

# CIF Western and Midlands Regional Building Control Seminar

## Irish Water's Standard Details for Water and Wastewater Infrastructure

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# Aim of Irish Water Technical Documents

New Connections and Developer Services is developing a suite of Technical Documents comprising Codes of Practice, Standard Details, Specifications, etc. Their aim is to:

- **Streamline New Connection Processes**
- **Provide National Guidance Documentation,**
- **Ensure consistency of Design, Materials & Workmanship,**
- **Outline Design & Construction Options to Developers for the provision of water services infrastructure,**
- **Ensure Fitness for Purpose through appropriate Quality Assurance (design vetting, supervision, inspection, etc.),**
- **Ensure accurate records of infrastructure and ease of transfer of these records to IW asset register,**
- **Simplify vesting and adoption procedures,**
- **Provide clear HSQE responsibilities.**

# Development of Technical Documentation

- **Technical Documentation is being developed in-house,**
- **Utility Company Codes of Practice and Local Authority technical documentation being used as models,**
- **Initial drafts of Codes of Practice were further developed with input from a LA Consultative Group between June and September 2014 and further input was obtained in August 2015,**
- **Codes of Practice were approved in principle by the Irish Water Technical Forum in October 2014,**
- **Input from IW Functions is being taken into account in finalising the Codes of Practice,**
- **Standard Details are being developed in parallel to accompany COPs and for use by other IW units,**
- **Schedule of Standards (IS, BS, EN) included in the COPs,**
- **Specifications are included in COPs for New Connection infrastructure.**

# Proposed Approach V's Current Practice (1)

## General

- Consistency of approach in design, installation, adoption, etc.,
- Integrated Utility Infrastructure Design Submission,
- Standardisation of Developer submissions at Design Stage,
- Pre-Vetting by IW NC Design Team of Developer Proposals,
- Contractual obligations for use of Codes and design vetting,
- No deviation from vetted design without IW NC acceptance,
- Pre-Vesting procedures for 'As-Constructed' documentation submissions, inspections, auditing, sign-off, etc.,
- Vesting and Adoption procedures for water service infrastructure separate from LA's 'Taking in Charge' process,
- Control the design and infrastructure requirements for extensions to contiguous future development areas,

# Proposed Approach V's Current Practice (2)

## General (Continued)

- **IW assessment to determine potential for servicing zoned areas in vicinity of development through Developer infrastructure avoiding haphazard infrastructure, multiple pump stations, etc.,**
- **Separate Connection Agreement for temporary water and wastewater services for construction activities including disconnection of same,**
- **Omission of use of materials such as asbestos cement (AC), uPVC (for water mains), clay ware (for sewers), etc.,**
- **Prohibition of use of backyard common services,**
- **Compliance with separation distances for water services pipework from other utility pipes,**
- **Emphasis on confined space entry requirements for H&S,**
- **Connection of new infrastructure to existing IW networks by IW or IW agent only and after vetting of fitness for purpose**

# Proposed Approach V's Current Practice (1)

## Sewerage

- **Separate sewerage connection for each premises,**
- **Inspection chamber at private side of curtilage for wastewater service connection for domestic developments,**
- **Sampling point, inspection chamber on private side of curtilage for sewerage connection for commercial developments,**
- **Infrastructure layout guidance provided**
- **Pipe material selection options provided,**
- **Manhole material, construction options provided,**
- **Approach in relation to grease traps, macerators, etc. outlined,**
- **Criteria assessment requirement for wastewater pump station provision V's full gravity collection network system required,**

# Proposed Approach V's Current Practice (2)

## Sewerage

- **Confined Space Entry requirements for manholes and omission of step irons, ladders, etc. which could be used without proper H&S Planned entry.**
- **Confined Space Entry for wet-wells of pumping stations,**
- **Kiosk for small pumping stations control equipment with building structures to house control plant for other bigger pump stations,**
- **Guidance for fencing, hard-standing, access requirement, etc., at pump station sites provided,**
- **Property owners responsibility for internal plumbing and fittings is outlined.**

# Proposed Approach V's Current Practice (1)

## Water Supply

- **Separate water supply connection for each premises,**
- **Requirement for bulk meters at new water supply connection points to IW asset with demands > 20 cu. m per day,**
- **Infrastructure layout guidance,**
- **Separate metering of each premises, including multi-occupancy units,**
- **Pipe material selection options based on pipe size, etc.,**
- **Service connection pipe selection materials nominated,**
- **Fittings for water supply outlined,**
- **Fitting chamber material, construction options, etc. provided,**



# Proposed Approach V's Current Practice (2)

## Water Supply (Continued)

- **Developers responsibility for Public Fire Fighting capacity based on LA Fire Authority requirements,**
- **Water storage requirements for domestic and non-domestic establishments outlined,**
- **Boosted water supply requirements outlined for buildings greater than 2-storey and/or areas requiring high pressure,**
- **Water management and conservation approaches outlined,**
- **Property owners responsibility for internal plumbing and fittings outlined,**

# Aim of Standard Details

New Connections and Developer Services is developing Standard Details to accompany the Codes of Practice and Specifications, etc. Their aim is to:

- Provide typical details for New Connection water and wastewater infrastructure,
- Provide support for the design and construction guidance included in the Codes of Practice for Water and Wastewater,
- Ensure consistency in the provision of Materials, Equipment & Workmanship, etc.,
- Provide the basis for Developers' detailed design proposals for water and wastewater infrastructure,
- Provide typical details for water services infrastructure that could be used by other Irish Water units,
- Ensure the provision of infrastructure suitable for easy operation and maintenance.

