of plot reference information and costing details issued within target period</b>                                                                                                                                                                                                                                                                                   |
| Target standard 14 days<br>(Non-statutory) | Issue plot reference information and costing details within 14 days commencing on the day following written notification of connection call-off by the SLP.<br><br>Costing details to specify all charges payable on each service connection, including Infrastructure Charges, and the costs associated with the provision of meters and any other fittings being procured from the Water Company. |

## APPENDIX 2 – USEFUL PUBLICATIONS

### A. FOR USE IN THE DESIGN OF WATER MAINS

(Note: the documents in this list are those relevant to design and not necessarily referenced in the main text).

| Number   | Title                                                                                                         | Publisher, Date                                                                                                                                                                                                                                                                                                                 |
|----------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | Best practice design principles for water mains on new development sites                                      | Water UK/HBF National Joint Committee 2014 (available free of charge at:<br><a href="http://www.water.org.uk/publications/water-industry-guidance">http://www.water.org.uk/publications/water-industry-guidance</a>                                                                                                             |
|          | Civil Engineering Specification for the Water Industry (CESWI) 7 <sup>th</sup> Edition                        | UKWIR Ltd/WRc plc<br>April 2011<br><br>Available at:<br><a href="http://www.webookshop.com/acatalog/Civil-Engineering-Specification-for-the-Water-Industry--7th-Edition---CESWI--DUS036X.html">http://www.webookshop.com/acatalog/Civil-Engineering-Specification-for-the-Water-Industry--7th-Edition---CESWI--DUS036X.html</a> |
| Volume 1 | Guidelines on the Positioning and Colour Coding of Utilities' Apparatus (Issue 8)                             | NJUG 2013<br><br>Available free of charge at:<br><a href="http://njug.org.uk/">http://njug.org.uk/</a>                                                                                                                                                                                                                          |
| Volume 2 | Guidelines on the Positioning of Underground Utilities Apparatus for New Development Sites (Issue 4)          | NJUG 2007<br><br>Available free of charge at:<br><a href="http://njug.org.uk/">http://njug.org.uk/</a>                                                                                                                                                                                                                          |
| Volume 4 | Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees (Issue 2) | NJUG 2007<br><br>Available free of charge at:<br><a href="http://njug.org.uk/">http://njug.org.uk/</a>                                                                                                                                                                                                                          |

### B. OTHERS

| Number | Title                                                           | Publisher, Date                                                                                                                                                                                                               |
|--------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Principles of Water Supply Hygiene and Technical Guidance Notes | Water UK, 2015<br><br>Available free of charge at:<br><a href="http://www.water.org.uk/publications/reports/principles-water-supply-hygiene">http://www.water.org.uk/publications/reports/principles-water-supply-hygiene</a> |

| Number     | Title                                                                                                    | Publisher, Date                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | Drinking Water Safety - Guidance to health and water professionals                                       | DWI, 2009<br><br>Available free of charge at:<br><a href="http://dwi.defra.gov.uk/stakeholders/information-letters/2009/09_2009Annex.pdf">http://dwi.defra.gov.uk/stakeholders/information-letters/2009/09_2009Annex.pdf</a>                                                                                                                                                                       |
|            | Specifications for polyethylene pipe and fittings for water supply, drainage and sewerage under pressure | BPF Pipes Group, Dec 2015<br><br>Available free of charge at:<br><a href="https://www.bfppipesgroup.com/media/16949/Specifications-relating-to-polyethylene-pipes-for-water-supply-and-for-drainage-and-sewerage-under-pressure.pdf">https://www.bfppipesgroup.com/media/16949/Specifications-relating-to-polyethylene-pipes-for-water-supply-and-for-drainage-and-sewerage-under-pressure.pdf</a> |
|            | Specifications for PVC pipe and fittings for water supply, drainage and sewerage under pressure          | BPF Group, Dec 2016<br><br>Available free of charge at:<br><a href="https://www.bfppipesgroup.com/media/20551/Specifications-for-PVC-pipes-for-water-supply-drainage-and-sewerage-under-pressure.pdf">https://www.bfppipesgroup.com/media/20551/Specifications-for-PVC-pipes-for-water-supply-drainage-and-sewerage-under-pressure.pdf</a>                                                         |
| Report R97 | Trenching Practice (2 <sup>nd</sup> edition)                                                             | CIRIA, 1983<br><br>Available at:<br><a href="http://www.ciria.org/ItemDetail?iProductCode=R97&amp;Category=BOOK&amp;WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91">http://www.ciria.org/ItemDetail?iProductCode=R97&amp;Category=BOOK&amp;WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91</a>                                                                                                    |
| Report 128 | Guide to the Design of Thrust Blocks for Buried Pressure Pipelines                                       | CIRIA, 1994<br><br>Available at:<br><a href="http://www.ciria.org/ItemDetail?iProductCode=R128&amp;Category=PHOTOCOPY">http://www.ciria.org/ItemDetail?iProductCode=R128&amp;Category=PHOTOCOPY</a>                                                                                                                                                                                                |
| HSG 47     | Avoiding Danger from Underground Services                                                                | HSE Books, 2014<br><br>Available free of charge at:<br><a href="http://www.hse.gov.uk/pubs/priced/hsg47.pdf">http://www.hse.gov.uk/pubs/priced/hsg47.pdf</a>                                                                                                                                                                                                                                       |

