Quality Assurance (QA) Design Requirements Manual

Connections and Developer Services

(A Guide for Self-Lay Developers)

January 2018 (Revision 2)

Document IW-CDS-5010-01

Part of ervia group

This QA Manual outlines the approach that Connections and Developer Services Design Teams will apply during the vetting of design documentation submitted by Developers to Irish Water following the issuing of a Confirmation of Feasibility and in advance of the submission of a Connection Application. It also covers the Pre-Connection Enquiry (PCE) process which allows early engagement between the Developer and Irish Water. The PCE process results in Irish Water issuing of a Confirmation of Feasibility indicating if capacity is available in Irish Water's Networks to provide water services for the development. A Confirmation of Feasibility is now a mandatory requirement for developments that are being progressed under Planning and Development (Strategic Housing) Regulations 2017 (Statutory Instrument 271 of 2017).

Developers' detailed designs are to be developed in accordance with the Codes of Practice (COPs) and Standard Details (STDs) for Water and Wastewater Infrastructure. These outline acceptable typical design and construction guidance that is required by Irish Water for the provision of water supply pipes and wastewater collection pipes and their related infrastructure which are to be connected to the Irish Water and Wastewater Networks. The design vetting is to confirm that this requirement is being fulfilled.

The COPs and STDs shall be viewed in conjunction with the associated Design Risk Assessments that have been developed which identify the risks that designers shall take into account in the detailed design of the water supply pipes and wastewater collection pipes and their related infrastructure to be connected to the Irish Water Networks.

Ultimate responsibility (including, but not limited to any losses, costs, demands, damages, actions, expenses, negligence and claims) for the detailed design, construction and provision of such pipes and related infrastructure shall rest entirely with the Developer, his/her Designer(s), Contractor(s), or other related party. Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties in relation to the water supply and wastewater collection pipes and related infrastructure to be provided in accordance with this document or the Codes of Practice and Standard Details.

Irish Water does not have responsibility for surface or storm water drainage systems. These surface/storm water drainage systems are the responsibility of the Local Authority. It is Irish Water's policy not to accept storm or surface water runoff into its wastewater collection systems.

Revision Log

Date	Revision	Details of Revision
June 2017	0	Initial Issue
September 2017	1	Amended to take account of Strategic Housing Development Legislation (S.I. 271 of 2017)
January 2018	2	Minor Amendments

Contents

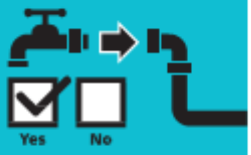
Guide to connect

For developers

1

You submit a pre-connection enquiry form to us.

2



We will assess if the connection is technically feasible and issue a Confirmation of Feasibility.

3

You design in accordance with standard details and codes of practice and submit the design to us for review.

4

We will review the development design and issue a statement of Design Acceptance if the design is technically acceptable.

5

After planning is received, submit a Connection Application to us.

6

Connection Agreement is offered, including details of agreed Quality Assurance (QA).

7

You accept the connection offer, pay fees and deposit to us.

8

Meet with our Field Engineer. Commence to lay on-site water service infrastructure as agreed.

9

We carry out QA on site. We facilitate connection with our network, initiating the Defects Liability Period. Certificate of Conformance is issued.

10

You contact us to fit a meter at properties.

11

We fit meters as required. Defects Liability Period ends 12 months after the last meter is fitted.

12

Facilitate final QA by us and undertake remedial work, if required.

13

We complete final QA and we will refund you the Self Lay Deposit.

This QA Design Requirements Manual relates to Step 1 to Step 4 of the Guide.

Foreword

The QA manual, which relates to design submission Quality Assurance requirements for the provision of water supply and wastewater infrastructure, is based on the requirements set out in the Codes of Practice for Water and Wastewater Infrastructure on Development Sites. (IW-CDS 5020 03 and IW-CDS-5030-03)

1. Glossary of Terms

In this Guidance document, and in the overall End to End process, the following words and expressions shall have the following meanings.

Completion Certificate	means a certificate issued by Irish Water to the Developer at the end of the Defects Liability Period;
Conformance Certificate	means a certificate issued by Irish Water to the Customer/Developer following completion of construction, inspection and commissioning of the Works and the provision of the Final Documentation pursuant to the Standard Details and Codes of Practice;
Conformation of Feasibility	means a response issued by Irish Water on foot of a Pre-Connection Enquiry submission from a Developer indicating if Irish Water can provide a water and/or wastewater services connection for the development at that time;
Connection Agreement	means the written agreement, in this instance a Self-Lay Connection Agreement, entered into between the Customer and Irish Water setting out the commercial and technical terms governing the provision of a Connection;
Design Submission	means a submission to Irish Water from the Developer setting out the design proposals for the water supply and/or wastewater collection infrastructure on the site. Before an application for a new Connection or an additional Connection can be considered, appropriate information is required from the Applicant to allow Irish Water or its agents to assess the Developer's Works proposal. For developments, this should be provided in a Design Submission in advance of a Connection Application. Irish Water will engage with the Developer to vet the design of the Works ahead of the Developer finalising a planning application (for housing and mixed use developments to ensure compliance with the Codes of Practice and Standard Details);

Design Engineer	means Irish Water's representative responsible for assessing and/or inspecting the Design Submission and who is the Developer's point of contact in Irish Water during the Design Stage;
Developer (also known as Customer)	means an Irish Water **Customer** who intends to provide Works for housing, mixed use and commercial developments and who intends to or has applied to enter into a Connection Agreement or has entered into a Connection Agreement;
Defects Report	means a list of correction works that is issued with the Conformance Certificate that Irish Water's Field Engineers have identified and which require remediation by the Customer;
Defects Liability Period	means a minimum period 12 months or such other period as may be specified by Irish Water from time to time, between the issue of the Conformance Certificate and the issue of the Completion Certificate during which the Developer/Customer is responsible under the Connection Agreement for the cost of rectification of any defects in or connected to the Works;
Final Documents	means the suite of documents as set out at Section 1.8 of the Code of Practice for Wastewater and Section 1.7 of the Code of Practice for Water;
Pre-Connection Enquiry (PCE)	means a process whereby Developers can seek confirmation from Irish Water if a connection to its Networks to provide water services for the development is feasible at the time of the enquiry and by which Developers and their designers are made aware of the impact of their proposed development on Irish Water's water and wastewater Networks, such confirmation to be provided by way of a Confirmation of Feasibility;
QA Folder	means a document that is developed and retained by the Developer to include information about on-site quality assurance records of the water services infrastructure installation which will be updated as required and made available to the Irish Water Field Engineers or Irish Water's agents for inspection and which can be used to facilitate the collation of the Final Documents;
Statement of Design Acceptance	means a document that is issued by Irish Water following its examination and vetting of the Developer's Design Submission indicating that Irish Water has no objection to the Developer's design proposals for the water supply and wastewater collection infrastructure of the development;

