Developers Manual

Engineering guide to delivering reticulation works

Version 2.7

WATER CORPORATION

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Foreword

Welcome to Water Corporation's Developers Manual. Water Corporation is the principal supplier of water, wastewater and drainage services to homes and businesses in Western Australia. Water Corporation works with the land development industry to ensure each new lot is provided with the appropriate water and wastewater services as efficiently as possible.

This manual is designed to guide developers and their appointed professionals through the process of delivering the reticulation assets required to serve subdivisions and existing properties that don't have a water or wastewater service available.

This manual is supported by Water Corporation's website and is continually reviewed and updated. It demonstrates Water Corporation's commitment to providing a high quality service to those involved in the land development industry.

The information is designed to be easily read and understood. There are other technical documents that support this manual and are referenced where relevant.

For further information or feedback on this manual and any questions related to land development, please direct your enquiry to: land.servicing@watercorporation.com.au or phone 9420 2099.

Revision Record

Date	Description	Reviewed By
August 2022	Major changes to section 2.10, section 5.2.1 and appendix 13 Minor changes to document hyperlinks and organisational name changes	Manager Land Servicing
August 2023	Major changes to: • Glossary of Terms - Service Obligation Date (new) • 2.11 - Vacuum Sewer Design proposals (new) • 4.4 – Vacuum Sewer Systems (wording change) • 1.3.2.1 - Metro Works request now Quoted Works request • 2.5 – Insert of example of Concept plan stamp • 2.7 – Design Standard Variation changes (new wording) • Appendix 4 – Process change • Appendix 7, 8, 9, 10 New plans added • Appendix 15 – Structure and Contacts (contact change)	Manager Land Servicing
August 2024	Major Changes to: • 2.2 Single Staged Developments or less than 10 proposed lots • 2.4 Staged Developments – Concept Plans and Works Agreement • 2.5 Concept plan • 2.7.1 Early Clearances • 5.2.1 Notice of Requirements (NoR) • Appendix 2 – reference to the Water Services Regulations 2013 section 83A • Appendix 5 – Guidance Note Wastewater Connection Links and Clearance Milestones Introduction of: • 2.3 Single or multiple stage developments between 10-30 proposed lots	Manager Land Servicing
May 2025	Minor Changes to: • 2.7.1 Early Clearances • 2.7.2 Service Obligation Date (SOD) • 2.7.3 Assessing Performance • Appendix 15 – Service Obligation Date (SOD) Letter Template • Appendix 16 – Development Services Structure and Contacts	Manager Land Servicing

Glossary of Terms

In this manual the following words and expressions have the following meanings.

Agreement	A formal legal document between Water Corporation and the Developer (the principal that contains the terms and conditions for providing assets)
As-constructed drawing	The document on which details of the constructed works are recorded and submitted to Water Corporation
Asset inspector	An officer of Water Corporation responsible for assessing and/or inspecting the works
Asset Protection Risk Assessment (APRA)	A permit describing the control measures under which works within proximity to Corporation assets can proceed
Beneficiary lot	An existing un-serviced lot that is capable of receiving a service from the proposed works
Certificate of compliance	A document requiring the signature of a relevant party that certifies the aspect of works to which it relates
Clearance to Work Permit (CTW)	A permitting procedure to authorise a Contractor to conduct work on, or near, an existing asset, other than where the personnel carrying out the works are being directly supervised by a person who has operational control of the asset
Concept plan	The plan provided by the Design Engineer showing the key controls and parameters of the design, the planning considerations and the interaction with existing and future assets
Contract	The agreement between the Developer and the Contractor for the execution of the works
Contractor	The Organisation bound to execute the works under a contract
Contractors Representative	The person acting for and on behalf of the Contractor appointed by the Principal as Principal Contractor. A qualified, competent person who shall be in attendance on site during the progress of works
Contract price	The total cost (excluding GST) of delivering the works
Customer Funded Works Agreement	An agreement between Water Corporation and the Developer on the delivery of works not relating to a sub-division (i.e. mains extension or diversion)
Design drawings	The drawings prepared by the Design Engineer, showing the proposed works

Design Engineer	The Engineer or engineering firm appointed by a Developer to prepare design drawings and documents for submission to Water Corporation
Design Standard	Water Corporation's document that specifies the design requirements of any category of asset
Developer	The person or Organisation that has entered into an agreement with Water Corporation to provide water or wastewater infrastructure (The Principal)
Easement	A defined area of land Water Corporation has a right to enter for purposes defined by agreement or statute and subject to any conditions/restrictions implied therein. Such purposes can include for example, access, construction, maintenance and repair
Early Clearance	An approval which is required to obtain clearances prior to providing lots with services for land developments
Engineer	A qualified Professional Engineer who has appropriate engineering experience in the design and delivery of Water Corporation infrastructure
Final Takeover Inspection	The inspection by the Asset Inspector, with the Superintendents Representative and Contractors Representative in attendance, to assess acceptance of the works
Headworks Infrastructure	Refers to distribution mains, trunk mains, water booster stations, water tanks, wastewater pump stations etc
Inspection	Any activity undertaken to assess the condition of the works
Isolation Plan	A plan provided by the Design Engineer regarding the proposed method of asset isolation
Land development agreement	The formal legal document between the Developer and Water Corporation with respect to fulfilling the Western Australian Planning Commission (WAPC) conditions for a designated area of subdivision
Land Servicing Advisor	Water Corporation's representative who is responsible for working with Developers and their representatives throughout the land development process
Notice of Requirements (NoR)	The documents provided for each stage of development (under a Works Agreement), itemising actions to be completed in order to satisfy subdivision conditions
Piece Up	Construction activities which achieve the connection of new works to existing Water Corporation infrastructure (also referred to as link-in)

Planning Information Pack	A set of documents and plans that illustrate the long-term servicing arrangements of any given area
Pre-calculated cadastral plan	A Surveyor's pre-calculated cadastral plan of the proposed subdivision
Prerequisites to Works	The procedure which is necessary to address Water Corporation's statutory requirements under the Water Services Act 2012 for general and major works as set out in the External Approvals Manual
Pre-handover inspection	The inspection conducted by the Superintendents Representative and the Contractors Representative prior to final takeover inspection
Region	An area of the state designated as a region of Water Corporation
Reticulation	The pipelines that connect private works to headworks infrastructure, and are constructed to provide a water supply or wastewater service
Shall	A mandatory requirement
Should	A requirement to be adopted unless circumstances justify a variation
Service Obligation Date (SOD)	Means the date on which the works (including the submission of acceptable as-constructed drawings) must be able to provide the services to the required land.
Specification	The document containing the technical clauses to be read in conjunction with the design drawings for the works
Standard drawings	Registered Water Corporation drawings
Start-up meeting	The meeting between Water Corporation's Asset Inspector, the Superintendents Representative, and the Contractors Representative to discuss the timing and method of construction of the works
Submission	The compilation of drawings and documents presented to Water Corporation
Superintendent	The engineering firm appointed by the Developer to administer the Contract between the Principal and the Contractor for the construction of the works and to oversee the progress and standard of construction by the contractor The Superintendent is responsible to the Developer for ensuring that the Contractor completes the works to the accepted design and to the approved specifications

	This includes, but not limited to, gathering, auditing, validating and submitting all documents as required, undertaking and/or auditing inspections to confirm/demonstrate compliance during construction of the works and the provision of as-constructed plan(s) to Water Corporation
Superintendents Representative	The registered professional acting for and on behalf of the Engineering consultancy firm engaged by the principal as superintendent. Represents the Superintendent and the Developer in all communication with Water Corporation
Technical Guidelines	Water Corporation's Technical Guidelines relevant to the works being undertaken
Water Corporation	The statutory body corporate established under Section 4 of the Water Corporation Act 1995
Works Agreement	An agreement that is required for land developments that will create more than 10 lots or multiple stages

1. Introduction

Land development can be complex and frustrating and mistakes that should be avoidable can be costly. If you are subdividing or wish to extend Water Corporation pipes to your property, you will need to engage the services of a qualified Design Engineer.

Each land development is unique and the methods of providing properties with water and wastewater services will vary. To be able to provide a service to your property, reticulation pipes may need to be extended across your property boundary.

This manual details the steps to be taken to deliver reticulation assets. It is structured into four main sections:

Planning – factors to consider before designing any works

Design – what Water Corporation requires to be shown on a design and how to submit it

Construction – the steps taken to start and complete construction

Takeover - the steps taken for Water Corporation to take over the works

1.1. Design standards and technical guidelines

This manual should be read in conjunction with the appropriate Design Standard and/or Technical Guidelines for the type of asset being delivered. The Design Standards and Technical Guidelines related to reticulation works include but are not limited to:

- Design Standard 63 – Water Reticulation
- Design Standard 53 – Vacuum Sewerage
- Design Standard 50 - Design and Construction Requirements for Gravity Sewers
- Water Services Association of Australia Sewerage Code – Wastewater reticulation
- External Approvals Manual – Prerequisites to Works
- Earth Potential Rise Manual – Protection of pipelines from AC interference
- Protection of Assets Technical Guidelines for safely working near Water Corporation assets

All relevant Design Standards, specifications and standard drawings are available on the Water Corporation's website

1.2. Roles and responsibilities

It is important that everybody involved in delivering reticulation assets are aware of their role and responsibilities in the process. Details of requirements for each party are outlined below:

Developer – the Developer is the Principal of the project/contracted works. The Developer is the person or organisation applying for a water and/or wastewater service. They are the party that enters into an agreement to deliver the works and will need to:

- appoint a Design Engineer, a Superintendent and a Contractor to carry out the works in accordance with this manual, design standards and any other technical guidelines
- provide a safe site for the works to take place and be inspected
- pay all associated costs, fees and charges

Design Engineer – the Design Engineer is responsible for the planning and design of the works and gaining all necessary external approvals in accordance with the Design Standards, manuals and Australian Standards. They must be a practising Engineer with relevant experience in the design and delivery of reticulation assets as outlined in this document and be a registered user of our Design Standards.

Superintendent - The Superintendent is responsible for administering the contract between the Developer and the Contractor for the construction of the works and to ensure that the Contractor completes the works to the accepted design in compliance with Design Standards and relevant Australian standards. This includes gathering, auditing, validating and submitting all documents and undertaking audits/inspections to confirm/demonstrate compliance during construction of the works and providing the as-constructed information.

The Superintendent must be a practising Engineering firm with relevant experience in the design and delivery of reticulation assets as outlined in this document and be a registered user of our Design Standards.

Superintendents Representative - The Superintendents Representative is the Superintendents designated representative and responsible for ensuring the completion of the works by the Contractor to the accepted design and approved specifications.

The Superintendents Representative represents the Superintendent and the Developer in all communications with Water Corporation and must be employed by the Superintendent.