| Number | Title                                                                                 | Publisher, Date                                                                                                                                                                                                                                                                                                                             |
|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Specification for the Reinstatement of Openings in Highways (3 <sup>rd</sup> Edition) | <p>Department of Transport<br/>2010</p> <p>Available at:<br/> <a href="https://www.gov.uk/government/publications/specification-for-the-reinstatement-of-openings-in-highways">https://www.gov.uk/government/publications/specification-for-the-reinstatement-of-openings-in-highways</a> </p>                                              |
|        | Water supply to domestic fire sprinkler systems                                       | <p>Water UK June 2015 (and earlier documents)</p> <p>Available free of charge at:<br/> <a href="http://www.water.org.uk/publications/policy-positions-and-briefings/water-supply-domestic-fire-sprinkler-systems">http://www.water.org.uk/publications/policy-positions-and-briefings/water-supply-domestic-fire-sprinkler-systems</a> </p> |

## APPENDIX 3 - STANDARDS REFERENCED IN THIS GUIDE

Standard Types:

BS British Standard

BS EN European Standard adopted as a British Standard

| Std Type | Std No.         | Title                                                                                                                                                       |
|----------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BS EN    | 545             | Ductile iron pipes, fittings, accessories and their joints for water pipelines. Requirements and test methods.                                              |
| BS       | 750             | Specification for underground fire hydrants and surface box frames and covers.                                                                              |
| BS EN    | 805             | Water supply. Requirements for systems and components outside buildings.                                                                                    |
| BS EN    | 806             | Specifications for installations inside buildings conveying water for human consumption. Operation and maintenance.                                         |
| BS       | 1042 & ISO 1745 | Measurement of fluid flow in closed conduits. Velocity area methods. Method of measurement of velocity at one point of a conduit of circular cross section. |
| BS EN    | 1057            | Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications.                                              |
| BS EN    | 1295            | Structural design of buried pipelines under various conditions of loading. General requirements.                                                            |
| BS       | 3251            | Indicator plates for fire hydrants and emergency water supplies.                                                                                            |
|          |                 |                                                                                                                                                             |
| BS       | 5306            | Fire extinguishing installations and equipment on premises.                                                                                                 |
|          |                 | Part 1: Hose Reels and Foam Inlets.                                                                                                                         |
| BS 9295  |                 | Guide to the structural design of buried pipelines.                                                                                                         |
| BS EN    | 12201           | Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). General.                                         |
|          |                 | Part 2: Pipes.                                                                                                                                              |
|          |                 | Part 3: Fittings.                                                                                                                                           |

| Std Type | Std No.   | Title                                                                                                                      |
|----------|-----------|----------------------------------------------------------------------------------------------------------------------------|
| BS       | PD 855468 | Guide to the flushing and disinfection of services supplying water for domestic use within buildings and their curtilages. |