# Development of Standard Details

- The Standard Details were developed using in-house and external expertise,
- The Standard Details, which were prepared by the Irish Water Programme in 2013, were used as a base,
- Standard Details which are included in Water Utility Company Codes of Practice and Irish Local Authority Specifications were used as models,
- A Consultant was procured to develop the Standard Details (Nicholas O' Dwyer, Consulting Engineers),
- Initial drafts of Standard Details were further developed with input from Asset Strategy and Asset Programme functions within Irish Water during August, September and October 2014,
- Input was provided on the draft Standard Details by the Local Authority Consultative Group during September 2014 and July 2015,
- Input on the draft Standard Details was obtained from Operation and Maintenance Leads, Southern Region, Irish Water,
- Standard Details received approval of the Irish Water Technical Forum in January 2015 and final drafts developed subsequently,
- Standard Details accompanied by Design Risk Assessments.

# Standard Details (Water Supply) (1)

The Standard Details (37 No) for Water Supply cover the following areas:

- **Ownership of and Responsibility for infrastructure,**
- **Service connection and distribution system details,**
- **Typical layout for water mains within developments,**
- **General pipeline connection details for various scenarios,**
- **Typical utility service layout indicating separation distances,**
- **Restriction on tree/shrub planting adjacent to water mains,**
- **Trench, backfill and pipe bedding/haunch/surround details,**
- **Sluice valve and chambers for DI/PE materials,**
- **On-line and off-line hydrant and chamber details for DI/PE materials,**
- **On-line and off-line air valve and chamber details for DI/PE materials,**

## Standard Details (Water Supply) (2)

- **Pressure reducing/sustaining valve and chamber details,**
- **Booster pumping station details,**
- **Meter chamber details,**
- **Marker post and plate details for water supply fittings,**
- **Water main thrust and support block details,**
- **Cable duct and duct chamber details,**
- **Scour chamber and outfall headwall details,**
- **Typical ditch/stream crossing arrangements,**
- **Typical culvert and bridge crossing arrangements**
- **Security fencing and access gate details,**
- **Control, telemetry and wet kiosk details,**
- **Lamp bollard and lamp standard details.**

# Standard Details (Wastewater Collection) (1)

The Standard Details (34 No) for Wastewater cover the following areas:

- **Ownership of and Responsibility for infrastructure,**
- **Service connection to public sewer details,**
- **Typical layout for sewers within developments,**
- **Typical utility service layout indicating separation distances,**
- **Restriction on tree/shrub planting adjacent to sewers,**
- **Trench, backfill and pipe bedding/haunch/surround details,**
- **Concrete bed/haunch/surround details for pipes,**
- **Manhole details for pre-cast concrete, cast in-situ concrete and block-work scenarios,**
- **Backdrop manhole details,**