Contractor - The Contractor is responsible for managing and arranging construction of the works under the contract administered by the Superintendent in accordance with relevant Design Standards, manuals and codes to ensure the works are acceptable.

Contractors Representative – The Contractors designated representative, who shall be a qualified, competent person and be in attendance on site during the progress of works.

Land Servicing Advisor (Water Corporation) - is responsible for ensuring that design submissions comply with current planning requirements and advising the Design Engineer of any specific design requirements.

Asset Inspector (Water Corporation) - is responsible for assessing the quality of the works being constructed and ensuring compliance with the accepted design and our operational requirements.

1.3. Fees associated with delivering reticulation works

The following fees are payable to Water Corporation and applicable when delivering reticulation works. The fee will depend on the location, type and size of the connection and there are other fees and charges that may apply to a development. Details can be found on our website in the Developing & Building area. The fee amounts remain valid for the life of their related agreement.

1.3.1. Fees associated with delivering reticulation works

The water reticulation planning fee, which is 3.75% of our estimate of the construction costs, is payable for all water supply reticulation submissions that are accepted.

1.3.2. Perth Metropolitan region reticulation connection fees

1.3.2.1. Water reticulation connections

Standard connection fees may be provided as part of any Water Corporation Agreement. Where the works contain non-standard or complex connections, the Land Servicing Advisor may direct the Design Engineer or Superintendent to obtain a Quoted Works Request prior to the start-up meeting.

1.3.2.2. Wastewater reticulation connections

All connection fees shall be quoted and paid prior to the connection. The Design Engineer/Superintendent shall obtain a quote via the online Quoted Works Request form. The isolation and connection requirements shall be discussed with the Asset Inspector at the Start-up meeting. Refer to Appendix 4. (Consideration should be given to discussions being held before the start-up meeting).

1.3.3. Non-Metropolitan reticulation connection fees

All excavation, construction and piece up works are to be undertaken by the Developers Contractor at the Developers cost. To enable the connection of the new development to existing assets, the Asset Inspector shall arrange for Water Corporation to isolate their live infrastructure. Standard isolation fees will be collected via the Land Development Agreement. Where the isolation is deemed to be high risk, Water Corporation reserves the right to complete all, or a portion of, the piece up works at the Developers cost. Arrangements for quoting and payment for those works will be agreed at the Start-up meeting. In the case of works that do not pertain to a subdivision proposal, connection fees must be paid prior to a Start-up meeting occurring

1.3.4. Headwork infrastructure connection fee

When connecting to existing headworks infrastructure there is potential for negative impact on other customers. Options such as tankering and limited shutdown periods must be considered as part of the design to minimise any disruption. The Design Engineer shall discuss these requirements with the Land Servicing Advisor in the early stages of the design to determine any specific requirements. Any reticulation connections to headworks assets will require a quote to be provided by the relevant region

1.3.5. Payment of fees

Where the works are required to satisfy a condition of subdivision, your agreement includes a clearance checklist and an estimate of fees due. Once your completed clearance checklist has been submitted and accepted by a Land Servicing Advisor, an up to date invoice which includes your account number, will be issued for payment. Once payment has been received, we will issue your clearance within 5 working days.

1.4. Land Servicing contacts

All related design enquiries should be submitted to land.servicing@watercorporation.com.au

State-wide Subdivision Works	Manager Land Servicing Development Services Branch Water Corporation John Tonkin Water Centre 629 Newcastle Street Leederville WA 6902 PO Box 100 Leederville WA 6902	Phone: (08) 9420 2099

1.5. Inspections Contacts

Metropolitan Perth region	Inspection Services Perth Region 273 Bannister Road Canning Vale WA 6155 PO Box 1525 Canning Vale Delivery Centre 6970	PRFSinspectionbookings@watercorporation.com.au Phone: (08) 9424 8462
Goldfields and Agricultural region	Regional Asset Inspector Agricultural Region 263 Fitzgerald Street Northam WA 6401 PO Box 265 Northam WA 6401	GARIS.bookings@watercorporation.com.au
Great Southern region	Regional Asset Inspector Great Southern 215-217 Lower Stirling Terrace Albany WA 6331 PO Box 915 Albany WA 6330	GSRIS.bookings@watercorporation.com.au
Mid-West region	Regional Asset Inspector Mid-West Region First Floor 45 Cathedral Avenue Geraldton WA 6530 PO Box 43 Geraldton WA 6531	MWRIS.bookings@watercorporation.com.au
North-West region	Regional Asset Inspector North-West Region 979 Cherratta Road Karratha Industrial Estate WA 6714 PO Box 84 Karratha WA 6714	NWRIS.bookings@watercorporation.com.au

South-West region	Regional Asset Inspector South-West Region 61 Victoria Street Bunbury WA 6230 PO Box 305 Bunbury WA 6231	SWRIS.bookings@watercorporation.com.au

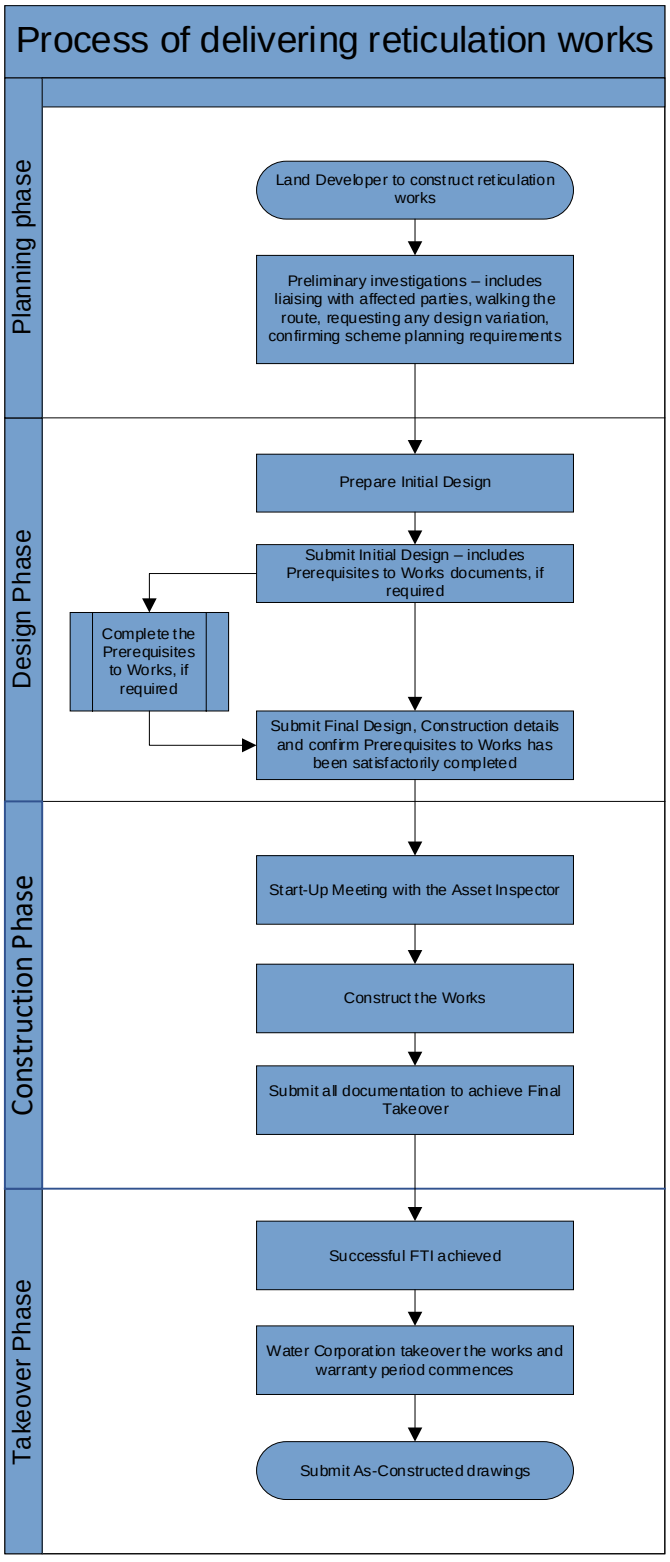
1.6. As-constructed contact

All water and wastewater as-constructed enquiries should be submitted to:
asset.registration@watercorporation.com.au

1.7. Map of Water Corporation regions

1.8. Reticulation Process

The process to deliver reticulation works is broadly separated into four phases. These are shown in the below diagram and their requirements are described in more detail later in this manual.