## APPENDIX 4 – WATER INDUSTRY SPECIFICATION AND INFORMATION AND GUIDANCE NOTES

| WIS/<br>IGN | Number  | Title                                                                                                                                                                                                                                              |
|-------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IGN         | 4-01-03 | Water Industry Information and Guidance note - Guide to Pressure Testing of Pressure Pipes and Fittings for use by Public Water Suppliers                                                                                                          |
| IGN         | 4-08-01 | Bedding and sidefill materials for buried pipelines (1994).                                                                                                                                                                                        |
| WIS         | 4-08-02 | Specification for bedding and sidefill materials (1994).                                                                                                                                                                                           |
| WIS         | 4-21-02 | Mechanical couplings and repair clamps for iron pipes for the conveyance of cold potable water (underground use) for the size range 40 to 1600mm (1994)                                                                                            |
| WIS         | 4-22-02 | Specification for ferrules (tapping tees) and ferrule straps for underground use (1991).                                                                                                                                                           |
| WIS         | 4-23-04 | Specification for underground stopvalves, including spherical valves, for potable water services for nominal sizes up to and including 63 and nominal pressures of 10 bar minimum and made principally of metal or thermoplastics (1991)           |
| WIS         | 4-24-01 | Specification for mechanical fittings and joints including flanges for pe pipes for the conveyance of cold potable water for the size range 90-1000 (1998).<br><br>Note it applies to fittings made of metal or plastics or a combination of both. |
| WIS         | 4-31-08 | Specification for polyvinyl chloride (PCV-O) pressure pipes for underground use (2001).                                                                                                                                                            |
| WIS         | 4-32-08 | Specification for the fusion jointing of polyethylene pressure pipeline systems using PE80 and PE100 materials (2016).                                                                                                                             |
| WIS         | 4-32-11 | Specification for thermoplastic end load resistant mechanical fittings for polyethylene pipes of nominal size <63mm (1998).<br><br>Note with outside diameters to BS 5556 (metric)                                                                 |
| WIS         | 4-32-16 | Specification for butt fusion jointing machines (1998).                                                                                                                                                                                            |
| IGN         | 4-32-18 | The choice of pressure ratings for polyethylene pipe systems for water supply and sewerage duties (2003).                                                                                                                                          |

| WIS/<br>IGN | Number             | Title                                                                                                                                                            |
|-------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WIS         | 4-32-19            | Polyethylene pressure pipe systems with an aluminium barrier layer for potable water supply in contaminated land – size 25mm to 630mm (2011).                    |
| WIS         | 4-37-01            | Specification for boundary boxes for the metering and control of domestic and small industrial water services (1990).                                            |
| IGN         | 4-37-02            | Design against surge and fatigue conditions for thermoplastic pipes (1999).                                                                                      |
| IGN         | 4-50-03            | Operating guidelines for the use of site-applied, factory applied, and reinforced factory applied polyethylene sleeving on ductile iron pipeline systems (1996). |
| IGN         | 4-51-01            | External zinc coating of ductile iron pipe (1984).                                                                                                               |
| WIS         | 4-52-01            | Specification for polymeric anti-corrosion (barrier) coatings (as amended 1994).                                                                                 |
| IGN         | 4-52-02            | The use of polymeric anti-corrosion (barrier) coatings (1993).                                                                                                   |
| WIS         | 4-52-03 & 4-52-03A | Specification for Anti-Corrosion Coatings on Threaded Fasteners (1994).<br><br>See also amendment 4-52-03A (1994).                                               |
| IGN         | 9-04-05            | Report of the expert group on the risks of contamination of the public water supply by backflow (2004) at:<br><a href="http://wras.co.uk">http://wras.co.uk</a>  |

Copies of IGN and WIS standards above available free of charge from unless otherwise specified.