## Standard Details (Wastewater Collection) (2)

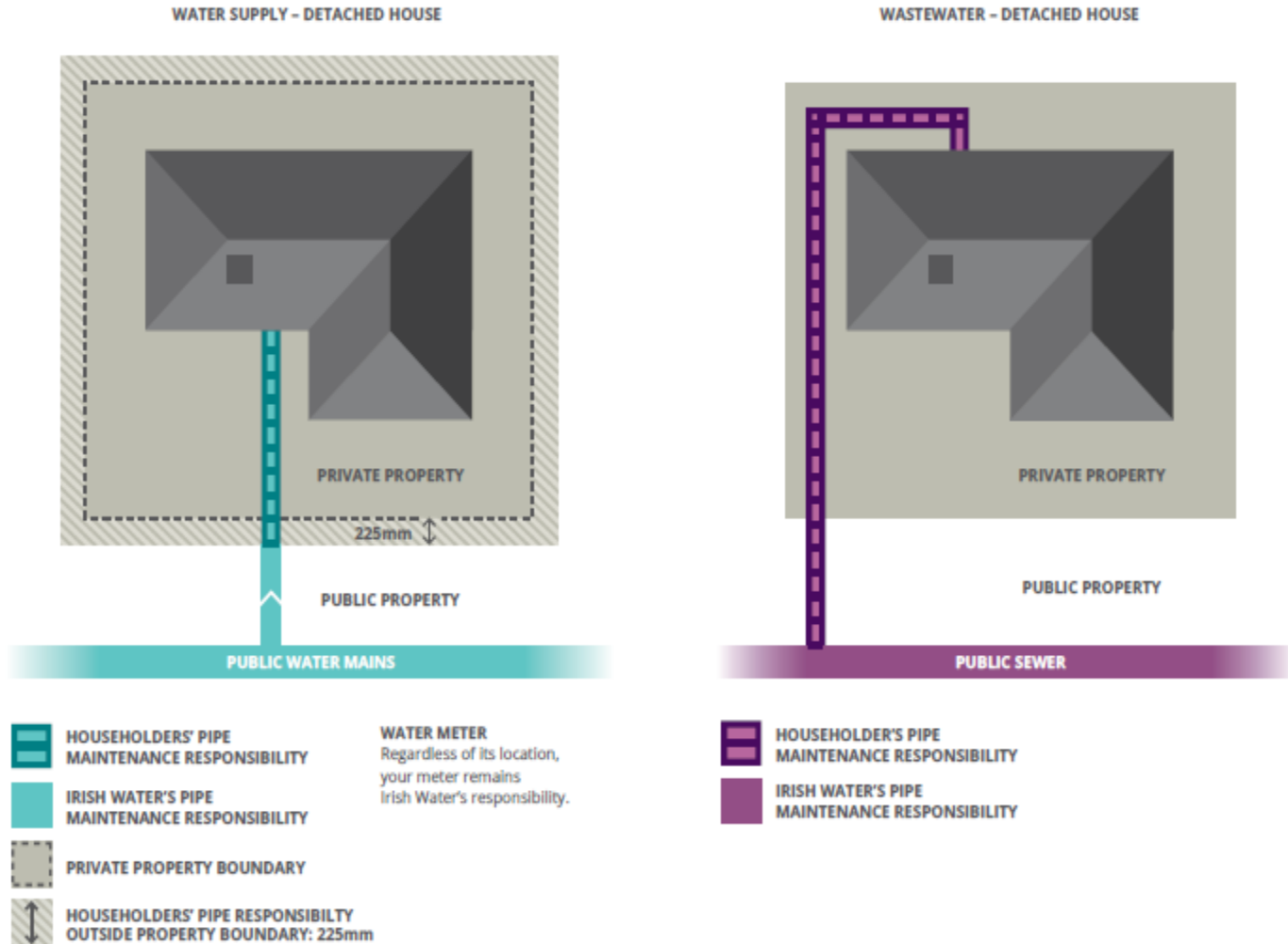
- Private side inspection chamber details,
- Sluice valve and chambers for rising mains of DI/PE materials,
- Rising main thrust and support block details,
- Scour valve and scour chamber details for rising mains,
- Air valve and chamber details for rising mains,
- Pumping Station emergency overflow outfall headwall details,
- Cable duct and duct chamber details,
- Typical ditch/stream crossing arrangements,
- Typical culvert and bridge crossing arrangements,
- Indicative submersible pump station layout details,
- Indicative pump station site layout details,

# Standard Details (Wastewater Collection) (3)

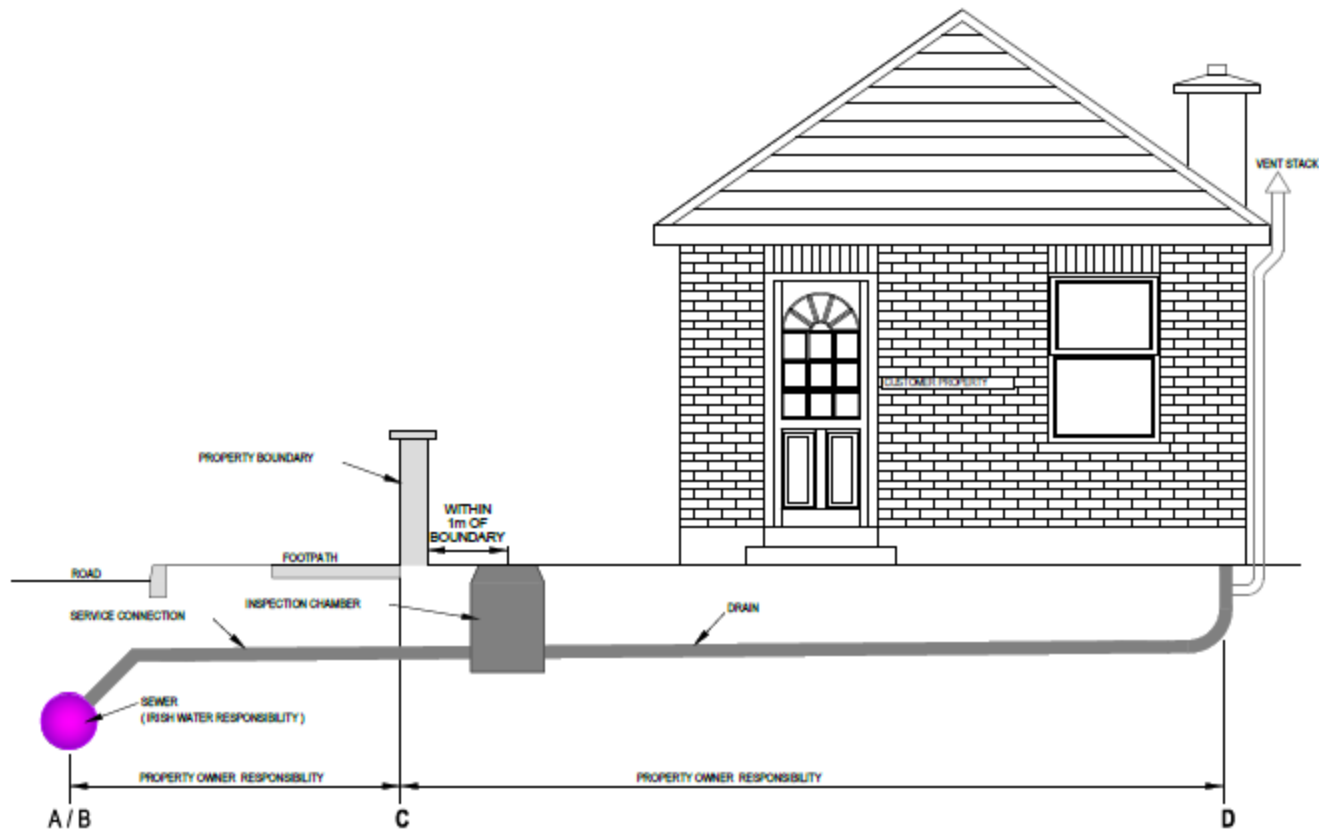
- Security fencing and access gate details,
- Site hard standing area details,
- Control, telemetry and wet kiosk details,
- Flow meter chamber details,
- Rising main discharge manhole details,
- Lamp bollard and lamp standard details,
- Vent stack details.