Strategic Housing Development Legislation	means the Planning and Development (Strategic Housing) Regulations 2017 (Statutory Instrument 271 of 2017) which came into force on 3rd July 2017 under the Planning and Development (Housing) Residential Tenancies Act 2016. These Regulations outline a fast track planning procedure, operated by An Bord Pleanála, for developments proposed within zoned land comprising 100 or more houses or 200 bed spaces for student accommodation, both of which may include a mixture of other uses. (See **Figure 1** below for process flow chart)
Vesting/Adoption	means the process for vesting in and adoption of the infrastructure into the sole ownership of Irish Water pursuant to the Connection Agreement;
Works	means the provision by the Developer/Customer of water supply and wastewater pipes and related infrastructure which are to be connected to Irish Water's Network.

Figure 1 below shows in brief the procedure for the Planning and Development (Strategic Housing Development) Regulations 2017.

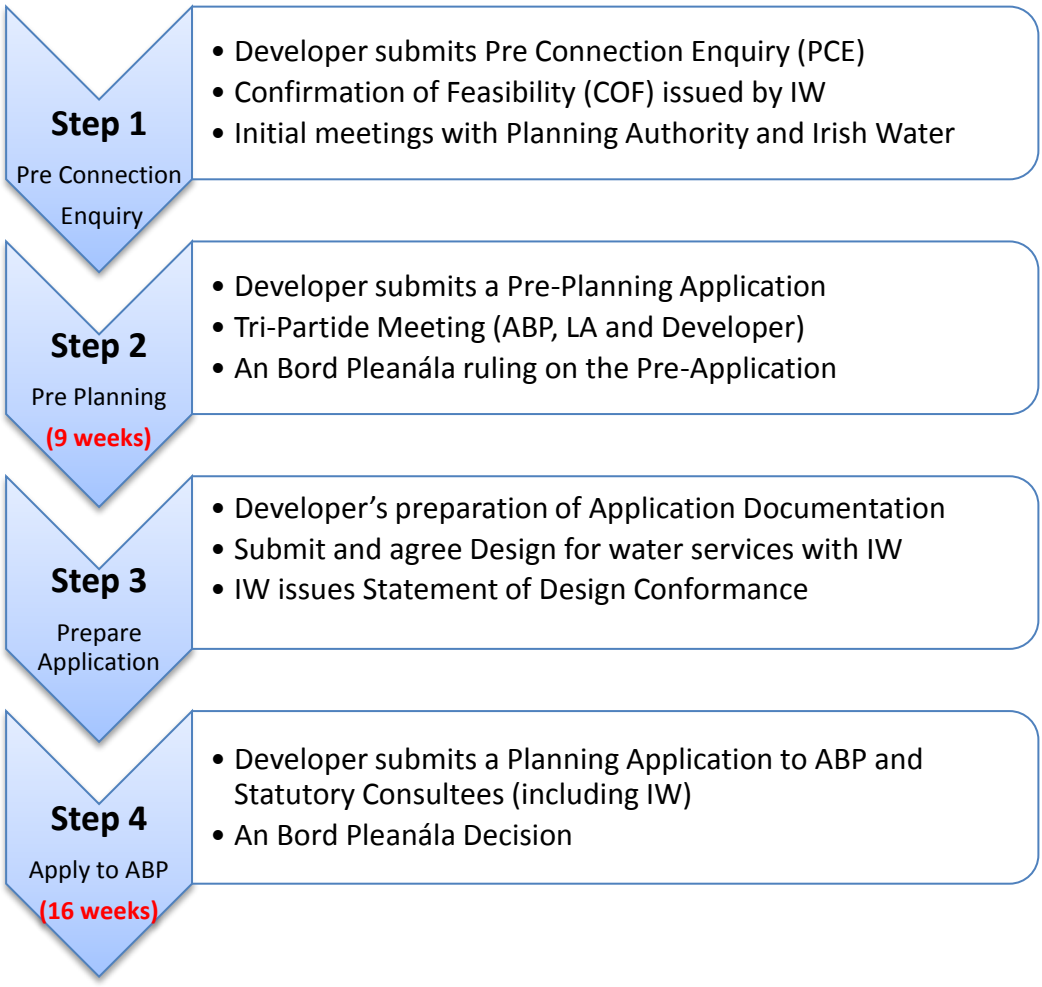


Fig 1: Strategic Housing Development Process

2. Introduction

2.1 Scope

This QA Manual outlines the **Design Submission Requirements** of the Codes of Practice for water and wastewater infrastructure, to be submitted to Irish Water prior to the submission of an application for a Connection Agreement. This QA Manual relates to all developments where a Self-Lay approach is intended for the installation of the water supply and wastewater collection pipework within a development. It also outlines requirements for developments that are covered by the Planning and Development (Strategic Housing) Regulations 2017, where early engagement with Irish Water is mandatory.

This QA Manual forms part of a suite of documents made available to Developers to outline the Irish Water's Quality Assurance requirements for Design Submissions. **Figure 2** below shows the document hierarchy of Irish Water's Connections and Developer Services (CDS) QA.

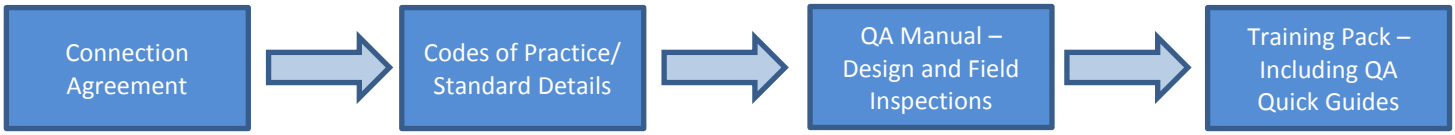
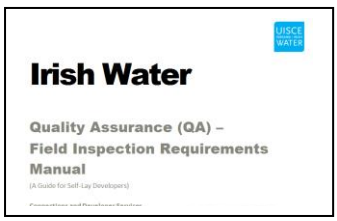


Fig 2: Document Hierarchy

The Quality Assurance approach that Irish Water's Connection and Developer Services will utilise for Developer Self-Lay installations is outlined in two documents which cover the following stages:

Pre-Connection Enquiry (mandatory under the Strategic Housing Development Legislation, Statutory Instrument 271 of 2017 and recommended for all other developments)
Design Submission; (required for all developments)
Connection Application; (required for all developments)
Connection Offer (followed by acceptance and payment);



Construction Stage (including Irish Water inspections);
Commissioning Stage (including infrastructure);
Connection of infrastructure to Irish Water assets (on issue of a Conformance Certificate);
Vesting/Adoption;
Defects Liability Stage;
Completion (on issue of a Completion Certificate).