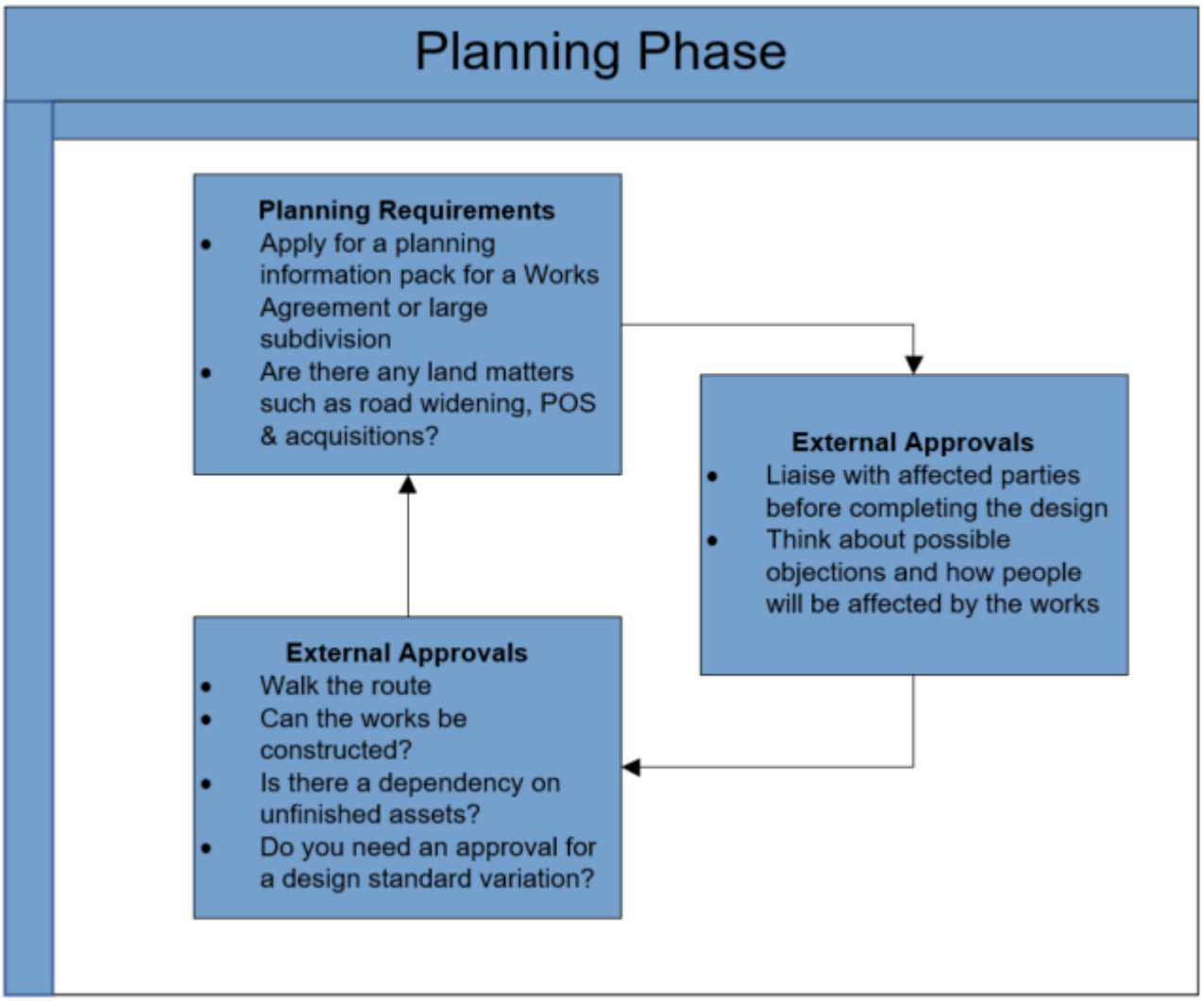


2. Planning Phase

The planning phase is where all of the preliminary investigations take place and its purpose is to ensure the design submission process runs smoothly without delay or difficulty.

During the planning phase, consideration should be given to issues such as, but not limited to:

- what the planning requirements for the scheme are?
- does the design propose an alternative solution to the design standards and manuals?
- are there any land issues such as easements, land acquisitions, public open space constraints, road widening etc?
- are the design options capable of being safely constructed?
- will the proposed works negatively impact any adjoining properties?
- will there be objections to the proposed design?
- are there any reticulation works dependent on unfinished headworks or other infrastructure?



2.1. External Approvals and Prerequisites to Works

Reticulation works may be classed as general or exempt under provisions in the *Water Services Act 2012*. Further information can be found on the WA Legislation webpage.

If your works are classed as general, you will need to undertake the Prerequisites to Works process to gain approval before you can start constructing the works. The planning phase is the best opportunity for you to give affected parties sufficient notice and time to negotiate and resolve any objections.

Water Corporation has provided guidance notes in Appendix 1 and 2 that give more detail about liaising with affected parties and the process steps required to have your design submission accepted.

2.2. Single staged developments or less than 10 proposed lots

If you're extending Water Corporation mains to serve an existing property or your development does not have more than 10 lots or multiple stages, you will be required to enter into a standard Land Development Agreement. For subdivision developments, the Land Development Agreement must be requested no later than the Final Design Submission.

2.3. Single or multiple stage developments between 10-30 proposed lots

If you are creating more than 10 lots and up to 30 lots under a single stage, there is no requirement for you to produce a concept plan.

Typically for developments between 10-30 lots there is minimal benefit in requesting a Works Agreement as per Section 2.4. For guidance, the fewer proposed lot, the more suitable it is to deliver the works under a standard Land Development agreement. However, early clearance will be subject to eligibility and a Performance Agreement.

Note: the requirements to request a Land Development Agreement for single or individual stages must be made no later than the Final Submission

If you are unsure of the planning requirements for your development, contact:
land.servicing@watercorporation.com.au

2.4. Staged developments – Concept Plans and Works Agreement

Determining what infrastructure is required to serve a development is vital to enable construction of the works to begin. Any proposed works shall allow development of the wider surrounding area in accordance with Water Corporation's long term scheme planning.

If you're undertaking a development of more than 30 lots, or multiple stages, you are required to submit a concept plan as well as enter into a Works Agreement, refer to section 2.7 of this manual. Water Corporation will provide the latest planning information to the Design Engineer to enable them to produce a concept plan. This will ensure that the concept of the proposed works meets Water Corporation's long term planning requirements.

To initiate this process and be supplied with the appropriate planning information, please use this link to apply for a Planning Information Pack. It is imperative that Water Corporation understands any constraints of providing assets to stages of your development. Constraints such as approvals from other agencies, other landowners or other assets required to connect your development should be highlighted when you submit the initial concept plans for review.

You should provide information to demonstrate how the works for your development will connect to our existing/future assets but not include the full design detail in the concept plan.

2.5. Concept plan

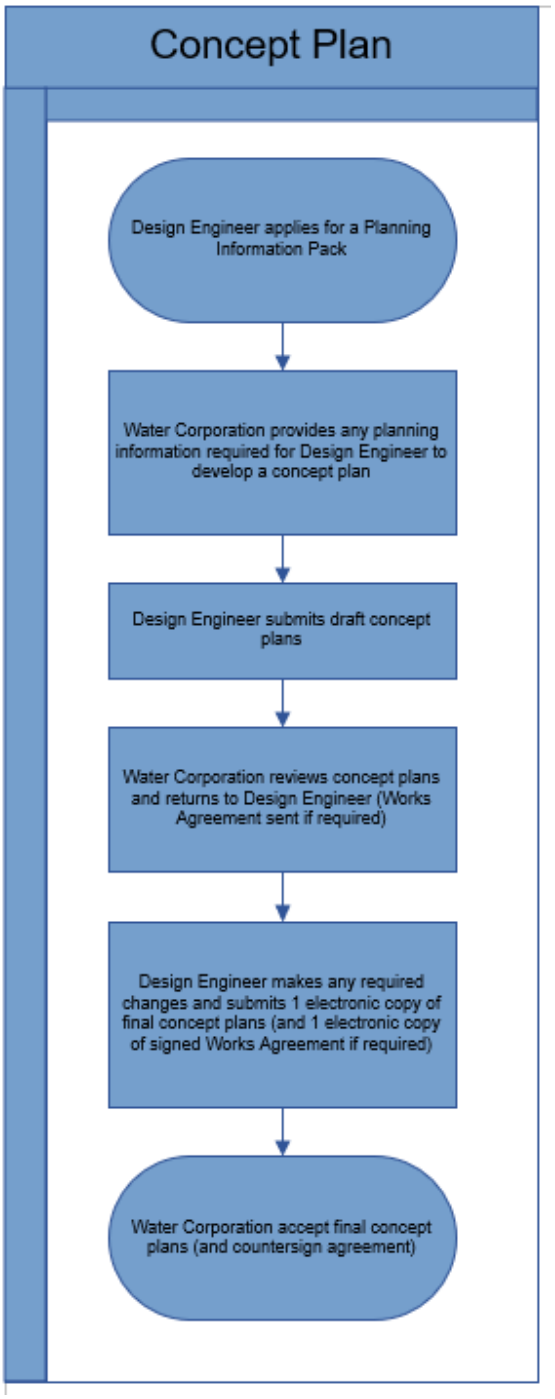
Once the information provided in the Planning Information Pack has been incorporated into your concept plans, you may submit the concept plans for initial review via Water Corporation's website.

Should your concept plans require minor amendments, Water Corporation will provide you with this advice in writing as soon as practicable. Should your concept plans not match Water Corporation's planning or there are a number of discrepancies, you will be requested to revise and resubmit the concept plans. This process will be repeated until the concept plan is acceptable.

The accepted concept plan/s will then become the basis of a Works Agreement between Water Corporation and the Developer.

It's important to note, the Concept Plan and Works Agreement enables efficient delivery for the Developer's reticulation works. However, should a development be dependent on Headworks Infrastructure and/or another Developer's works, it is critical to understand the different milestones for early clearance to best align with their desired clearances. By the stage of executing a Works Agreement, it's expected that the Developer and their representatives are fully aware of any dependent works. Some of which are outside the control of the Developer and/or Water Corporation which will prevent the ability to clear subdivision conditions. Once a concept plan has been accepted, any variation to it shall be discussed with the Land Servicing Advisor. If the variation is acceptable: a revised concept plan/s shall be re- submitted via the website.

To progress your proposed development, the concept plan can be developed to a stage where it is satisfactory. However, it can only be accepted when a subdivision application has reached conditional approval, at which point reticulation design plans for stage 1 can be processed.



2.6. Concept plan – requirements

A concept plan for each service type (water and wastewater) is required and should include the works required to serve your development and also demonstrate that adjoining developments will be able to be served. The following information should be included:

- where easements or reserves are required and are outside the Developers land holding, written in-principal agreement of the arrangements necessary to acquire them shall be provided
- information to demonstrate how the works for your development will connect to our existing/future assets. DO NOT include the full design detail in the concept plan – ONLY sewer pipes within the boundary of the development should be shown in the concept plan

Water Corporation may require an accepted concept plan to be revised periodically. Typical reasons for revising the plan could include:

- the Developer acquiring additional land and extending the existing development area
- ensuring servicing arrangements comply with the latest planning
- changes to densities, land use, lot and road layout etc.

Both the Water and Wastewater concept plans should be stamped with the below stamp

> This plan is accepted as complying with overall scheme planning. Compliance with the Water Corporation design standards or Statutory requirements has not been checked and remains the responsibility of the Consulting Engineer.
>
> ***NOTE:*** *Please leave 3 lines to allow Water Corporation to stamp the acceptance details.*

2.6.1. Water supply concept plan – requirements

The Concept plan should include:

- a locality plan at a reduced scale (e.g. 1:10000) which is relevant to the scheme catchment. The concept plan is to be at a scale of 1:2000
- the boundary of the development area
- major identifying road names and basic cadastre information
- All land use types other than single residential (e.g. industrial/commercial, public open space etc.)
- the routes and locations of all existing and known future headworks infrastructure
- the points of interconnection with both the existing network and the future network of other developments for both reticulation and headworks infrastructure
- spot levels for final development
- the routes of all reticulation mains
- the sizes of all reticulation mains greater than 100mm
- valve requirements for the above mains in accordance with DS63
- individual lots
- Water supply zone boundaries
  - All supply zones shall be identified

- Supply limit/s
  - This is the maximum ground level that can be adequately served in the according supply zone, as per the Corporations planning. It is to be notated in mAHD and can be found in the Planning Information Pack.