# Responsibility for Infrastructure



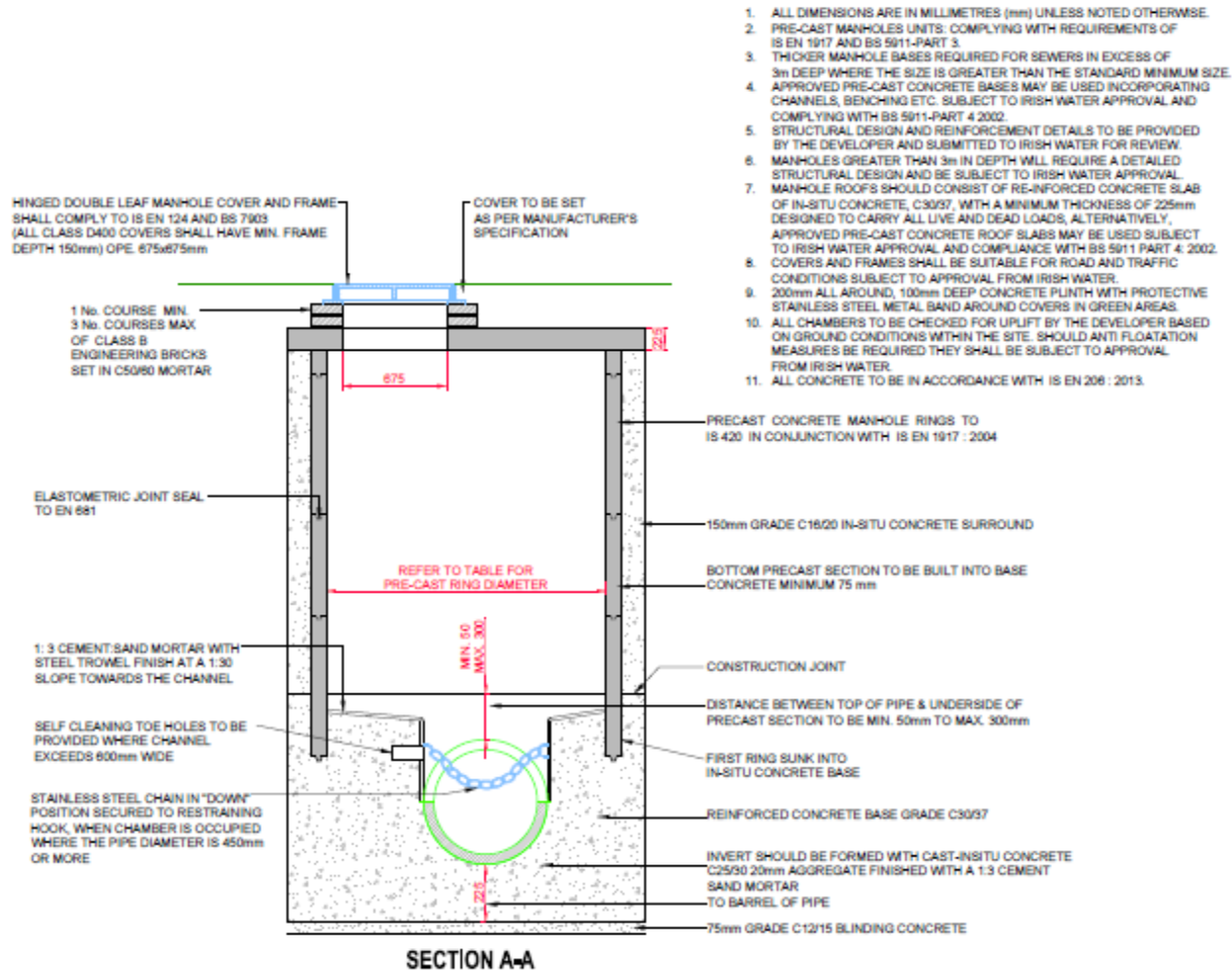
# Typical Standard Detail – Wastewater Service Connection