## APPENDIX 5 – PARLIAMENTARY ACTS AND REGULATIONS REFERENCED IN THIS GUIDE

| Title                                                                                                         | References                                     |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Construction (Design and Management) Regulations 2015                                                         | 1.9, 1.14, 3.2                                 |
| Control of Pollution (Amendment) Act 1989                                                                     | 1.14                                           |
| Environmental Protection Act 1990                                                                             |                                                |
| Environment Act 1995                                                                                          |                                                |
| Finance Act 2008                                                                                              |                                                |
| Fire and Rescue Services Act 2004                                                                             | 1.14, Appendix 7                               |
| Health and Safety at Work Act 1974                                                                            | Foreword, 1.14, 3.2, 3.6.4, 3.7.2              |
| Highways Act 1980                                                                                             | Glossary                                       |
| New Roads and Street Works Act 1991 as amended by Traffic Management Act 2004                                 | Glossary, 1.14, Appendix 7                     |
| Environmental Permitting (England and Wales Regulations) 2007                                                 |                                                |
| Waste Duty of Care Code of Practice (March 2016)                                                              | 1.14.2, 3.7.1.5                                |
| Water Act 2003                                                                                                | 1.1, 3.4, Appendix 7                           |
| Water Act 2014                                                                                                |                                                |
| Water Industry Act 1991                                                                                       | Glossary, 1.13, 1.17, 3.4, Appendices 1 and 8. |
| Water Supply (Water Quality) Regulations 2016                                                                 | Glossary, Figure 1, 1.6. 1.14, 3.2             |
| Water Supply (Water Fittings) Regulations 1999 and Water Supply (Water Fittings)(Amendment) Regulations 1999. | Glossary, Figure 1, 1.14, 3.6.1                |

## APPENDIX 6 – SPECIFICATION FOR FIRE HYDRANT INSTALLATIONS

This Appendix sets out the specifications relating to the installations of fire hydrants.

1. The Water Company's schedule detailing permissible materials and construction techniques will indicate the type of hydrant to be installed. This covers the use of loose or fixed jumper hydrants and requirements for full bore hydrants.
2. The fire hydrant installation shall be to BS 750 Type 2 specification.
3. The outlet flange of the hydrant must not exceed 450mm or be less than 300mm below the finished surface level.
4. Hydrant indicator plates shall all comply with the relevant provisions of BS 3251.
5. Hydrants shall have a gun-metal or stainless steel outlet with a round thread conforming to Figure 3 of BS 750.
6. All of the surfaces of the hydrant components shall be protected from corrosion either by the nature of their material of construction or shall all be coated in accordance with WIS 4-52-01. Internal water-wetted surfaces shall be coated to Class A standard; all other surfaces shall all be coated to Class B.
7. All fasteners used in the assembly of hydrants shall all be protected in accordance with Clause 2.78 of the Civil Engineering Specification for the Water Industry (CESWI).
8. The frame and cover shall all be Grade A to BS 750 and have a clear opening of not less than 380 x 230mm. Hydrant box covers should all be provided with recesses for lifting keys.
9. Installation of underground washouts, fire hydrants, surface box frames, covers and indicator plates shall all comply with the specification set out in BS 5306: Part 1.
10. Hydrants shall all be sited in pavements and verges wherever possible, but shall not be sited at vehicle crossovers, driveways or parking areas.