2.6.2. Wastewater concept plan – requirements

The Concept plan should include:

- a locality plan at a reduced scale (e.g. 1:10000) which is relevant to the scheme catchment. The concept plan is to be at a scale of 1:2000
- the boundary of the development area
- major identifying road names and basic cadastre information
- all land use types other than single residential (e.g. industrial/commercial, public open space etc.) and their indicative design flows
- the catchment control levels (e.g. cut and fill etc.)
- all control lines shall be identified by legend and show their invert levels, depths and grades
- all other control points or features which may influence the design.
- spot levels for final development
- sewer design flows to be shown where there is a change in pipe size or use of minimum grades
- the points of interconnection with both the existing network and the future network of other developments for both reticulation and headworks infrastructure. ONLY sewer pipes within the boundary of the development should be shown in the concept plan
- identification of any running traps and/or boundary traps due to pumped flows
- identification of any sewers deeper than 5m*

* Sewers deeper than 5m shall be reviewed for suitability. The Land Servicing Advisor will assess any such sewers and provide advice as to the best servicing arrangement.

2.7. Works Agreement

A Works Agreement is a ‘one-off, upfront’ agreement designed to remain in place for the duration of the development. Land Developments that create more than 10 lots or have multiple stages are required to enter into a Work Agreement prior to construction. The Works Agreement will be created and returned to the Design Engineer. For developments over 30 lots, the agreement will be returned alongside the initial concept plans.

In general, there is no need to supply a financial security while the Developer delivers satisfactory assets however, the assessment of performance will be made under conditions set out in section 2.7.3 of this Manual.

NOTE: *The Works Agreement cannot be executed until a subdivision application within the Works Agreement boundary has received conditional approval from the Western Australia Planning Commission.*

2.7.1. Early clearances

Early clearance of subdivision conditions prior to having provided the lots with the required water or wastewater infrastructure are available to developments under a Works Agreement and subject to Section 2.7.3 of this Manual. Early clearance applications can only be submitted once certain clearance requirements have been met or reached a stage acceptable to Water Corporation. The intent of Early Clearance is to complete the works in parallel with the administrative processes of subdivision clearance, title creation and settlement.

Refer to Appendix 5 of this Manual for the early clearance milestones.

Applications for early clearance are made on a stage-by-stage basis and will have a Service Obligation Date (SOD) of 22 weeks from the clearance date to provide the water and wastewater reticulation works.

A construction programme is required with an Early Clearance request to demonstrate works are scheduled for completion well within the 22-week SOD which allows time for as-constructed submissions and connection of the new mains to the network.

For developments that require Wastewater Headworks Infrastructure, early clearances will be subject to a wastewater tankering eligibility, strategy, and agreement. Refer to the Tankering Fact Sheet.

It's important to note that early clearances are not available in the following scenarios:

- Any lots that require Water Headworks Infrastructure.
- Any residential lot within the 100m wastewater tankering buffer, refer to the Tankering Fact Sheet

***NOTE**: Land Developments that create less than 10 lots are typically not eligible for early clearances. Any requests for early clearance of these developments must be made in writing to the Manager Land Servicing. Approval of early clearance on these types of development will require the need to provide a financial security.*

2.7.2. Service Obligation Date (SOD)

If the Corporation agrees to early clearance of the subdivision conditions, a Service Obligation Date (SOD) will be imposed. This is intended to be a maximum of 22 weeks from the clearance date unless stated or agreed otherwise.

The Developer must inform the Corporation, in writing and no later than four weeks prior to the SOD, if the works are unlikely to be completed and apply for an extension. The Corporation will consider the application and notify of the decision as soon as practicable.

When the Corporation grants early clearance, the Developer must ensure that all purchasers are notified that water and/or wastewater services will not be available until the SOD. The Developer must also notify purchasers of any agreed changed to the SOD.

It is imperative that purchasers, and their builders, always remain informed of the most current Service Availability Date as service applications cannot be made to Building Services until such time.

It is a Developer requirement of Early Clearance that they inform purchasers using the Service Obligation Date letter template (Appendix 15 of this Manual) and communicate completion dates regularly and accurately.

2.7.3. Assessing Performance

Under a Works Agreement, the assessment of performance will be made against the Developer and Representatives and will include but not be limited to:

a. SOD date achieved
b. Extension to the SOD date received in writing, including justification and within allocated timeframe
c. Works delivered to Corporation standards with no defects identified
d. As constructed drawings provided within allocated timeframes
e. All other conditions within the Works Agreement achieved

If it becomes evident that there is a history of poor performance, the Developer and Representatives may need to provide evidence to demonstrate why they should be eligible for future early clearances.

2.8. Design standard variation requests

Water Corporation design standards are developed to ensure fit for purpose assets, that achieve their economic design life with minimal operating and maintenance costs, are delivered.

Occasionally a design may not meet the requirements of the design standard or Water Corporation planning and you may propose an alternative solution. Where this occurs, the Design Engineer shall request acceptance of the proposed alternative solution *prior* to submitting the initial design submission. You can submit your variation request via Water Corporation's website. If a design standard variation arises during construction, the first point of contact is to be with the Asset Inspector.

When proposing a variation, the Design Engineer shall include the following:

- details of the reasons/circumstances for the variation
- an assessment of the impacts and benefits for Water Corporation and the Developer
- details of options considered to negate the variation

A variation will **not** generally be accepted for the following reasons:

- inadequate site investigation that results in obstacles or constraints of a non-latent nature
- seasonal impacts that will resolve themselves over time
- where the Design Engineer's assessment will cause significant impact to Water Corporation fundamental planning, design or operational objectives
- where the request relates purely to the financial benefit of the Developer
- where the request is lacking sufficient information to be able to assess
- delays or issues with the procurement of materials, machinery or equipment
- where the Contractor has built something different to that of the accepted designs
- where variations have been proposed by the Contractor with no input from the Design Engineer/Superintendent
- where they have not demonstrated the appropriate safety controls and there is a practicable way of managing a safety risk.

NOTE: It is important to provide any details of having your design standard variation accepted with your initial design submission documents.

2.9. Wastewater Private Pumping Stations

Private pumping stations and pressure mains may be considered as a means of providing a wastewater service in certain circumstances. These are arrangements where the landowner is responsible for the pump station and pressure main to the point of discharge. The guidance note in Appendix 6 outlines the eligibility criteria, applicable standards and requirements for submission.

2.10. Drainage Connections to a Water Corporation Drain

Before a Drainage Connection can be considered, the proposal must be assessed to ensure it meets planning and operational requirements. The guidance note in Appendix 13 outlines the eligibility criteria, applicable standards and requirements for the proposed Drainage Connection to a Water Corporation Drain.

2.11. Sewer in Basement/Building Design Proposals

Before a sewer in a basement/building design can be submitted to Development Services, a proposal must be assessed through the Protection of Assets (POA) process to ensure compliance with our Design Standards and Technical Guidelines. The guidance note in Appendix 14 outlines eligibility criteria, applicable standards, and requirements for design submission.

2.12. Vacuum Sewer Design Proposals

Before a vacuum sewer design can be submitted to Development Services, a proposal must be assessed to make sure it meets planning and operational needs. You can lodge your proposal online through the Servicing Advice form

3. Design Phase

3.1. Design responsibilities

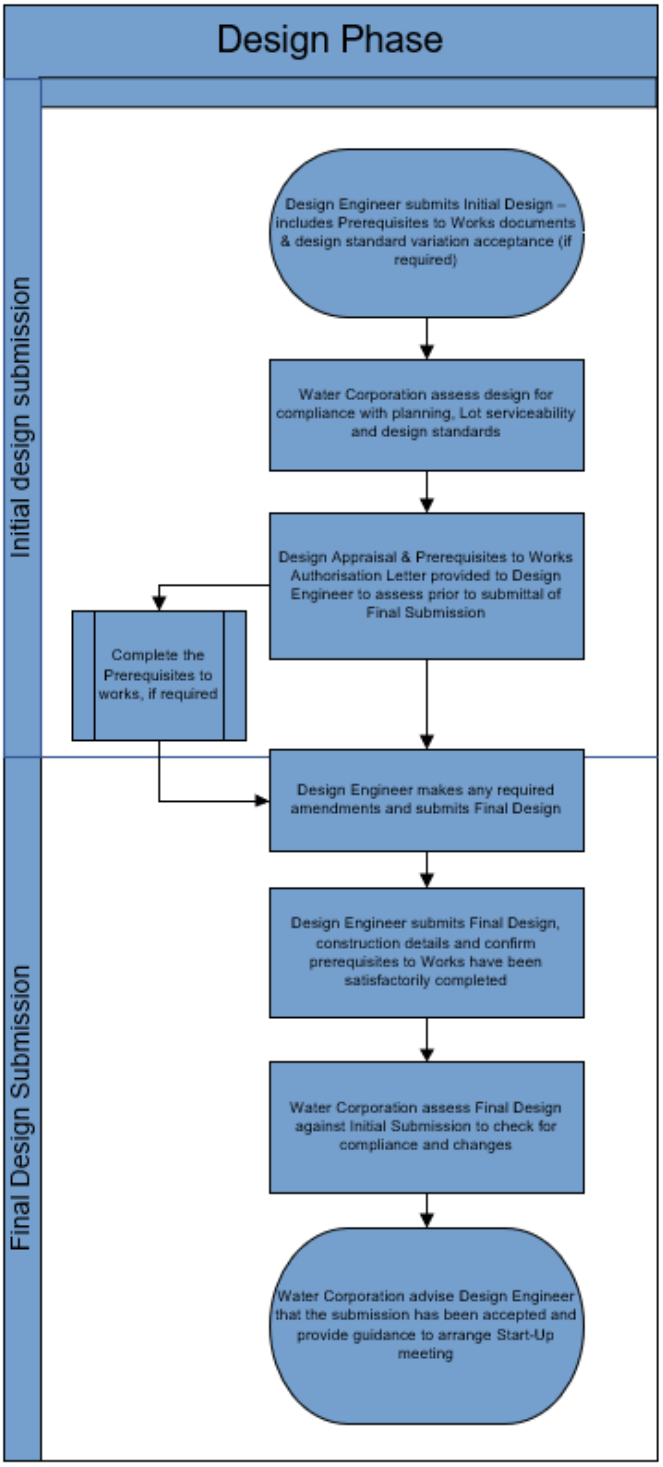
The Design Engineer is responsible for ensuring the design submission complies with Water Corporation Design Standards and manuals. Water Corporation's acceptance of a submission shall not relieve the Design Engineer of this responsibility or for any discrepancies, errors or omissions in the submission or for the adequacy of the design.

3.2. Drafting standards

The drafting for all submissions shall be in accordance with Australian Standard 1100, Part 101. Drawings shall be suitable for uploading. A digital copy of the pre-calculated cadastral plan will expedite the incorporation of information into our spatial database. The digital file shall be in MGA94 coordinates and be a DXF or DWG file.

3.3. Standard drawings

To ensure that your designs meet Water Corporation requirements, please refer to the example standard drawings available in Design Standards on our website. Should the designs not meet Water Corporation requirements or are not acceptable, the Corporation will notify the Developer and Design Engineer as soon as practicable and return all drawings without comment or input.