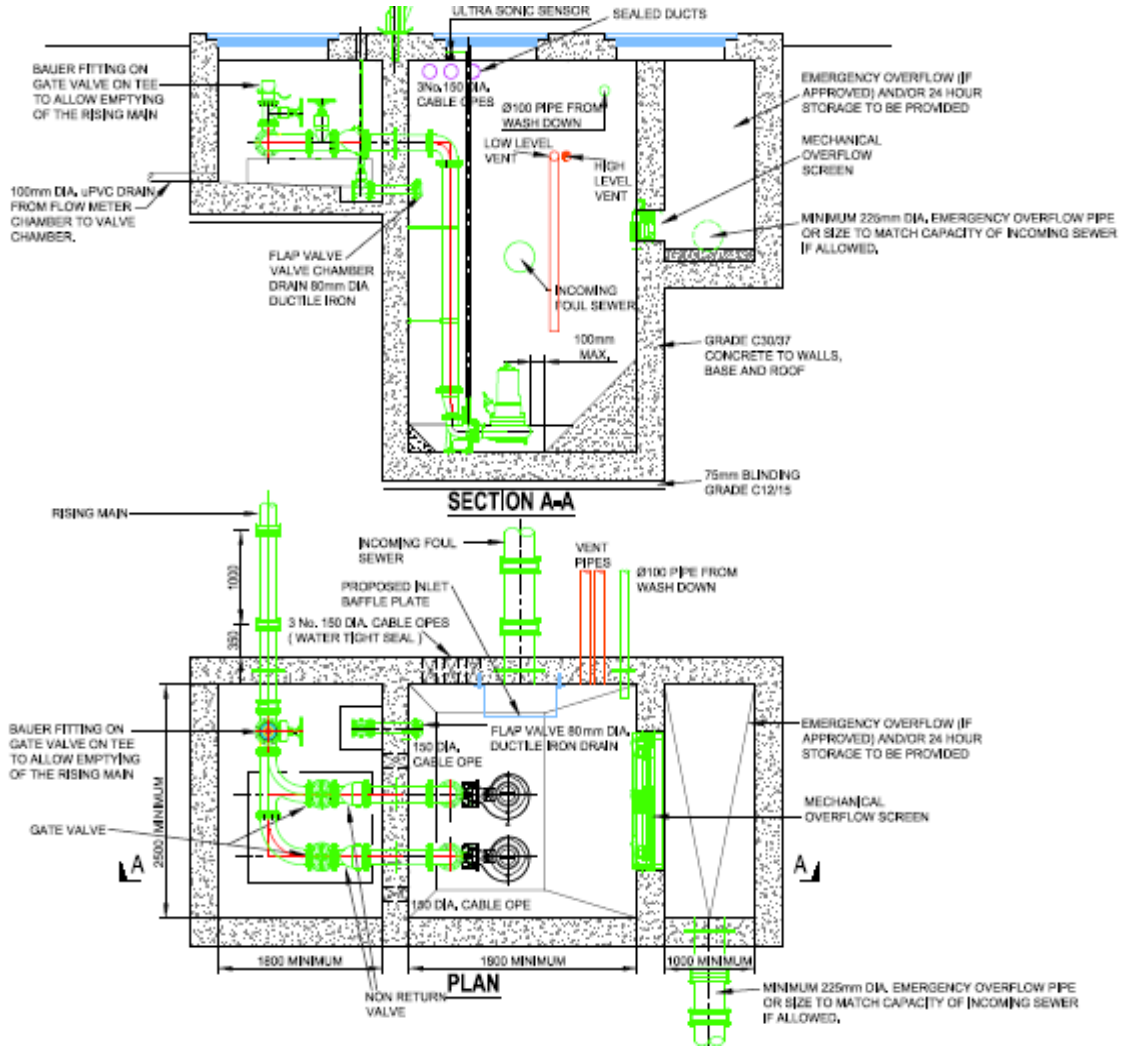
# Typical Standard Detail Sewer Layout



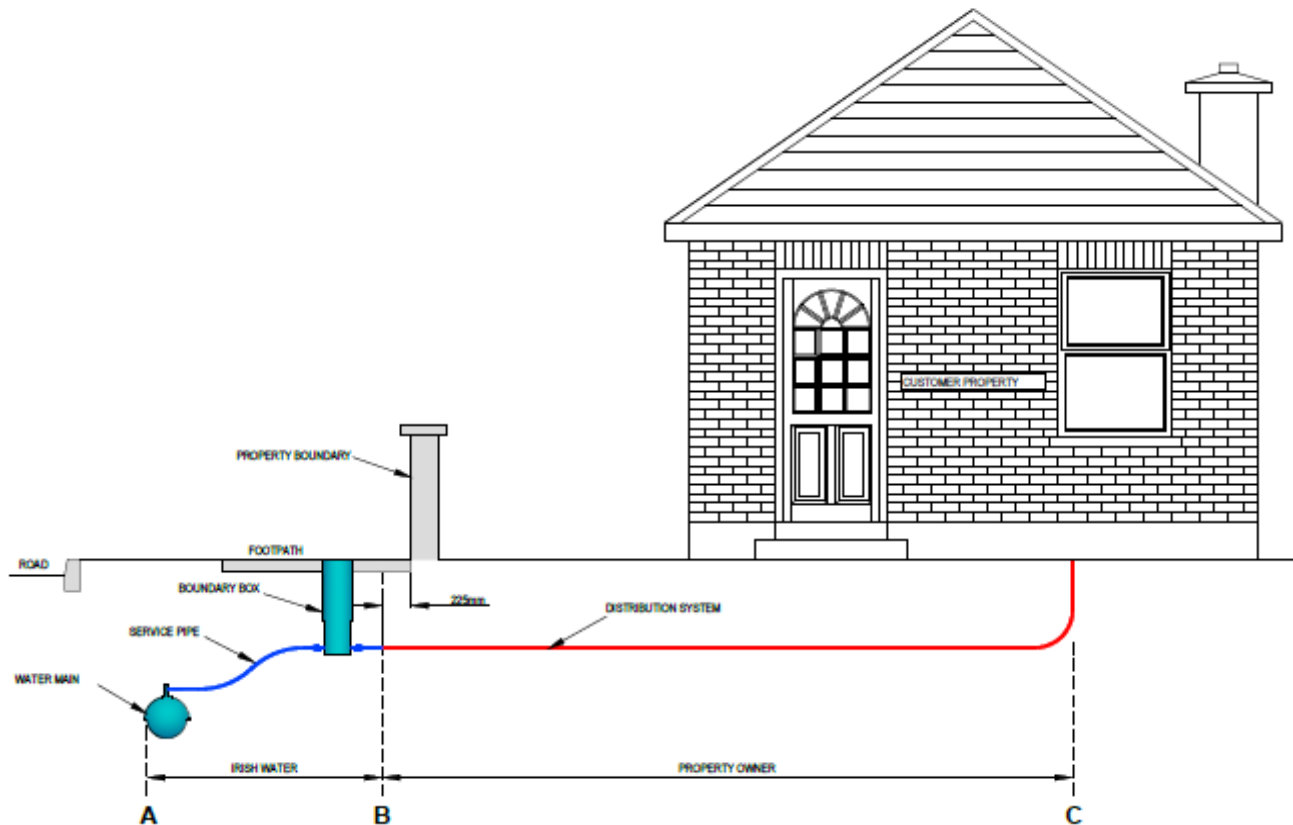