## APPENDIX 7 - SAFE CONTROL OF ROUTINE MAINS CONNECTION NOTIFICATION

### 7.1 Self Lay Routine Inline Mains Connection Notification Form

|                                                                                                                  |       |                   |               |
|------------------------------------------------------------------------------------------------------------------|-------|-------------------|---------------|
| <b>Routine In-line Mains Connection Notification</b>                                                             |       |                   |               |
| a) Water Company                                                                                                 |       | b) SLP Name       |               |
|                                                                                                                  |       | c) SLP/WC Ref     |               |
| d) Originator                                                                                                    |       | e) Date raised    |               |
| Contact details:                                                                                                 |       |                   |               |
| f) Location of work                                                                                              |       |                   |               |
| Grid Ref                                                                                                         |       | Postcode:         |               |
| g) Description of proposed work                                                                                  |       |                   |               |
| Pipe details:                                                                                                    |       |                   |               |
| Existing main                                                                                                    | Size: | material          |               |
| New main                                                                                                         | Size: | material          |               |
| Connection will be to:                                                                                           |       |                   | (please tick) |
| 1) newly laid main                                                                                               |       |                   |               |
| 2) to a main controlled by a sluice valve / double spade valve                                                   |       |                   |               |
| 3) to a main which does not supply properties                                                                    |       |                   |               |
| Method for isolating supply (please tick)                                                                        |       |                   |               |
| 1) operate valve                                                                                                 |       |                   |               |
| 2) squeeze off                                                                                                   |       |                   |               |
| 3) double spade valve                                                                                            |       |                   |               |
| 4) high-flow top tee                                                                                             |       |                   |               |
| 5) Other, please describe                                                                                        |       |                   |               |
| h) Proposed start date/time                                                                                      |       | Proposed end time |               |
| i) Senior Competent Person (SCP) comments:                                                                       |       |                   |               |
| SCP Contact No: .....                                                                                            |       |                   |               |
| j) SLP (SCP) Authoriser                                                                                          | Name: | EUSR No:          | Signature:    |
| k) Competent person (CP) undertaking work<br>(Note if CP changes contact Water Company for clearance to proceed) |       |                   |               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |            |                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|------------------|
| Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EUSR No. | Signature: |                  |
| l) Water Company Clearance to proceed:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Name:    | Signature: | Contact details: |
| m) Details of any conditions or specific requirements:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |            |                  |
| n) Supporting documentation requirements:<br><br>A method statement must be attached to this application. This should include details of: <ul style="list-style-type: none"> <li>- any preparatory work</li> <li>- materials and plant requirements</li> <li>- safety equipment and checks</li> <li>- sketch of proposed connection</li> </ul> Also needing attachment: <ul style="list-style-type: none"> <li>- a copy of the 'As-laid' plan showing the mains to be connected</li> <li>- a copy of the pressure test for the newly laid mains</li> <li>- a copy of the disinfection result for the newly laid mains</li> <li>- a copy of the passed sample results following disinfection of the newly laid mains</li> <li>- a proposed service connection programme</li> </ul> |          |            |                  |
| Date connection approved:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |            |                  |

## 7.2 Instructions for completing Self Lay Routine Inline Mains Connection Notification Form

The routine operational procedure must be completed in accordance with the following instructions: All sections and boxes of the routine operational procedure must be endorsed with the relevant data, otherwise, N/A if not required. (Refer to Appendix 6).

### Box a - Water Company name

Input the local Water Company name.

### Box b – SLP name

The name of the organisation that is undertaking the operations.

### Box c – SLP/WC Ref.

The reference for the Water Company project, or associated SLP reference number.

### Box d – Originator

The name of the person who is producing the written procedure.

### Box e – Date raised

The date that the originator produces the written procedure.

### Box f – Location of proposed work

The name of the road, town and postcode where the work is being undertaken, if applicable. The exact location should be provided where possible, e.g. Outside No. 56 High Street or at the junction of High

Street and North Road. If on-site where no postal address has been allocated then the road numbers and plots should be used. The grid reference of where the connection is being made should also be included.

#### **Box g – Description of proposed works**

This should detail the actual work to be done, techniques to be applied and the material, and diameter of existing and new mains. It should also identify lengths of main to be commissioned.

#### **Box h – Start and end dates and times**

This information is essential for the management of the network and ensuring there is no conflict with other operations. The procedure must not be authorised unless the document is endorsed with the appropriate information. The Senior Competent Person must be satisfied that the proposed start/end dates and times are realistic and achievable, to ensure that other proposed works on the network are not unduly affected.

#### **Box i – Senior Competent Person Comments**

The Senior Competent Person must make appropriate comments/checks, which should be understood and acknowledged by the Competent Person. The final version of the procedure must be authorised by the Senior Competent Person and then sent to the Water Network Controller for appropriate conflict checks/clearance to proceed.

#### **Boxes j, k & l - Name of the Senior Competent Person, Competent Person and Water Network Controller Signatory**

The name of the Competent Person undertaking the work must be inserted to enable the Water Network Controller to validate the registration of the individual in relation to the proposed work. The Competent Person must sign the procedure on receipt and briefing of the procedure to confirm that they fully understand the proposed operation and are in receipt of all appropriate documentation. It should be noted that if the Competent Person changes, the Water Network Controller should be contacted for the clearance to proceed. Signatures of the Senior Competent Person and the Water Network Controller are required within this section.