4. Initial design submission

The purpose of the initial design submission is to:

- verify the design complies with the scheme planning or concept plan*, if applicable
- provide specific advice in relation to the submission, as required
- provide administrative details that are required to be shown on the final design submission
- encourage the Design Engineer to consider potential Isolation options as part of the design (wastewater only)

- encourage the Design Engineer to consider and investigate as required any obstructions and/or constraints that may affect the safe construction of the works and connection to existing Water Corporation assets

Note: *An initial submission can only be submitted after the concept plan is capable of being accepted (staged developments only).

4.1. Pre-Design Site Inspection

If required and subject to meeting the criteria below, a pre-design site inspection can be arranged by submitting an application via Water Corporation's website.

Site Inspection Criteria:

- Safety in design assessment, i.e. proximity to existing Water Corporation assets
- Possible construction issues (including APRA & CTW)
- Required access to existing assets
- Asset condition assessment
- Design standard variation

Note: Water Corporation inspections do not in any way discharge or diminish the Superintendent or the Contractor of the responsibility for ensuring that construction of the works can be done safely and is in accordance with the design and that it complies with the requirements of the manuals, design standards and safe working practices.

Any advice/direction received in writing from the Asset Inspector shall be provided when submitting the Initial Submission via Water Corporation's website.

4.2. Submission requirements

The initial design shall be submitted by the Design Engineer via Water Corporation's website and shall contain:

- a digital copy (PDF) of the design drawings
- the prerequisites to works documentation (refer Appendix 1), if the works are classed as general
- where easements or reserves are required and are outside the Developers land holding: written in-principle agreement of the arrangements necessary to acquire the easements or reserves from the registered landowner is required
- a list of any beneficiary lots. The list shall show the relevant property addresses and a description of the structure details of those properties (e.g. dwelling, warehouse, vacant land). All beneficiary lots shall be clearly identified on the design plans
- all easements or reserves and land to be owned by Water Corporation as a result of the works shall be shown on the design plans
- for submissions in a Works Agreement, Site/Design Data plan is not required for wastewater; however pipe lengths and number of access chambers/maintenance shafts to be shown on reticulation design drawing
- where multiple stages are proposed, the submission needs to reflect only the works intended for Final Takeover Inspection clearance and any additional stages will require a separate submission

4.3. Initial design submission review

The submission will be checked for conformity with Water Corporation planning requirements or concept plan, if applicable.

A Reticulation Design Appraisal form will be returned to the Design Engineer, which provides details of any design issues that need to be corrected and the administrative details such as plan numbers, access chamber numbers, file numbers etc.

If the works are classed as general, Water Corporation will authorise you to start the formal Prerequisites to Works notifications.

If the initial submission is not acceptable, Water Corporation will reject the submission and request that the design be reconsidered.

4.4. Vacuum sewerage systems

Initial submissions for a vacuum sewer design will only be assessed where approval for the proposed works has been provided. Refer to section 2.12 of this manual.

4.5. Initial design submission review objections

Any objections to Water Corporation's planning or design requirements shall be made in writing to the Land Servicing Advisor. The objection shall state the reasons and efforts made to resolve any issues. Any unresolved objections between the Design Engineer and the Land Servicing Advisor shall be referred to the Manager, Land Servicing.

5. Final design submission

The purpose of the final design submission is:

- to ensure design changes and comments from the initial appraisal have been included
- to confirm that the Prerequisite to Works process has been completed, if required
- initiate construction (i.e. request a start-up meeting)

5.1. Final design submission requirements

The final design should be submitted by the Design Engineer via Water Corporation's website and shall contain:

- an agreement in writing that formalises the arrangements for Water Corporation to acquire any easements or reserves required as a result of the works, if required
- confirmation that the Prerequisites to Works process has been completed and there are no outstanding objections
- a digital copy (PDF) of the design drawings
- pre-calculated Cadastral Plan (DXF or DWG format), containing the retic design boundary placed on a separate layer to other features within the file, if required

If the design submission is an extension, a diversion or a non-staged development, it should be stamped with the below stamp:

> This plan is accepted as complying with overall scheme planning. Compliance with the relevant design standards and manuals remains the responsibility of the Design Engineer.
>
> No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector. Refer to the Developers Manual for contact details.
>
> ***NOTE:*** *Please leave 3 lines to allow Water Corporation to stamp the acceptance details.*

If the design submission is for staged works, it should be stamped with the below stamp:

> This plan is accepted as being in accordance with the endorsed Concept Plan: e.g. CU01-
>
> 100-001-01A
>
> Compliance with the relevant design standards and manuals remains the responsibility of the Design Engineer.
>
> No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector. Refer to the Developers Manual for contact details.
>
> ***NOTE:*** *Please leave 3 lines to allow Water Corporation to stamp the acceptance details.*

In addition to the above stamps, if the design submission relates to a development in a non- metropolitan region, the design will also need to be stamped with the below stamp.

> Low risk Isolation - Excavation, construction and piece up works by the Developers Contractor. Isolation by Water Corporation at the Developers cost.
>
> High risk isolation - Water Corporation reserves the right to complete all, or a portion of, the piece up works at the Developers cost. Arrangements for quoting and payment for those works to be agreed at the Start-Up Meeting

5.1.1. Pre-calculated cadastral plan

A pre-calculated cadastral plan shall be included in the final design submission where the proposed works serve five or more lots. A digital copy of the pre-calculated cadastral plan will expedite the incorporation of information into Water Corporation's spatial database. The digital file shall be in MGA94 coordinates and be a DXF or DWG file.

The plan shall be clear and legible and only include information that is relevant, such as:

- road casements
- parcel edges
- lot numbers
- street names
- easements (Water Corporation only)

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, Telstra etc.

5.2. Acceptance of final design submissions

If acceptable, Water Corporation will stamp the final design to indicate that the submission is acceptable and return to the Design Engineer.

If not acceptable, Water Corporation will reject the submission and request that the design be reconsidered

The final submission is valid for 12 months from the date of acceptance. If construction has not begun within this period, the submission will no longer be valid and a new submission may be required. Prior to submitting a revised plan, you should contact the Land Servicing Advisor to discuss if it is necessary.

NOTE: *Acceptance of the design does not relieve the Design Engineer of any responsibilities for any discrepancies, errors, omissions or for the adequacy and conformance of the design with the relevant design standards and manuals.*

5.2.1. Notice of Requirements (NoR)

For Developments under a Works Agreement, a Notice of Requirements (NoR) will be provided for each stage, based on the Stage Plan provided within 35 days of the accepted final design submission. The NoR itemises actions to be completed specific to the subdivision stage and consists of,

- Plans of lots to be serviced [Schedule 1];
- Fee Estimate [Schedule 2]; and
- Clearance Checklist
- It is mandatory to provide the Stage Plan (Schedule 1) with the final design submission. The Stage plan must show which lots under which WAPC application will be requested for clearance.

  Any change to the number of lots or WAPC application must be requested prior to an online Clearance request. Clearance requests which do not align with the NoR will result in delays at the clearance phase.

5.2.2. Amended final designs

Generally, designs need to be resubmitted if there are changes to assets such as the inclusion of additional access chambers or extra pipes. Modifications such as small changes to gradients or relocating the service point will not typically require a revised submission.

As a guide, below is a list of when a revised submission is required:

- change of staging that results in more or less lots
- major cadastral changes, e.g. road changes and/or lot layout changes
- additional access chambers or maintenance shafts
- additional IO or IS lines or extension of sewers
- change in location of IO or IS lines (one side of lot to the other – brownfields ONLY)
- change in location of pipe to opposite side of road
- any significant changes to the valving arrangement
- any change in connection details to existing assets

5.2.3. Variations to design before construction commences

Once a design has been accepted and before construction has commenced, a request to vary the design shall be submitted by the Design Engineer via Water Corporation's website (this step *should not* include a final plan). A Land Servicing Advisor will assess the request and advise if an amended final submission is required. Only then should plans be submitted to the Corporation.

5.2.4. Variations to design during construction

If construction has started, any requests for minor realignments of pipes, alterations to connections and relocation of access chambers and valves shall be discussed with the Asset Inspector. The Asset Inspector will provide guidance on these matters or may refer complex matters to the Land Servicing Advisor. If the Asset Inspector accepts the proposed variations, the Superintendents Representative shall ensure that they have the acceptance in writing from the Asset Inspector.

Once received, a request to vary the design can be submitted via the Corporation's website (this step *should not* include a final plan). A Land Servicing Advisor will assess the request and advise if an amended final submission is required. Only then should plans be submitted to the Corporation.

6. Construction

6.1. Site safety

Asset Inspectors will comply with the Contractor's site safety procedures while on site.

Asset Inspectors will not enter sites that they consider unsafe by WorkSafe WA Standards.

Where safety issues relating to the inspection cannot be resolved between the Superintendents Representative and the Asset Inspector, they shall be referred to WorkSafe WA for advice/resolution.

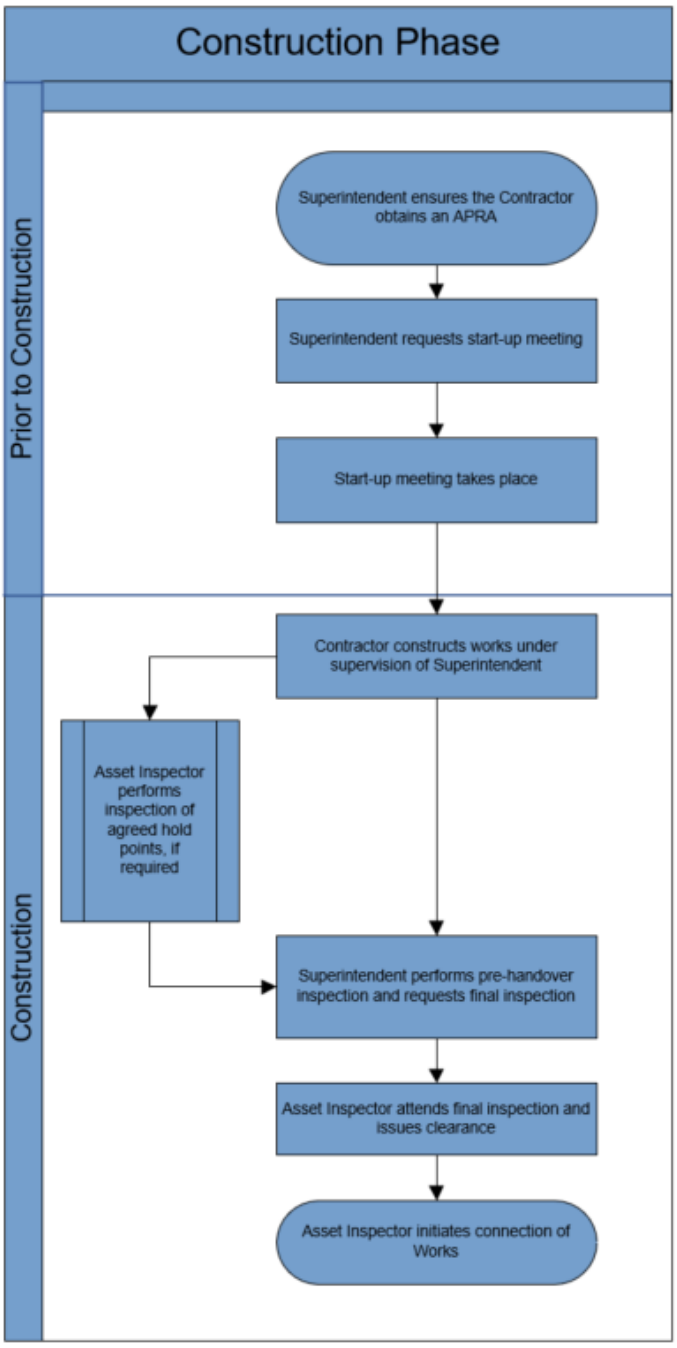
6.2. Asset Protection

When working near Water Corporation's assets, damage can be prevented by careful planning and properly conducting site works. All parties planning and/or conducting works near Water Corporation's assets will be familiar with the Technical Guidelines for working near our assets.