This is the overall staged process by which the Developer can obtain a connection and by which vesting/adoption of the Water and Wastewater infrastructure installed as part of the development is achieved. The QA requirements for the Construction through to

Completion Stages are outlined in greater detail in Quality Assurance (QA) Field Inspections Requirements Manual. Specific information is required with the Connection Application as outlined in the Codes of Practice. A Connection Agreement is required in all cases before Irish Water advances the provision of a connection to its water and /or wastewater Networks. This document outlines the acceptable typical minimum Design Submission documentation to be submitted to Irish Water Connections and Developer Services in advance of obtaining a Connection Agreement.

2.2 Codes of Practice and Standard Details

The Code of Practice for Water Infrastructure and the Code of Practice for Wastewater Infrastructure outline Irish Water's **technical requirements** for the design, construction and commissioning of water supply and wastewater collection infrastructure for housing and mixed use developments, which is to be taken in charge by Irish Water. Connection and Developer Services also has two suites of Standard Details, one for water infrastructure and one for wastewater infrastructure which also indicate the construction requirements for new infrastructure. The Codes of Practice and Standard Details are available on the Irish Water website www.water.ie

2.3 Roles and Responsibilities

The **Developer** is the proposer of the works and is responsible for:

- Providing the Works in accordance with the Codes of Practice/ Standard Details and Irish Water QA requirements.
- Appointing a Developer's Design Engineer, a Developer's Construction Engineer and a Contractor to carry out the Works in accordance with the Codes of Practice, the Standards Details and the Connection Agreement.
- Complying with the Safety, Health and Welfare at Work Act (2005) and associated Safety Health and Welfare at Work (Construction) Regulations.
- Seeking approval from Irish Water for any revisions or alterations to design or Works as set out in the agreed connection offer.

The **Developer's Design Engineer** is responsible for:

- Designing the Works required to service the development in accordance with the Codes of Practice and Standard Details.
- Certifying that the design complies with the Codes of Practice and Standard Details.
- Accepting liability for compliance through his/her professional indemnity insurance, this shall be kept in place for a period of 6 years after the completion of the Works.
- Accepting responsibility for the design and ensuring that all aspects of the design meet current Regulations, Standards and legal requirements.
- Developing a risk assessment to ensure that risks to both the local community and operators of the wastewater collection and treatment system are minimised.

The **Developer's Construction Engineer** is responsible for:

- Managing and arranging the construction of the Works in accordance with relevant guidance documents, Codes of Practice and Standard Details.
- Agreeing to and complying with the Inspection and Testing Plan for the Works with Irish Water's Field Engineer.
- Ensuring that the Works are acceptable to Irish Water.
- Maintaining QA documentation on site (in the form of the **QA Folder**).
- Facilitating site inspections by the Irish Water Field Engineers.
- Developing and signing off on the **Final Documents**.

The Irish Water **Field Engineer** is the Developer's point of contact at construction and is responsible for:

- Assessing and/or inspecting the Works.
- Reviewing the QA records held on site.
- Witnessing QA testing.
- Carrying out a Site Walk-Off Inspection prior to issuing a **Conformance Certificate**.
- Issuing the **Defects Report**, if required.
- Undertaking inspections during the **Defects Liability Period**.
- Carrying out Final Inspections and making recommendations in respect of issuing a **Completion Certificate** and release of the **Self-Lay Surety**
- Dealing with any revisions or alterations proposed by the Developer and escalating these, where relevant, to the Design Engineer.
- Liaising with the Developer and CDS in respect of the physical connection to the Irish Water Network(s).

The **Connection and Developer Services** (CDS) team is Irish Water's Department which is responsible for:

- Assessing Pre-Connection Enquiries, vetting of Design Submissions, issuing a **Statement of Design Acceptance** and issuing **Connection Offers**.
- Being the point of contact in Irish Water for the Developer/Customer.
- Reviewing any revisions or alterations to the design or Works as set out in the agreed Connection Agreement.
- Issuing of **Statement of Design Acceptance**
- Issuing the **Conformance Certificate.**
- Issuing the **Completion Certificate.**
- Administrating the release of the **Self-Lay Surety.**

The CDS **Design Engineer** is the Developer's point of contact during the Design Stage.

2.4 Notification

Prior to commencing the Works, the Developer should inform Irish Water in writing of the details of all the parties engaged to deliver the Works. The provisions of the Safety, Health and Welfare at Work Act 2005 and associated Safety, Health and Welfare at Work (Construction) Regulations shall apply in respect of the appointment of competent designers, Project Supervisor Design Process (PSDP), Project Supervisor Construction

Stage (PSCS) and Contractor. Prior to commencing the Works the Developer shall issue a Commencement Notice to Irish Water, a template of which is appended to the Self-Lay Connection Agreement, outlining the commencement of the installation of the water services infrastructure and a 'Start-up Meeting' with Irish Water shall be arranged.