# Typical Standard Detail for Manhole



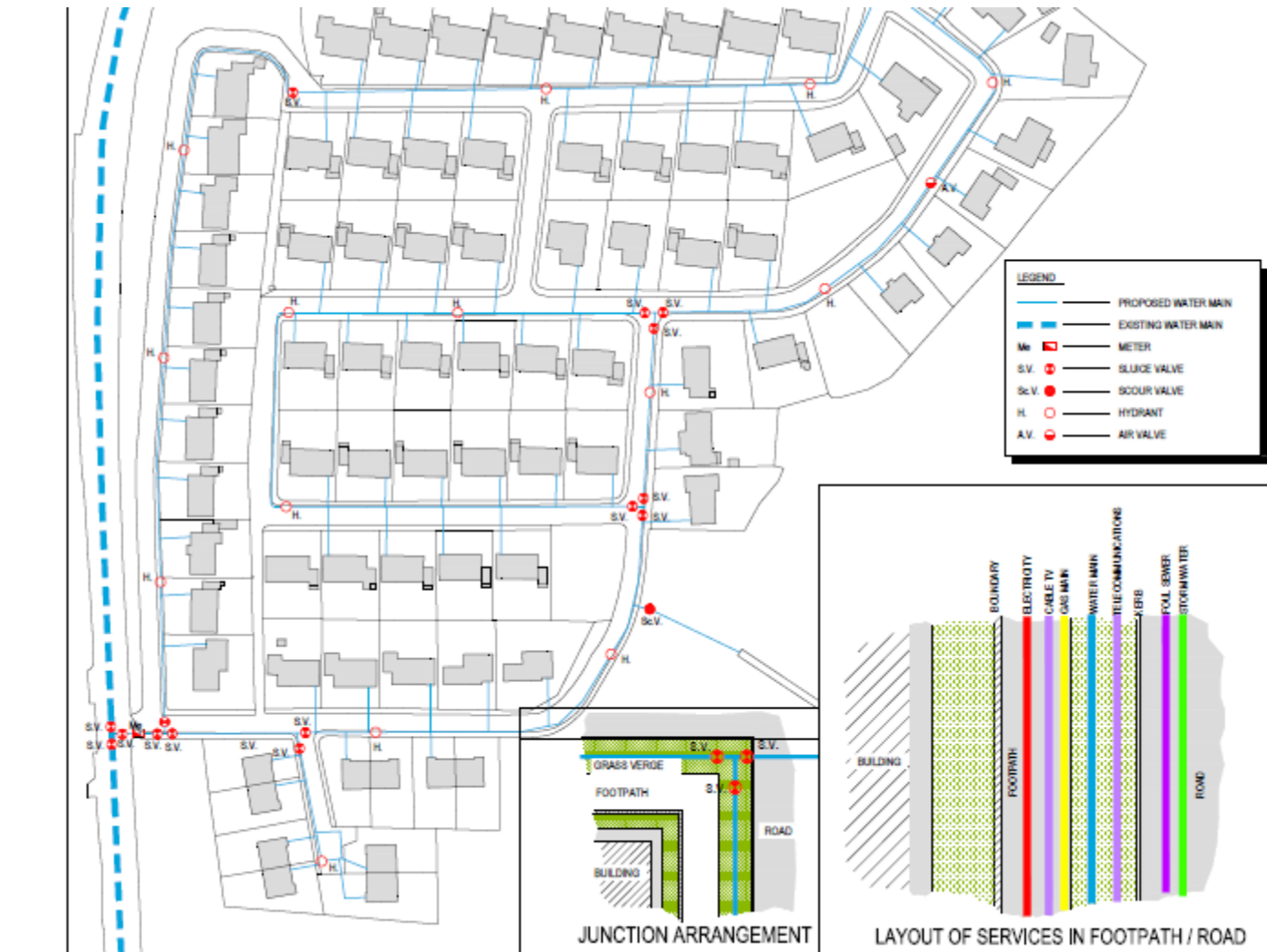
# Typical Standard Detail for Submersible Pump Station