If your works will impact a Corporation asset, you will be required to submit an Asset Protection Risk Assessment (APRA) via the website. The APRA needs to be assessed, and requirements provided by a Water Corporation authorised person, before commencing works.

6.3. Notice of proposed works

Where property, other than that owned by the Developer, will be affected by the proposed works, the Superintendent or Contractor is to ensure written notice has been given to the occupiers of such property at least 10 days prior to the start of works.



6.4. Construction requirements

Construction can only start when:

- a design has been accepted by the Corporation and construction details provided
- a Clearance to Works or APRA permit has been obtained, where required
- the Contractor employs personnel that are capable and accredited to perform the works. Refer to the relevant design standard or manual for details of the appropriate accreditation required
- the requirements of the start-up meeting have been met and the Asset Inspector has authorised construction to start

During Construction:

- if a change of Contractor becomes necessary, the Superintendent notifies the Asset Inspector of the new Contractor's details and the Contractors Representatives details

- if a change of Superintendent becomes necessary, the Developer notifies the Asset Inspector of the new Superintendents details
- any discrepancies between the design and construction of the works shall be managed jointly by the Design Engineer, Superintendents Representative and the Contractors Representative
- the Asset Inspector will direct any issues related to the Contractor's work to the Superintendents Representative and NOT to the Contractor
- work shall be carried out in accordance with the requirements of the relevant design standard or manual, relevant acts and by-laws and this manual
- the Superintendent shall ensure that the Contractor is aware of, and agrees to comply with, the requirements of any authority in regard to the protection, diversion or relaying of any service affected by the works
- the Superintendent shall ensure that the Contractor is aware of any agreement with any authority such as the Department of Aboriginal Affairs or Department for Planning into which the Design Engineer, the Developer or Water Corporation may have entered for the works
- the Superintendent shall ensure that the Contractor verifies by survey the location and level of the point of connection of the works to the existing system prior to commencing any new works
- the Superintendent shall ensure that restoration has been performed to the satisfaction of any affected property owner and authorities, where relevant

6.5. Construction of assets without approval

Where construction has commenced and due process has not been followed:

- Water Corporation will instruct that works cease immediately. Should a cease work instruction not be complied with Water Corporation may decline to accept any further involvement in the works
- a third party certified assessment of the works already constructed will need to be provided, at the Developers cost, for Water Corporation's review
- Water Corporation reserves the rights to refuse and accept the choice of the third party assessor
- where the third party assessment identifies non-compliance with the relevant standard or manuals, faults will need to be remedied where possible, or the works removed
- only after the above four points have been resolved and the requirements of any manual have been met, will works be able to recommence
- Water Corporation will not offer the availability of early clearance of subdivision conditions associated with these works
- Water Corporation may decline to accept the involvement of the Design Engineer, Superintendent and/or the Contractor in future Water Corporation funded projects
- the warranty (defects liability) period for the works will be increased to two years

6.6. Start-up meeting

Prior to the start of the works, the Superintendent's Representative shall arrange and participate in a start-up meeting with the Asset Inspector and the Contractors Representative

Once the Water Corporation has provided acceptance of a final design drawings, the Superintendent's Representative may request a Start- Up Meeting. The request shall be made to the according regional office as per section 1.5 of the Manual.

NOTE: At the time of requesting a start-up meeting Contractor details will need to be provided

- Water Corporation will allocate an Asset Inspector within five business days of the start-up meeting being requested
- the assigned Asset Inspector will liaise with the Superintendents Representative to determine where the start-meeting will be held (Preference is for site based meetings but other locations may be considered).
- the Superintendent's Representative is responsible for ensuring that minutes of the meeting are taken and that either the Contractors Representative attends (preferred) and/or that the Contractors Representative is provided with the minutes of the meeting prior to works commencing. This record shall detail any key information and agreements reached, with a copy
- provided to the Asset Inspector prior to works commencing.
- the Superintendent shall provide one A1 and one A3 hard copy of the accepted design at the start-up meeting
- the matters as shown on the start-up meeting checklist (refer to Appendix 3) shall be addressed at the start-up meeting
- a copy of the meeting record shall be forwarded to the Asset Inspector within five days of the Start-Up Meeting occurring
- before construction begins the Superintendent shall ensure:
  - No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector and satisfactory start-up advice has been issued
  - the Contractor has obtained an APRA (refer section 6.2) and if required, a Clearance to Works

6.7. Pre-start advice for additional stages (staged developments only)

Pre-start advice (for stage 2 and onwards) may be conducted by verbal telephone conversation or email. The Asset Inspector, however, reserves the right to attend a formal Start-Up Meeting, as per stage 1, where the works or connections are of a complex nature or, if there has been a change in the Contractor/Subcontractor which requires certain details to be clarified. All relevant documentation, as per stage 1, is required to be obtained where necessary, prior to construction beginning on stage 2 or any subsequent stages thereafter. No works are to commence until satisfactory start-up advice has been issued.

The Superintendent shall ensure a record of the meeting is made. This record shall detail any key information and agreements reached.

6.8. Isolation of new works (wastewater only)

Water Corporation's preferred method is physical break which should be used wherever practical.

Where a physical break is not practical, the Superintendent shall coordinate the development of a suitable isolation plan as outlined in Appendix 4 - Guidance Note - isolation of works.

The purpose of isolating non-commissioned sewers from live sewers is to provide a safe working environment for construction, testing and inspection of the new works. Where the non-commissioned sewer system is not isolated from the live sewer, entry to and work within the new sewer system is subject to the provisions of Australian Standard AS.2865, 'Safe working in a confined space'.

The Superintendent shall ensure the Contractor:

- has obtained an APRA and a CTW permit, prior to the commencement of construction
- has a copy of the approved isolation plan
- has arranged for all required isolations to be installed and maintained until the final inspection clearance has been issued and the connection has occurred
- has made arrangements for the plug to be tested to 50 kPa for one minute with no drop in pressure. The test shall be conducted on the 'upstream' side of the plug prior to any entry by Water Corporation. The test shall be logged in the log of inspections and tests
- develops and administers a test plan over the period of isolation, to ensure the integrity of the isolation

The relevant region will install any plastic membrane and brickwork as part of the isolation of sewers 300mm and above, however in instances where the work is to be completed by the Contractor, the Superintendent is to liaise with the relevant region prior to any work commencing relating to the isolation, to ensure the proposed methods and materials are acceptable to Water Corporation

The new works are to be confirmed as isolated from the live sewer prior to the start of construction, ensuring that the isolation is maintained until connection has occurred.

Water Corporation will notify the applicant of the status of the isolation request in writing when the line has been isolated (seal installed and ready for testing) and again when the isolation has been removed

6.9. Inspection of works during construction

Water Corporation will require notification to inspect all hold points (ITP's) agreed at the Start-Up Meeting. Please allow a minimum of 48 hour's notice for the Asset Inspector to attend site and conduct the inspection.

Water Corporation reserves the right to request an inspection at any time for the purposes of auditing compliance. To enable any inspections to take place the following items need to be addressed:

- Water Corporation shall have access to the site at any time to inspect the works (after completing the relevant site safety inductions), provided the Superintendent's Representative or Contractors Representative is on site
- Provision of all necessary personal, safety and testing equipment (excluding mandatory PPE)
- Water Corporation inspections do not in any way discharge or diminish the Superintendent or the Contractor of the responsibility for ensuring that construction of the works is in accordance with the design and that it complies with the requirements of the design standards, manuals and any statutory approvals (e.g. environmental approvals)
- Non-conformance by the Superintendent and/or contractor will be recorded. The Superintendent may be directed to take remedial action in the case where it appears that continual non- conformance has occurred or the severity is of concern

- The Superintendents Representative and the Contractors Representative shall ensure suitably qualified personnel perform all inspections and tests using appropriate equipment

6.10. Inspection logs and test certificates

The Contractors Representative shall arrange and undertake inspection and testing of the works to ensure compliance with the requirements of the design standards and manuals. The Contractors Representative shall maintain a log of all inspections and tests undertaken, which shall be presented to Water Corporation, if requested. All inspection logs and test certificates shall be available in hard copy on site at all times. The log shall record, at a minimum, the following information:

- All inspections and/or tests witnessed by the Contractors Representative and verified by the Superintendents Representative of the works, which were considered satisfactory. The Contractors Representative shall sign the following statement on the logs: “I am satisfied that the above inspection and tests have been successfully completed”
- A copy of the Superintendents Inspection Test Plan (ITP)
- Inspections and/or tests of the works, which were considered unsatisfactory
- Any remedial action undertaken to the works as a result of an unsatisfactory inspection prior to re-inspection
- Any additional quality assurance (QA) documentation

The Superintendent shall audit the Contractors work on a regular basis and in particular at the milestone stages as set out in the construction schedules and/or as agreed to with the Asset Inspector. Auditing may be a combination of regular site inspections and assessment of construction verification or quality assurance documentation.

Inspections by the Corporation shall not in any way diminish the responsibility of the Superintendent to adequately audit the works.

The Superintendents Representative and the Contractors Representative shall be available for the purpose of joint interim inspections as set out in the construction schedules and/or as agreed to with the Asset Inspector.

6.11. Pre-handover inspection

Once the construction of the works is complete, the Superintendents Representative and the Contractors Representative shall perform a pre-handover inspection of the works to make sure that they are capable of being accepted.