3. Irish Water Contacts

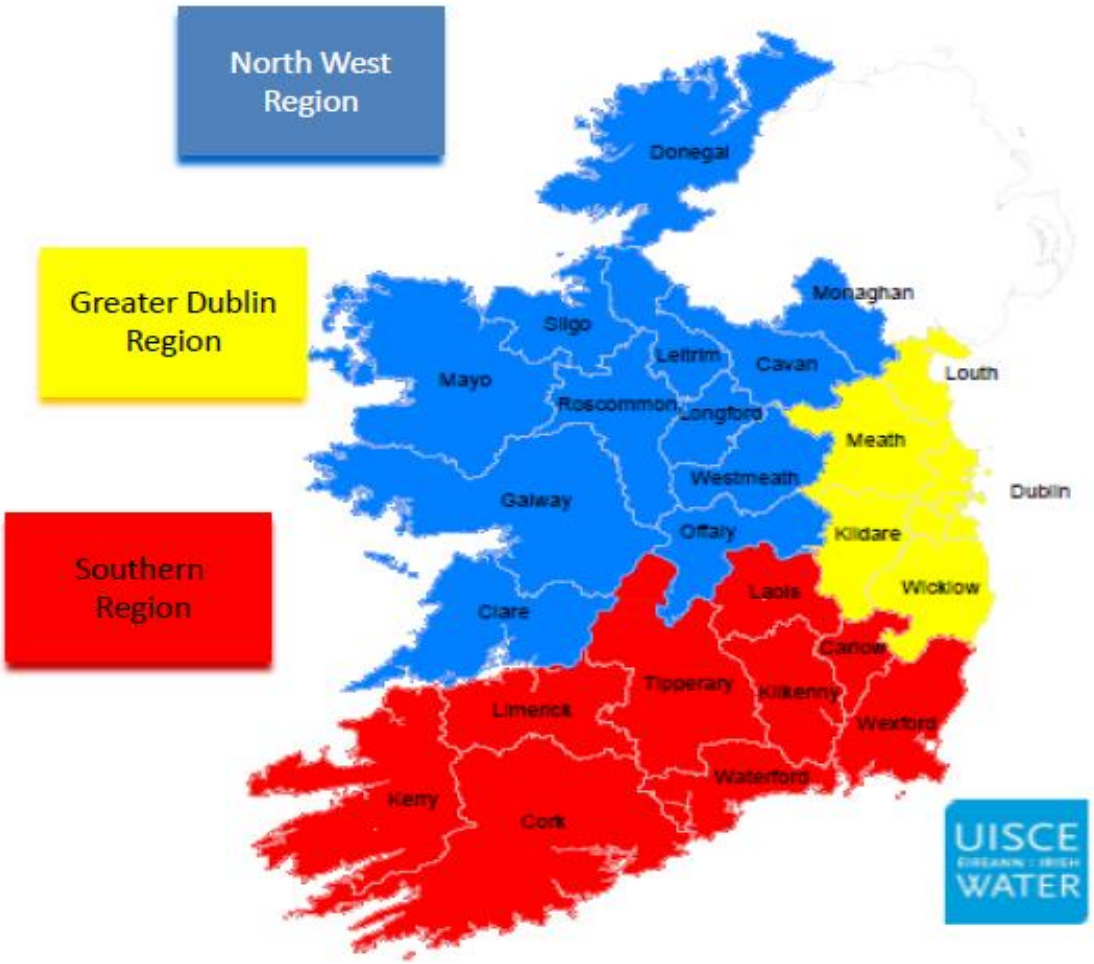
3.1 Connections and Developer Services

Connections and Developer Services (CDS) has regional representatives in the three CDS Regions who can be contacted in relation to any queries.

Contact may be made with Connection and Developers Services through the following:

Web:	www.water.ie/connections/
Email :	newconnections@water.ie (for Pre-Connection Enquiry Submissions to IW)
Email :	cdsdesignqa@water.ie (for Design Submissions to IW)
Email :	spatialplanning@water.ie (for Planning Application Submissions under the Strategic Housing Development Legislation)
Twitter:	@IWCare

The three CDS Regions are as follows



4. Pre-Connection Enquiry (PCE) Phase

The Pre-Connection Enquiry (PCE) Process an aid for Developers and their designers in understanding the impact of their proposed development on Irish Water's water and wastewater Networks and to ascertain if a connection to these networks is feasible

Developers may also use this Pre-Connection Enquiry stage to enable early discussion on issues such as capacity checks, upgrade requirements and the feasibility of a connection service of their development from a water services perspective.

The Pre-Connection Enquiry (PCE) process is a mandatory requirement for developments that are to be progressed under the Strategic Housing Development (SHD) Legislation. To avail of the fast-track SHD Legislation, a PCE has to be submitted to Irish Water and a Confirmation of Feasibility from Irish Water must be obtained by the Developer in advance of entering the Pre-Application Phase.

Once Irish Water has received the Developer's PCE application, Connections and Developer Services (CDS) will undertake a desktop study to determine the impact of the provision of water services to the proposed development on its Networks and to identify if any detailed further analysis, studies or modelling is required. If further studies are required, the Developer may be requested to enter a Project Works Services Agreement (PWSA) with Irish Water in order to identify if capital infrastructure upgrades will be required as a result of a particular new or modified connection. A Project Works Services Agreement will require the applicant to pay the financial costs relating to the necessary engineering assessments prior to entering into a formal Connection Agreement.

Once CDS has completed the assessment of the Pre-Connection Enquiry, Irish Water will provide the Developer with a response which will include the following:

- A preliminary assessment of any restrictions and potential connection points to the existing network.
- A preliminary assessment of any reinforcement/upgrade works that will be required to service the development.
- Details of any protective measures for Irish Water assets which may require a diversion or easements.
- A **Confirmation of Feasibility** which will outline if Irish Water can provide a water and/or wastewater services connection for the development at that time and
- A request for the submission of a Design Submission for the development in advance of the Developer making an application of Planning Permission so that a Statement of Design Acceptance can be issued.

If proceeding, the Developer designs the infrastructure in accordance with the Standard Details and Codes of Practice and liaises with CDS in relation to the water and/or wastewater infrastructure design proposals.

For developments that are not being progressed under the Strategic Housing Development Planning process, the Developer can submit the Confirmation of Feasibility to the Local Authority with the planning application for the development, to indicate to the Planning Authority that early

engagement has taken place with Irish Water, and that there is agreement in principle with regard to the provision of water and/or wastewater services for the proposed development.

For developments that are being progressed under the Strategic Housing Development Planning process, the Developer is required to submit the Confirmation of Feasibility to An Bord Pleanála with the Pre-Application Planning application for the development. This is a mandatory requirement of the Strategic Housing Development Planning process.

In either case, a Planning Application to a Local Authority or a Planning Application under the Strategic Housing Development Legislation to An Bord Pleanála, it is necessary that the Developer makes a Design Submission to Irish Water outlining the details of the water supply and wastewater collection proposals for the development. It is necessary that Irish Water is afforded ample time to assess the Design Submission so that a Statement of Design Acceptance may be issued before the Developer makes a Planning Application to either the Planning Authority or to An Bord Pleanála.