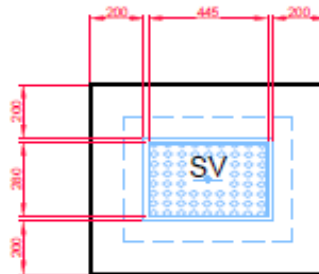
# Typical Standard Detail - Water Service Connection



# Typical Standard Detail - Water Main Layout

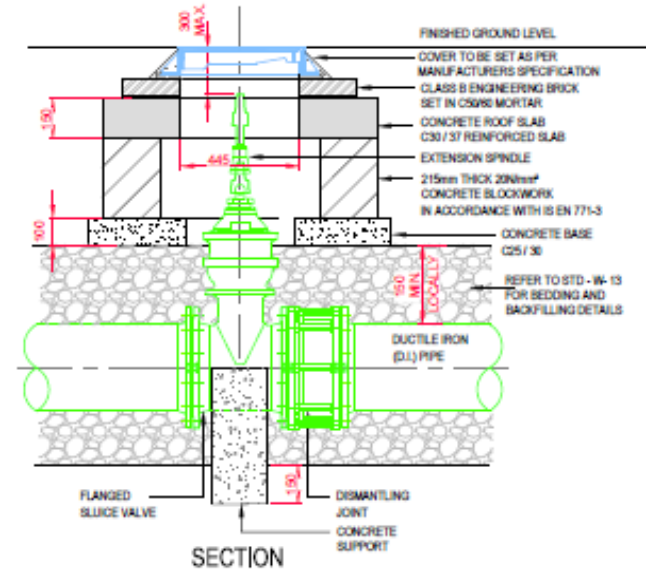
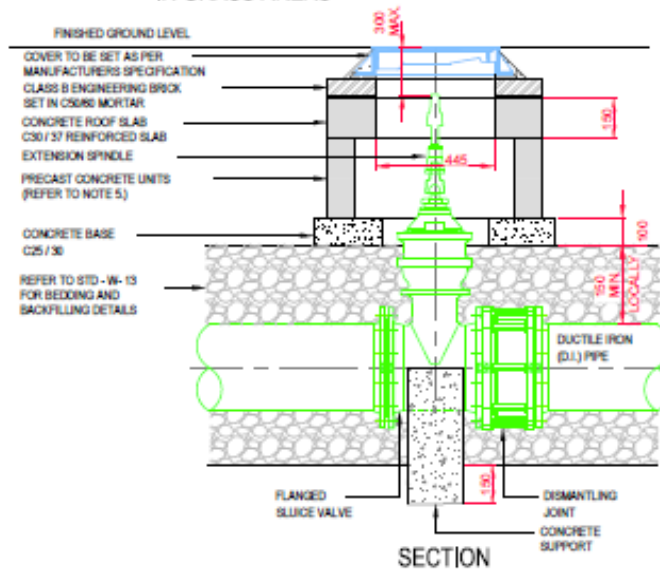


# Typical Standard Detail for Valve Chamber



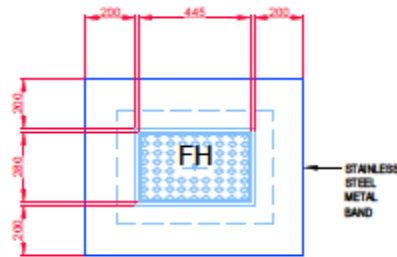
PLINTH DETAIL  
IN GRASS AREAS

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 281 AND BS 5634. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
3. SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN WATER MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKING.
4. ALL SLUICE VALVES SHALL BE ANTI-CLOCKWISE CLOSING.
5. VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
6. CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-13.
7. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545.
8. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVER IN GREEN AREAS.
9. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
10. ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
11. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