The items that need to be addressed are as detailed in the Pre-handover checklists (refer to Appendix 11 and 12).

The Contractor shall confirm in writing that all relevant works have been constructed in accordance with the accepted design and specifications. The Superintendent shall supply copies of all certifications to the Corporation.

The checklists shall include but are not limited to the date, time, item tested, type of test, result of test and the name of the witness.

- Contractor’s Statement
  - The Contractor’s statement in the Pre-handover checklist is to be signed by the Contractor’s Representative.
- Superintendents Statement

- The Superintendents statement in the Pre-handover checklist is to be signed by the Superintendents Representative.

Note: Pre-handover checklists that have not been completed correctly or have not been signed by the Contractor's Representative and/or the Superintendents Representative will not be accepted.

This advice shall not be considered as relieving any party of their responsibilities, liabilities, or contractual obligations.

Once satisfied, the Superintendents Representative should apply to arrange a final takeover inspection with the Asset Inspector. This can be done by submitting the pre-handover inspection documentation on Water Corporation's website. Please allow five business days to schedule the meeting.

The Corporation will endeavour to prioritise the Final Takeover Inspection if the Water Corporation clearance of subdivision has not been issued.

NOTE: *You are required to provide the contract price of the works when submitting the pre-handover checklist. The total contract price should include any variations that occurred during construction. The requirement for a final takeover inspection is at the discretion of Water Corporation.*

6.12. Final takeover inspection

For the final takeover inspection, where the Asset Inspector requires an inspection, the Superintendent shall arrange for the provision of all necessary personal, safety and testing equipment for any scheduled inspection and testing.

Where the Asset Inspector requires an inspection, the Asset Inspector will inspect the works. The inspection will require the attendance of the Superintendents Representative and the Contractors Representative including the nominated supervisor or accredited pipe layer. Where the number of non-conformances indicate that the pre-handover inspection has been inadequate: the Asset Inspector will advise the Superintendent to arrange for further inspections of the works to be carried out before booking another final takeover inspection and submitting the revised pre-handover inspection documentation

NOTE: *A copy of all test and log certificates shall be complete and available on site.*

Where the works are deemed to be acceptable the Asset Inspector shall arrange for a final takeover clearance to be issued to the Superintendent.

6.13. Connecting to existing assets

Arrangements shall be made with Water Corporation prior to any connections or alterations to existing infrastructure. All such work shall be at the Developers expense.

For the Perth Metropolitan region, when the works are accepted, the Asset Inspector shall initiate the connection of the works following a satisfactory Final Takeover Inspection.

Water Corporation will notify the Superintendents Representative of the work order number for the connection/s. If an update is required of the status of the connection/s call 13 13 75 and quote the work order number provided - Please allow 20 business days for the connection/s to take place.

For all Non-Metropolitan regions, when the works are accepted, the Asset Inspector shall initiate the connection of the works following a satisfactory Final Takeover Inspection.

7. Takeover Phase

7.1. As-constructed drawings

The as-constructed drawings shall be certified "as-constructed", signed and dated by the Design Engineer, the Superintendent and the Surveyor (who is eligible for membership of I.E.M.S.A. or I.S.A.) responsible for the survey. The as-constructed drawings shall be in accordance with the relevant design standard, technical guidelines, or this manual.

All as-constructed plans shall clearly display the plan set number (e.g. DL17) and the appropriate bundle number to indicate it is an as constructed plan.

The completed and signed as-constructed plan shall be submitted via Water Corporation's website within eight weeks of a successful final takeover inspection.

Further to the above items, the following requirements apply for each asset type.

7.1.1. Water as-constructed information requirements

- The as-constructed plan shall be in accordance with the typical information provided in Water Corporation's Design Standard 63 and this manual. It should show the number of valves, hydrants and lots served separately and be bundle number 107

7.1.2. Wastewater as-constructed information requirements

- The as-constructed plan shall be in accordance with the typical information provided in Section 6 of Water Corporation's Design Standard 50 and this manual. It should show the number of maintenance shafts, access chambers and lots served separately and be bundle number 207
- A contour plan if earthworks have been carried out that has changed a contour by 0.5 metre or more

7.2. Takeover of works

Subject to connection to the existing system being available, the date Water Corporation take over the works will be the date of the final takeover inspection which is outlined in the final takeover letter.

NOTE: *The Developer and their appointed representatives are responsible for rectifying any discrepancies between the accepted final design and what is built. Upon reviewing the as-constructed drawings, if it is found that the assets do not comply with design standards and/or planning, and/or have varied from the accepted final design, Water Corporation reserves the right to request that the Developer rectify the assets.*

7.3. Warranty period

A warranty period of 12 months will commence on the date that Water Corporation takes over the works. During the warranty period, Water Corporation will be responsible for the operation and maintenance of the works.

The requirement for an inspection at the end of the warranty period will be at the discretion of the Asset Inspector at the final takeover inspection

If a warranty inspection is deemed necessary, the inspection will be carried out 11 months after the final takeover inspection.

7.3.1. Repairs during warranty

If faults arise during the warranty period from faulty design, workmanship or materials; or where the fault affects the service to customers and/or public safety, Water Corporation will carry out remedial repairs.

The Developer will be notified of these works as soon as practicable and any cost associated will be charged to the Developer.

7.3.2. Remedial repairs post warranty

Where Water Corporation's remedial works are determined to be attributable to a design or construction error or omission, the cost of the remedial works will be charged to the Developer.

The Developer will be responsible for the costs associated with any non-conforming assets.

Remedial works include, but not be limited to,

- the absence of infrastructure components (i.e. missing sewer junctions, boundary traps and running traps)
- incorrect installation (i.e. inadequate bedding or compaction)
- inadequate separation of any component of the works from other infrastructure and;
- non- compliance with a design standard.

Appendices

WATER CORPORATION

Appendix 1 - Prerequisites to Works - General Works - A guide to delivering reticulation works

Purpose

Reticulation works classed as 'general' are required to complete a formal notification of works and obtain approvals from affected parties. The classifications are contained in the *Water Services Act 2012*. Further information can be found on the WA Legislation webpage.

The purpose of this guideline is to support Design Engineers and Developers to effectively liaise with authorities, property owners and their occupiers or tenants who may be impacted by proposed water and wastewater work. The background section details the principles of liaising with affected parties and the process section provides the administrative steps required to have your design accepted.

Roles and responsibilities

Developer:

A Developer is anyone subdividing land or extending any Water Corporation infrastructure. It is the Developers responsibility to:

- appoint a Design Engineer, a Superintendent and a Contractor to carry out the work in accordance with Water Corporation's design standards, technical guidelines and the Developers Manual
- consult with affected owners or occupiers of land of the proposed construction; usually via the Design Engineer
- resolve any issues or objections from the owners or occupiers of affected land. This can be done by minimising the impacts of the work by modifying the design or construction method or providing suitable compensation for any damage or inconvenience caused by the work

Water Corporation:

It is Water Corporation's responsibility to ensure work handed over meets requirements and the Developer follows the necessary approvals processes.

To meet these requirements, guidance and specifications are provided through:

- the Developers Manual
- the External Approvals Manual
- Design Standards and Technical Guidelines
- Technical Guidelines for safely working near Water Corporation assets

Minister for Water:

If a Developer is unable to resolve an objection, Water Corporation may refer the matter to the Minister for Water. Prior to any referral being made you will need to demonstrate that every possible attempt to overcome objections have been made in a fair and equitable manner. As a minimum it is expected that you will have followed all of the steps outlined in this Guidance Note.

The Minister for Water may overrule an objection and authorise the work OR uphold an objection.

Background

With an increase in urban infill development, a growing number of properties will be impacted by water and wastewater work needed to service new developments. If your development needs to extend any of Water Corporation's water or wastewater pipes and will impact any private land outside your development, you will need to issue a formal Notice of Proposal detailing the proposed work.

When this Notice is distributed, the affected landowners and/or tenants have the right to object to the works. Any objection can affect the speed, cost and complexity of your development. The best way to avoid receiving formal objections is to liaise with the landowners and/or tenants during the planning phase of your development so that everyone can agree on a suitable solution.

The process

Gaining consent from affected property owners and/or tenants is a commercial cost of development and the responsibility of the Developer.

To reach the stage where construction can begin there are three fundamental steps, these are:

Informal:

The planning phase of your works is the best opportunity for you to ensure that your proposed works cause minimal impact to the public and won't receive objections. This is best done by the following two steps:

1 Design options

When preparing your design, you should consider:

- the impact on adjoining properties when evaluating design options. Consider where infrastructure will be located and which construction methods will be used
- if the design meets Water Corporation technical and planning requirements, such as providing safe access to any pipes and access chambers etc.

Water Corporation can provide advice if you are unsure about your design options. Please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

2 Liaison prior to formal Prerequisites to Works process

The way you engage property owners and/or tenants prior to completing your design can have a big impact on your project. The following points should be considered when conducting your engagement:

- please ensure that you deal with the property owner not just the occupier. Property owner details can be obtained from Landgate
- consider delivering a letter to the property owner introducing your development and invite them to meet and discuss the project. Where possible, show all viable options so they have the opportunity to input into the decision making
- follow up the introductory letter with a phone call or a visit to see if you can establish a meeting if you have not heard from them
- keep accurate records of conversations and follow-up in writing with summaries/meeting notes to all parties involved
- make sure the scope of work and the possible impacts to the property are clearly communicated. Use simple language that is easy to understand and avoid using technical terms - remember that many people are not familiar with industry terminology
- consider the impact of your construction activities on the property; pre-empt what their concerns might be and have options ready to discuss
- explain how and when any property or land will be restored
- be genuine in your engagement. Listen to concerns and see if they can be resolved through design alterations. Compensation is also an option that may need to be considered

If there are any unresolved issues with affected landowners, please discuss these with Water Corporation prior to submitting your design. Please note that if a property owner and/or tenant objects to your proposal at this stage, it is incorrect to imply that the Minister for Water will rule on the matter.

Formal process and consent:

To accept a Design Submission where works are classed as general, we require confirmation that the Prerequisites to Works process have been satisfactorily completed and the following documents will need to be provided:

- A Notice of Proposal plan – this plan is to be on the Design Engineer's title block. The plan must include the following information:

– drawing of the total area and all works

– description of the works

– area where the works are to be located

– purposes for which the works are required

– when and where the plans and details may be inspected

Please refer to the Notice of Proposal Plan example.

- A draft Notice of Works cover letter - the letter must include the following information:

– the works details included in the Notice of Proposal plan.

– information as to how, where and by when an objection or submission in relation to the proposal may be lodged

– the date by which any objections or submissions must be received by the Project Manager, which must be at least 21 days after the day the notice is given, unless all persons given a notice agree otherwise

Please refer to the example Notice Letter.