5. Design Submission

5.1 Purpose of the Submission

Before an application for a new Connection or an additional Connection can be considered, appropriate information is required from the Applicant to allow Irish Water to assess the Developer's Works proposal. This should be provided in a design submission in advance of a Connection Application for developments. The Design Submission should be forwarded to Irish Water via the e-mail address, cdsdesignqa@water.ie. Irish Water will engage with the Developer to vet the design of the Works ahead of the Developer finalizing a planning application. If Irish Water is satisfied with the water and/or wastewater infrastructure design proposal, a '**Statement of Design Acceptance**' will be issued to the Developer in respect of the proposal.

5.2 Design Requirements

The Developer's Design Engineer shall take account of the outcome and recommendations of the Pre-Connection Enquiry Process. The layouts and alignments for water and/or wastewater infrastructure agreed with CDS after the Pre-Connection Enquiry Stage shall form part of the Design Submission unless otherwise agreed with CDS e.g. the size, location and layout of pumping stations.

5.3 Land Requirements

Irish Water will require wayleaves/easements along all routes of pipelines that are not located in public roads or public lands. In addition, if wastewater pumping stations and water booster stations are required, Irish Water will require such land to be transferred to its ownership at the time of vesting/adoption. The requirement associated with wayleaves, easements and land acquisition at design submission stage is as follows:

- All easements and land that will be required by Irish Water for the Works shall be shown on the design drawings.
- Where easements or wayleaves are required and are outside the developer's land holding, evidence of agreement in-principle of the arrangements necessary to acquire the easements from the registered landowner is required.

5.4 External Approvals

During the preliminary stages of design for any Works, the Developer's Design Engineer shall take into account the requirements of other utility providers. If an Environmental Impact Statement (EIS), Environmental Impact Assessment (EIA) or an Appropriate Assessment (AA) screening report is required for the development the Developer shall ensure that the impact of laying water and/or wastewater services is allowed for in the associated report(s).

Particular attention and early liaison needs to take place where any Works are adjacent to, within or crossing an asset that is controlled by Irish Water, Transport Infrastructure Ireland (TII), Public Transport Authority, ESB Networks, Gas Networks Ireland (GNI), etc.

Prior to discussing the scope of the Works proposals with all affected parties, the Developer's Design Engineer should consider alternative options that would/could reduce impacting any parties. Irish Water may provide comments on a design proposal prior to formal or informal approvals being sought.

The Developer shall, as part of the design submission, submit all relevant consents from relevant third party bodies.

5.5 Design Responsibilities

The Developer's Design Engineer is responsible for ensuring that the design of the works complies with Irish Water's Codes of Practice and Standard Details. A **Statement of Design Acceptance** issued by Irish Water in relation to a design submission shall not relieve the Developer's Design Engineer of this responsibility or the responsibility for any discrepancies, errors or omissions in the submission, or for the inadequacy of the design.

5.6 Requirements of the Design Submission

The Design Submission shall contain:

- The Design Submission Checklist for the relevant asset type (see Appendices).
- A digital copy (PDF) of the design drawings, including site plan information.
- The information required in Section 2.3 of the Codes of Practice for Water and Wastewater Infrastructure.
- A letter from the owner of any lands other than the Developer's, agreeing in principle, to granting any easements or reserves required for the works.
- Relevant documentation arising from liaison with the Fire Authority.

Note: A design submission will not be accepted where the relevant documents are not supplied, or are incomplete.

5.7 Drawings

Each drawing and document that is submitted shall be signed by the Developer's Design Engineer who has the authority to act on the behalf of the Developer. The drafting for all submissions shall be in accordance with Irish Water CAD Standards, which are available form Irish Water. An additional digital copy of the site layout plan with only the relevant infrastructure shown will expedite the incorporation of information into Irish Water's spatial GIS database. The digital file shall be in dwg format. The plan shall be clear and legible

and only include information that is relevant. Unnecessary information that should not be included is typically:

- Road kerb lines,
- Trees,
- Power/light poles,
- Storm water pipes and gullies,
- Other utilities services e.g. electricity, gas, etc.

6. Irish Water's Review of the Design Submission

6.1 Irish Water Design Vetting

The design submission will initially be checked for conformity with Irish Water's requirements. This initial check/validation assessment may result in the request of additional information or clarification. The Developer's Design Engineer will be contacted and advised of the outstanding documentation and requested to submit the omitted documentation. The Developer's Design Engineer should submit the additional documentation and this will be recorded as received. Once the submission is deemed complete, a detailed vetting of the submission will be carried out by CDS. The outcome of this design vetting review will result in one of the following:

- The issue of a **Statement of Design Acceptance** – Design of the Work is acceptable.
- The issue of a **Statement of Non-Acceptance** indicating that the submission is "Not Accepted - Revise and Resubmit. Design of the Work is acceptable in principle subject to the incorporation of changes indicated."
- The issue of a **Statement of Non-Acceptance** indicating that the submission is "Not Accepted - Revise and Resubmit. The Design of the Works is not acceptable."
- The issue of a **Statement of Receipt** that the submission has been "Received for Information Only – Receipt is Confirmed."

Following CDS review of the Design Submission and provided it is deemed to be in accordance with the Codes of Practice and Standard Details, the Design Submission will be signed by Irish Water to indicate that Irish Water has "No Objection" to the submission and one copy will be returned to the Developer's Design Engineer. Irish Water will issue a **Statement of Design Acceptance** along with this correspondence.

The **Statement of Design Acceptance** to the design proposal does not relieve the Developer's Design Engineer of any responsibilities for any discrepancies, errors, omissions or for the inadequacy and lack of conformance of the design with the relevant Code of Practice and Standard Details. Neither does the Irish Water Statement of Design Acceptance relieve the Developer of his obligations to comply with all relevant regulatory and environmental requirements.

Once the Design Submission is acceptable to Irish Water and before construction has started, any alterations to the design shall be discussed with Irish Water's Connections and Developer Services who will determine whether an additional revised submission is required.

In the event that a Design Submission is not acceptable, CDS will issue a **Statement of Non-Acceptance** which will be accompanied by an indication of the areas of deficiency. The Developer may submit an alternative design proposal to address the deficiencies and this will be considered by Irish Water. The Design Submission shall not be considered acceptable to Irish Water until a Statement of Design Acceptance is issued to the Developer.

In some instances, the Developer may make an advanced submission for consultation. This will result in the issue of a Statement of Receipt. This will be followed up by the CDS Design Engineer with appropriate comments.