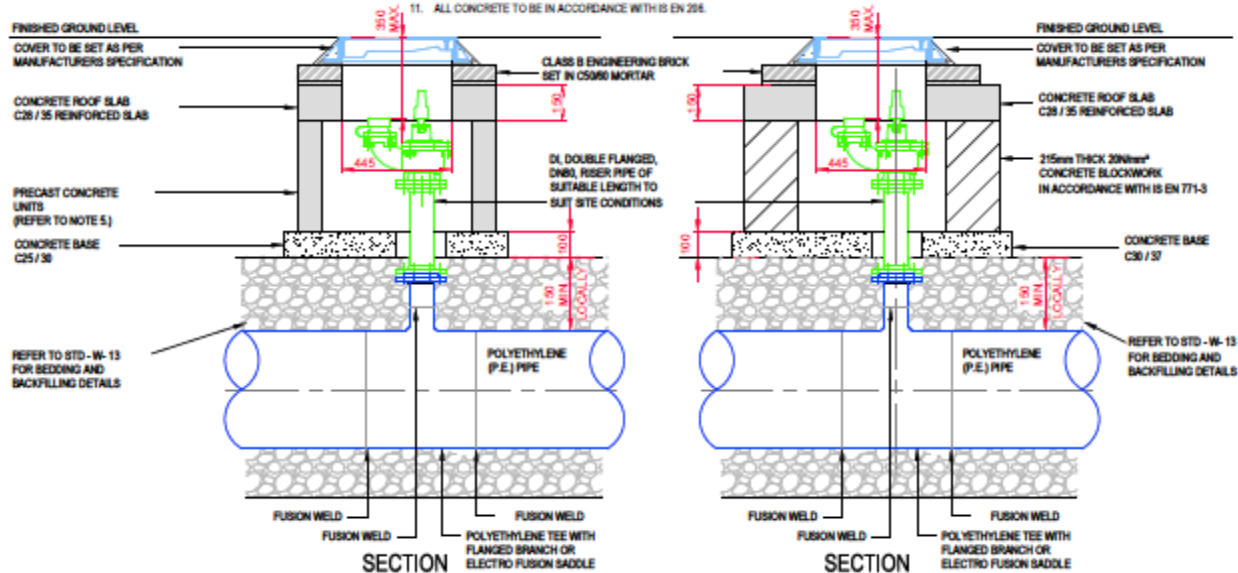


# Typical Standard Detail for Hydrant



PLINTH DETAIL  
IN GRASS AREA

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 281 AND BS 5834 COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
3. HYDRANTS SHALL BE DOUBLE FLANGED DRILLED TO PN 16, THEY SHALL COMPLY WITH BS 750:2012. THE HYDRANT SHALL INCORPORATE A SCREW DOWN GATE VALVE, UNDERGROUND "GUIDE TO HEAD" TYPE WITH SCREW DOWN CONNECTION OUTLET AND FALSE SPINDLE CAP AND IRON CHAIN.
4. ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
5. HYDRANT CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
6. CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-13.
7. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545. PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12281:2011.
8. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
9. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
10. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
11. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



# **General Layout of Codes of Practice (Water and Sewerage)**

- **Contents**
- **Glossary of Terms, Definitions**
- **Part 1 – General**
- **Part 2 – General Design Requirements and Submissions**
- **Part 3 – Design Guidance**
- **Part 4 – Construction Guidance**
- **Part 5 – Pumping Stations (Sewerage COP) / Booster Stations (Water COP)**
- **Appendices**

# Schedule of Standards

The Codes of Practice make reference to

- IS (Irish Standard)
- BS (British Standard)
- IS EN (European Standard adopted as an Irish Standard)
- BS EN (European Standard adopted as a British Standard)
- WIS (UK Water Industry Specification)

for material, equipment, fittings, workmanship, etc.

Referenced Standards are compiled into two Schedules of Standards (one for Water and one for Sewerage) and these are included in an Appendix in each Code of Practice.

# Impact of the Roll-Out of the Codes of Practice and Standard Details

- **The Codes of Practice and Standard Details will be contractually mandated through the Connection Agreements,**
- **Developers will be obliged to design and construct the water services infrastructure in accordance with the Codes of Practice and Standard Details,**
- **The Contract Agreements will apply Quality Assurance of the design and construction of water services infrastructure,**
- **Liaison will be required between Developer and New Connection Field Engineers to ensure smooth QA,**
- **Connections to the Irish Water Networks will only be allowed following confirmation by Irish Water New Connection Team of the adequacy of the infrastructure,**
- **Irish Water adoption of the installed infrastructure will follow on from confirmation by New Connections of the adequacy of the infrastructure,**
- **Financial Sureties, Bonds, etc. may be requires for Self-Lay infrastructure.**

# Roll Out of Technical Documentation

Irish Water Developer Services and New Connections intend to roll-out the Technical Documentation in a phased basis in the coming months. This will involve:

- Agreement under the governance criteria of the Water Industry Operation Framework (WIOF) (currently underway),
- A phased rollout of the Technical Documentation with a pilot in a number of Local Authority areas, with feedback to Irish Water,
- Rollout of an appropriate Communication Plan/ Process for stakeholders, including CIF,
- Publication of the relevant Technical Documentation,
- Advancement of a Road Show for the provision of information relating to the Technical Documentation,
- Provision of the Technical Documentation in a Customer Facing website location,
- On-going advice to CIF members on the Technical Documentation through New Connection Regional Teams.

# Q&A