#### **Box m - Details of any conditions or specific requirements**

Include any conditions or site specific requirements that maybe required to carry out the operation, e.g. any specialist equipment that could be required, site conditions etc.

#### **Box n - Supporting documentation requirements**

The method statement must be a step-by-step procedure. It is acceptable for certain aspects of the method statement to refer to specific sections of work procedures where these are available to the Water Competent Person on-site. In addition a copy of a plan showing the mains to be connected, a copy of the test certificate for the newly laid mains, and a copy of the sample results following disinfection of the newly laid mains should be attached.

# **APPENDIX 8 - BEST PRACTICE GUIDELINES FOR THE PRODUCTION OF ESTIMATES, QUOTATIONS AND TERMS FOR THE PROVISION OF WATER MAINS ON NEW DEVELOPMENTS**

## **Overview**

The purpose of this best practice guideline is to set out the information that water companies should provide developers and Self-Lay Providers (SLPs) when responding to requests for new water supplies to service New Development.

Providing a fully transparent estimate, quotation or terms as appropriate will allow developers to make a fully informed decision on their preferred option for provision of new water distribution systems to service their developments.

Charging for new water connections (both mains and services) is in the process of transferring from charging in accordance with requirements specified in the Water Industry Act 1991 to each Water Company setting local Charging Arrangements in accordance with Charging Rules issued by Ofwat. Terms issued against either approach should satisfy standards regarding openness and transparency and fit within the framework detailed below.

Water Companies should publish their new charges for providing water supplies to New Development sites and make available information about how any income offsets and asset payments are calculated (or set out the methodologies for calculating these).

In this context “Income Offset” means a sum of money offset against the charges that would otherwise be applied for the provision of a water main in recognition of revenue likely to be received by the Water Company in future years for the provision of supplies of water to premises connected to the new water main.

## **Alternatives of Self-Lay Provision and Requisitioning mains from a Water Company**

Developers have the choice of asking a Self-Lay Provider to lay water mains on their site, and for these to be adopted by the Water Company, or to requisition the Water Company to provide mains themselves. If the new water supplies are for domestic purposes the cost of provision is defrayed by the “Income Offset”. So either the Self-Lay Provider (SLP) receives an asset payment for the work that they do or, with Water Company provision, the amount being charged is reduced by the “Income Offset”.

With self-lay certain elements of the work (typically the on-site mainlaying) is classed as being “contestable” and can be done by the SLP. But the Water Company usually retains the right to do some key parts of the work themselves. These are classed as “non-contestable” and typically include activities such as the source of water connection into existing mains (where there could be a risk of the work affecting supplies to existing customers).

There should be equivalence in the way that Water Companies charge against self-lay and requisitioned provision. This facilitates Developer customers who have not already made a self-lay preference to choose either option based on a comprehensive breakdown of both contestable and non-contestable charges and details of the Income Offset. Details of how these are calculated differ between the legislation based approach and terms based on Water Company specific local charging arrangements. This template can be used with either approach.

## **Information to be provided at the Terms Offer Stage**

A - a schedule fully detailing all of the Non-Contestable work elements with charges against each element. This shall include off-site works (if such work is being charged directly against the cost of providing supplies to a New Development).

B – a schedule fully detailing all of the Contestable work elements with the cost (or, in the case of self-lay, the Construction Allowance) of each element.

Note – both A and B should list all work activities. When summated the total cost of provision should be determined.

C – the Income Offset should then be stated with full details of how this amount has been calculated. (This may be by setting out the calculation for the specific New Development or by making available the calculation methodology and providing references to where details of the calculation approach can be found).

Note – for Income Offsets calculated under the Water Industry Act 1991 provisions a breakdown covering envisaged income and loan costs should be provided for the full 12 years of the loan calculation. This should state the anticipated consumption, water charges and occupancy profile (which should assume that each premises is occupied in the first full month after the date on which the premises are sold). Details of the loan calculation should also be provided.

Other information to be provided are:

- details of any Infrastructure Charge payments;
- details of typical costs for each service connection (and any associated charges applied to service connection work);
- any Pre-commencement Payments
- any Surety deposits