6.2 Objections to Irish Water's requirements

Any objections that the Developer has to design requirements by Irish Water shall be made in writing to Connections and Developer Services. The objection shall state the reasons and efforts made to resolve any issues. Any unresolved objections between the Developer's Design Engineer and Connections and Developer Services will be referred to the Regional Manager, Connections and Developer Services. A review will be carried out and a response issued to the Developer of the final decision on the Design Submission.

7. Revised Submission

If a **Statement of Non-Acceptance** in accordance with Section 6.1 is issued and a revised Design Submission is required, the CDS will clearly set out the reasons for the non-acceptance of the Design Submission to the Developer's Design Engineer. The Developer may submit a revised Design Submission and it should consist of the following:

- The revised submission cover sheet (refer Appendix 3).
- A written agreement/undertaking in principle that indicates that arrangements will be made to allow Irish Water to acquire all wayleaves/easements or lands that are required for the Works.
- Confirmation that any design deficiencies have been resolved to address the listed inadequacies identified by the CDS Design Engineer.
- Soft copies of the design drawings which shall incorporate the revisions to address the details relating to the non-acceptance that was provided by Irish Water.
- Soft copies of the design data and calculations.
- Hard copies if requested.

Where not already known:

- The name of the Developer's Construction Engineer and contact details
- The name and contact details of the Developer's Contractor and any sub-contractors.
- The proposed date of commencement of work.

Following CDS review of the revised Design Submission and provided it is deemed to be in accordance with the Codes of Practice and Standard Details, the revised Design Submission will be signed by Irish Water to indicate that Irish Water has no objection to the submission and one copy will be returned to the Developer's Design Engineer.

8. Strategic Housing Development Planning Application Submission

In the case of developments that are being progressed under the Strategic Housing Development Legislation, it is necessary that the developer submits the Planning Application Documentation to An Bord Pleanála. The Planning Application Documentation is to be forwarded also to the Statutory Consultees (which include Irish Water) at the same time as the Planning Application is made to An Bord Pleanála. The submission to Irish Water should be made to spatialplanning@water.ie. This Planning Application Documentation must include the **Statement of Design Acceptance** outlining Irish Water's acceptance of the detailed design of water supply and wastewater collection proposals for the development. It is also necessary that the detailed design, including drawings, calculations, etc. are also included in the Planning Application Documentation.

9. Connection Application & Connection Offer

Once the design submission is complete and Irish Water has issued a **Statement of Design Acceptance**, and provided that Planning Approval for the development has been obtained from either the Planning Authority or An Bord Pleanála, the Developer can apply for a connection to Irish Water using the relevant Irish Water Connection Application form.

Irish Water will draft a Connection Offer and issue it to the Developer. The Connection Offer is a letter issued to the Customer/Developer by Irish Water offered to the Customer, the commercial and technical terms and conditions governing the provision of the Connection to the Customer.

Once the Connection Offer is signed and the relevant Connection Fee is received by Irish Water and processed, and, provided a Commencement Notice has been submitted to the Local Authority in accordance with the Planning and Development Act, the Developer should contact Irish Water to arrange a 'Start-up Meeting' with Irish Water's Field Engineer.

Appendix 1: Water Design Checklist

Name of Company	_____
Address	_____
Phone No	_____
Email	_____
Developer's	
Design Engineer	_____

1	**Planning Considerations**	Y/N
1.1	The design complies with the current Development Plan	

2	**External Approvals**	Y/N
2.1	All consents are in place.	
2.2	No clash detected with other utilities.	

3	**Drawing Format**	Y/N
3.1	The drafting is to the appropriate Irish Water CAD Standard	
3.2	The drawings contain all of the relevant Irish Water referencing to Standard Drawings	
3.3	Individual properties to be connected have been identified and numbered.	
3.4	All easements have been denoted.	
3.5	Drawings to have the following notation: Length and type of mains. Number of valves and hydrants	
3.6	The design submission has all the relevant documentation as outlined in Section 2.3 of the Codes of Practice	

4.	**Design Criteria**	Y/N
4.1	The design meets the fundamental objectives of COP and Standard Details: a) Water main layout shall be arranged in loops or rings so as to avoid "dead ends" or terminal points. All mains shall terminate in a loop or ring to accommodate one directional flushing of the network. Loops shall have a minimum of four connected houses and one hydrant. b) The minimum pipe size shall be **100mm** internal diameter in housing developments of 40 houses and up to 100 houses. Developments of 100 houses and above shall have minimum pipe sizes of **150mm** internal diameter spine main with 100mm branch mains. Nominal internal diameters of 80mm and less may be allowed in smaller developments but not where hydrants are located and only after prior written agreement has been received from Irish Water. c) The minimum pipe size shall be **150mm** in industrial or commercial developments. d) Every property should have a separate service connection. A connections shall not be taken from an existing service connection. The use of common service pipes is not allowed. Service connections shall be as short as reasonably possible. Long service connections (in excess of 15m) will not be allowed. Service connections shall be a minimum pipe size of **25mm** outside diameter, 20mm internal diameter. e) Service connections shall not be taken across roads where the width of the road is greater than 15m, except with the prior agreement of Irish Water. In certain circumstances, a rider main, located entirely on public property, may be provided to serve small numbers of houses at the street-side remote from the distribution main. This rider main shall be looped back to the distribution main. Individual house service connections shall be provided off the rider main. f) Water mains should be laid to provide the optimum circulation in the local water network. Water mains may terminate in a dead end only with Irish Water approval, in which case a duck-foot washout hydrant, located within a chamber or kiosk, shall be provided at the dead end. g) Valves shall be arranged at junctions and spine water mains in such a manner so as to ensure that water shut-down will affect no more than **40** properties at any one time. h) Water mains greater than 300mm in diameter laid under heavily trafficked roads shall be ductile iron. i) Looped water mains shall return to the spur main downstream of a sluice valve.	

	j) The location of hydrants should be such that they can be accessed in an emergency. Hydrants should not be located in roads or parking areas. k) Where possible, a hydrant should be located within 20m of each junction. l) No domestic property within a development shall be more than **46m** from a hydrant. Hydrant details and locations shall be subject to the approval of the relevant Fire Authority. This requirement may take account of dead-end or wash-out hydrants. A hydrant shall not be closer than 6m to a property. Fire hydrants should not be supplied from water mains less than 100mm diameter. m) The location of branch valves, hydrants or other apparatus shall be in agreement with Irish Water. n) Where a water main is located in an area of restricted access such as under motorways, canals, railways, rivers etc., a duplicate water main (or a sleeve for a replacement main) shall be installed to maintain water supply in the event of a problem with the live main until access is available to carry out repairs. The second main shall be the same as the first main in regards to material, diameter and flow capacity. Isolation valves shall be provided on both sides of the inaccessible area to allow the water supply to be redirected between either main. o) Where a water main is to be located within a structure such as a bridge or culvert, the Developer shall consult with Irish Water to establish if the water main is be duplicated. In some instances Irish Water may require that the mains are placed within sleeves to facilitate easy replacement of the pipe. In general, however, Irish Water discourages the construction of water mains within bridge or culvert structures and the installation of the mains across the watercourse adjacent to the bridge/culvert structure is preferred. p) Surface water attenuation tanks shall not be constructed over water mains. q) Irish Water will require the Developer to provide bulk metering of the water supply connection to developments with a water demand exceeding 20 m^3 per day, with the bulk meter linked to an Irish Water telemetry data collection system in cases where the water demand exceeds 200 m^3 per day. Developments with water demands less than 20 m^3 per day will not require a flow meter. Irish Water will choose and supply the bulk meter and associated equipment based on the range of flow at the development. r) Where there is the possibility of connecting into or extending the water main network into adjoining land that is not developed, the water mains shall be extended to the boundary if required by Irish Water and wayleaves for these extensions provided and executed to include Irish Water as the named beneficiary. s) Pressure control shall be provided at the take-off point of the new connection if required to control high pressures by way of a pressure reducing valve (PRV). Where possible their need shall be determined in advance but in some cases Irish Water may require these to be installed after the main is made live. The cost of this work shall be borne by the Developer. The need for PRVs shall be agreed with Irish Water. Pressure sustaining valves (PSV) may be required in specific exceptional circumstances and only by agreement with Irish Water. The PRVs and PSVs will be chosen and supplied by Irish Water for installation in Developer supplied chambers. t) Individual service connections shall generally not be taken across roads and their length shall be kept to a minimum. The provisions outlined in (e) above may be used to limit long service connections. u) Water supply mains shall be laid in common areas and not through individual private gardens or driveways etc. v) Any redundant water services shall be traced back to the Irish Water supply main by the Developer and shall be blanked off by Irish Water at the Developer's expense. w) Any existing lead services pipes to the site shall be replaced / made redundant at no cost to Irish Water. This work shall be carried out to the satisfaction of Irish Water. x) Water main bends and road crossings should be kept to an absolute minimum. y) A three-way sluice valve arrangement shall be provided at all water main junctions. z) The water main pipework to new developments should be located at the right hand side of the entrance to the new development (from a view facing into the development) if possible, and where the properties served are equally or reasonably distributed at both sides of the estate roadway.	
4.2	The design should relate to finished surface levels when specifying cover to pipes.	
4.3	Connections to existing works have been appropriately designed.	
4.4	Alignments have been approved by both Irish Water and other service providers.	
4.5	The design should consider the proposed construction technique and/or constraints	

5	Influencing Factors	Y/N
5.1	The Developer's Design Engineer confirms that the design has made allowance for existing or proposed physical features of influence i.e. retaining walls, significant trees, other services, buildings etc. in established green field's areas	
5.2	In the case of designs in existing established or green fields areas the Developer's Design Engineer confirms that the route has been "walked".	
5.3	Where the design requires the approval of other parties these must be obtained.	

I certify that this design has been reviewed and complies with Water Irish water infrastructure requirements.

Signature ***Date***

Print Name and Firm

Complete this form and send to: newconnections@water.ie

List of Attachments

Ref	Description	Comment
1		
2		
3		
4		
5		

Appendix 2: Wastewater Design Checklist

Name of Company	_____
Address	_____
Phone No	_____
Email	_____
Developer's	
Design Engineer	_____

1	**Planning Considerations**	Y/N
1.1	The design complies with the current Development Plan.	

2	**External Approvals**	Y/N
2.1	All consents are in place.	
2.2	No clash detected with other utilities.	

3	**Drawing Format**	Y/N
3.1	The drafting is to the appropriate Irish Water CAD Standard	
3.2	The drawings contain all of the relevant Irish Water referencing to Standard Drawings	
3.3	Individual properties to be connected have been identified and numbered.	
3.4	All easements have been denoted.	
3.5	Drawings to have the following notation: Length and type of mains. Number of valves.	
3.6	The design submission has all the relevant documentation as outlined in Section 2.3 of the Codes of Practice	

4	**Design Criteria**	Y/N
4.1	Without compromising the planning, the design meets the fundamental objectives of the COP and Standard Details: a) The external face of any new Sewer should be at least 3.0 m or a distance equivalent to the depth of the Sewer below the foundation, whichever is greater, from the external face of any building or development structure. This is to allow future access and maintenance of the pipeline. Foundations and basements of adjacent buildings should be designed to ensure that no extra loads are transferred to the pipeline. The minimum clear horizontal distance will be increased if the Sewer is greater than 3m deep or if the internal diameter is greater than 375mm. The minimum clear distances in these situations shall be greater than the depth to invert or ten (10) times the Sewer diameter, whichever is the greater; b) Sewers and service connections should not be constructed under any building or structure. No building may be constructed over the line of a Wastewater Sewer, service connection or Drain, in accordance with the Section 29 of the Public Health Act 1878 and the Water Services Act; c) Sewers, where practicable, should be located in areas maintained by the Local Authority, i.e., road verges, roads and public open space or a space where they are reasonably accessible and visible. Sewers should not be laid in enclosed private land, where there is a practicable alternative route; d) Sewers should be laid in straight lines in both the vertical alignment (profile) and horizontal alignment (plan) except that bends up to 45 degrees may be laid immediately outside inspection chambers; e) Where Wastewater and Storm Water manholes are adjacent, their positions should be staggered to allow for crossing over of Sewers. Staggered positioning of Wastewater and Storm Water manholes is required with a full separation between the Wastewater and Storm Water Sewer systems (Note that Irish Water does not have responsibility for Storm Water Sewer systems.); f) The design of landscaping should be undertaken at the same time as the design of the Drains and Sewers so that the impact of tree roots on The Works can be considered. A	

	Sewer or service connection should not be located closer to trees/bushes/shrubs than the canopy width at mature height, except where special protection measures are provided. A tree should not be planted directly over Sewers or where excavation onto the Sewer would require removal of the tree; g) When in a road or highway, the outside of the Sewer should be in the vehicle carriageway (not footway) and be at least 1.0 m from the kerb line. h) A Storm Water sewer or a wastewater Sewer should generally not be installed to cross over a water main. Where crossing over a water main is unavoidable, joints in the Water Main shall not be located directly above surface water or Wastewater Sewer crossings. No other utility service should be laid longitudinally directly above the line of the Wastewater Sewer; i) Any Sewer crossing of a Water Main shall do so at right angles, or as near to as possible, to avoid prolonged envelopes of influence between the services. Crossings should be located midway between the Water Main joints with a minimum vertical clear distance of at least 300mm and up to 500mm in some instances between the Sewer pipe and the Water Main. All such crossings shall be to Irish Water approval and shall not be undertaken until Irish Water or its agents has examined the work at the crossing point and deemed it fit for backfilling; j) There should be a minimum clear horizontal distance of at least 300mm between the Gravity Sewer/Rising Main and other utilities running parallel to it, as well as to cabinets, poles, junction boxes, manholes or chambers; k) Specific separation clearance distances in excess of those outlined above shall be provided for services such as gas, electricity, fibre-optic or oil filled cables as the case may be. The particular utility providers shall be consulted to determine these minimum separation distances and evidence of this consultation, with the specified separation distances, shall be provided to Irish Water at design submission stage. For example, the minimum separation distances for Gas Networks Ireland infrastructure shall be in accordance with IS329 'Gas Distribution Mains' and IS328 'Code of Practice for Gas Transmission Mains' as amended/updated; l) Where it is proposed to lay pipes in third party land, agreement should be obtained from the owner of the land surface as to the acceptable level of predicted settlement, prior to the construction. Construction and permanent Easement, comprising a conditional Burden on the Title, are to be obtained complying with particular widths requirements and such Easement should be to the benefit of and registered with Irish Water as the owner following vesting/adoption. The Easement shall not be built upon after the installation of the Sewer. The construction techniques shall be selected to ensure that the maximum settlement is within the agreed limits; m) Rising Mains shall be laid in straight lines or in gentle curves utilising allowable joint deflection, to manufacturer's requirements, or using long radius bends. Where bends are used, they should be formed with proprietary bends of suitable material allowing for a fully integrated joint, and securely anchored with thrust blocks. The provision of access points for pigging or rodding the Rising Main is desirable, especially along long Rising Mains. If possible, Rising Mains should be evenly graded between the intake point and the discharge point. If this cannot be achieved, the Rising Main should be fitted with sewage air valves and scour valves. Both of these should be suitable for use with raw Wastewater. Containment of the Wastewater volume at the scouring point should be accommodated and arrangements made for its collection by vacuum tanker and transportation to a suitable point for treatment or reintroduction into the Wastewater collection Network; n) The route of Rising Mains should be marked at every field boundary and, where practicable, at every change of direction by marker posts. The Words 'Pumped Sewer' and the depth to the top of the Rising Main should be provided. Non-degradable marker tape should be installed 300mm above the crown of the Rising Main. In the case of non-metal pipe material, the marker tape should incorporate a trace wire which is linked to the marker posts and terminating at the Wastewater pumping station and the discharge manhole;	
4.2	The most appropriate Access Chamber types have been shown where required.	
4.3	All properties served have drain junctions at a location and depth suitable to correctly serve the development and inspection chambers where required.	
4.4	All fill requirements are denoted (i.e. if design based on contours appropriate tolerances have been applied)	

4.5	All sewer grades are within acceptable tolerances.	
4.6	Connections to existing works have been appropriately designed (i.e. flow to flow where called for) and isolation from live works requirements have been considered and designed appropriately.	
4.7	The design considers the proposed construction technique and/or constraints.	
4.8	Irish Water approval has been sought for any design standard variations.	

5	**Influencing Factors**	Y/N
5.1	The design makes appropriate allowance for existing or proposed physical features of influence i.e. retaining walls, trees, other services, buildings etc.	
5.2	In the case of designs in existing established areas the route has been "walked".	
5.3	Where the design requires the approval of other parties (i.e.; affected landowners, other service providers) a strategy to obtain these approvals has been developed.	
5.4	A report is included for projects that relocate/divert assets and includes: • Details of the proponent and justification for of the works (including alternative options) • Plan for the abandoned main • Plan for managing shutdowns for piece-ups	

I certify that this design has been reviewed and complies with Water Irish wastewater infrastructure requirements.

_____

Signature ***Date***

Print Name and Firm

Complete this form and send to: newconnections@water.ie

List of Attachments

Ref	**Description**	**Comment**
1		
2		
3		
4		
5		

Appendix 3: Revised Design Submission Cover Sheet

COVER SHEET FOR ACCEPTANCE OF FINAL ENGINEERING SUBMISSION

Important information for Developer's Design Engineers:

The following specific details are required to be sent to the Irish Water with the Submission of a design.

- Please make sure that all information listed is included so that the Design Submission can be processed without delay.
- Please verify the following information by signing on the bottom of the page.
- Please include the signed original of this form with the Final Submission when forwarding to Irish Water

GENERAL	
Customer number: Service type (water / wastewater)	
INITIAL DESIGN REVIEW	
I confirm that this Revised Design Submission conforms with the Design Submission	☐
OR	☐
If any variations have been made, a description and reason for each variation is submitted.	
Where a variation to a Design Standard has been approved the relevant approval is attached.	☐
DETAILS OF DEVELOPER'S CONSTRUCTION ENGINEER	
Name of Company: Address: Phone: Fax Email Project Manager: Qualified to carry out works	☐
DETAILS OF CONTRACT	
Name of Contractor: Address: Phone: Fax: Email Project Manager: Qualified to carry out works	☐
Layout Plans	
Latest digital layout plans forwarded – Format to be DWG or DXF to ING co-ords Email plans to newconnections@water.ie	☐
EXTERNAL APPROVALS	
A statement is attached listing the authorities from which project approval has been obtained, including environmental clearances and copies of any conditions that have been imposed by those authorities on the construction or operation of the works.	☐
There are no unresolved objections arising from the Prerequisites to Works process for the proposed works.	☐
VERIFICATION OF CONTENT	

Signature (Developer's Design Engineer)_____ **Date** _____