- A list of contact details including the Local Government Authority, all owners and occupiers of affected land and anyone who may be adversely affected by the works. This may include individuals or organisations, for example utilities with services in the land may be considered occupiers.

The above information shall be submitted with the initial submission (refer to the flow chart for information about the submission process). Once satisfied with the content of the notice plan, letters and contacts list, Water Corporation will return the initial submission and include a letter authorising you to perform the works on our behalf. This will then allow you to undertake the Prerequisites to Works process.

Our Prerequisites to Works Manual, Appendix 1 of the External Approvals Manual, details the procedure of gaining approvals for works. This manual can be accessed via ePROCUREMENT

Please note Water Corporation will only accept a reticulation design and allow construction once the Prerequisites to Works requirements have been met and any objections to the works have been resolved.

Resolving objections

You should make every reasonably effort to resolve any objections. Should you be unable to resolve any objections, Water Corporation may refer them to the Minister for a determination. *Referral to the Minister is a last resort.*

If you reach this point, you are required to lodge a written submission to Water Corporation requesting that the matter be referred to the Minister. The request shall include a report noting:

- details of all alternative routes considered and full reasoning as to why they have been rejected
- details of land use along the proposed route and information on the construction techniques proposed to overcome any land uses
- a full chronological history of negotiations that have occurred as they relate to the proposed works
- details of the Local Authority's structure planning for the area
- any other facts and information that you believe would be relevant to the Minister in making a decision

Please be aware that the time involved in going through the authorisation process can be lengthy. Although we undertake to address the matter with priority following the provision of the above information, we cannot commit the Minister to any timeframe.

Notice of Entry to perform works – a guide for Reticulation Works

A Notice of Entry is required to be issued at least 48 hours before works start once the Prerequisites to Works process has been completed, including resolving all objections. The Notice should be issued to:

- the owner and occupier of private land who may be disrupted and/or adversely affected by the Works
- the authority that has control or management of any road where Works will take place

The Notice must be in writing and contain the purpose of entry onto the land and a detail of the Works to be carried out.

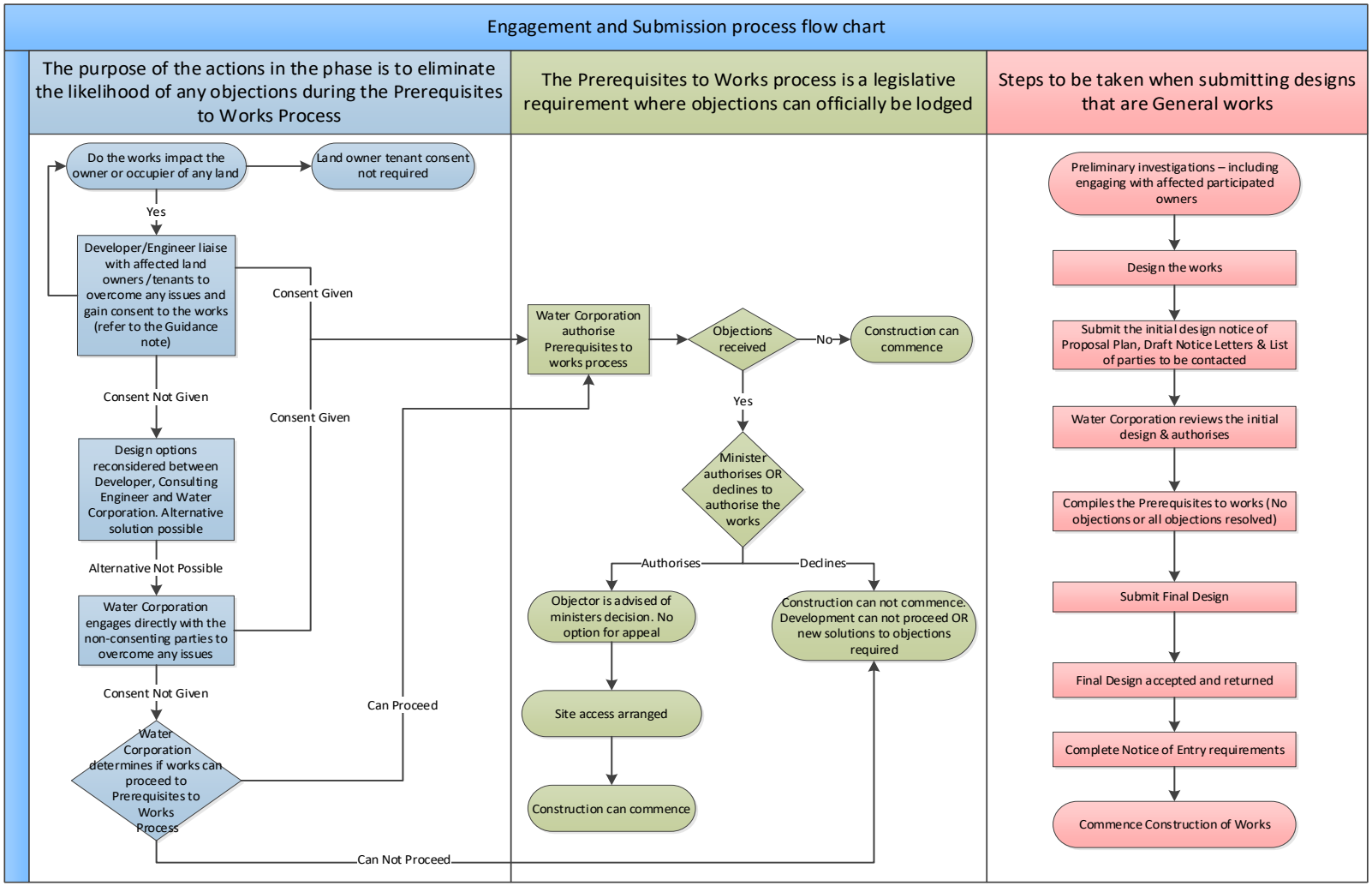
Should you have any questions on this matter, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

Things to remember

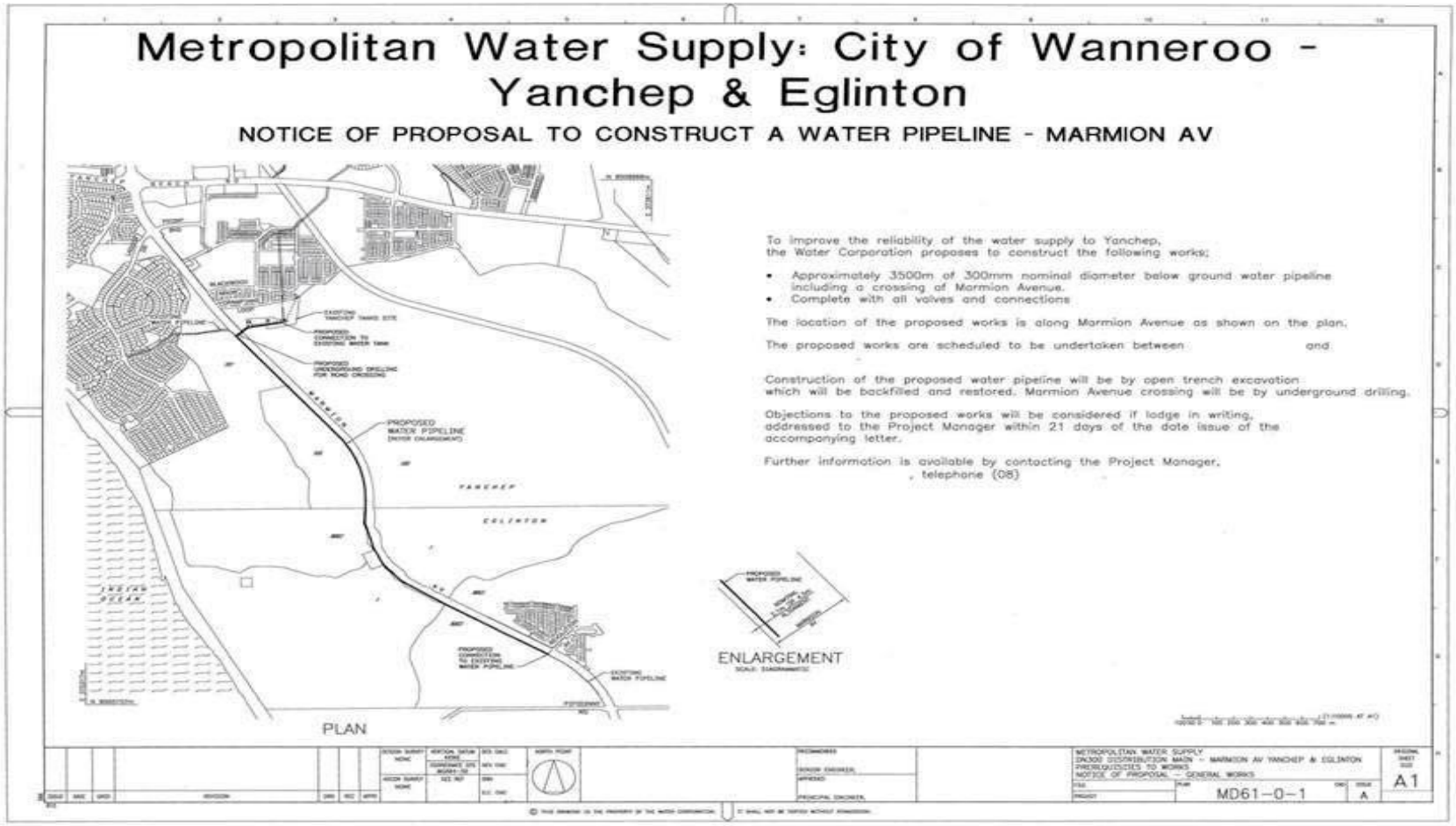
- Water Corporation will only authorise the Prerequisites to Works process when the initial design submission is satisfactory.
- the preparation of a Notice of Proposal is to be developed by the Design Engineer and requires Water Corporation approval before being sent out
- distribute the Notice of Proposal and cover letter to affected property owners and/or tenants, the relevant local government authority and, where necessary, the Western Australian Planning Commission
- ensure you follow the correct format for the cover letter and Notice of Proposal (refer to the External Approvals Manual)
- all parties must be given a minimum of 21 days from receiving the Notice of Proposal to submit an objection
- if any objections are received, contact Water Corporation to assist and ensure the response is provided in writing

Should you have any questions on this matter, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

Engagement and submission process flowchart



Example Notice of Proposal Plan



Metropolitan Water Supply: City of Wanneroo - Yanchep & Eglinton

NOTICE OF PROPOSAL TO CONSTRUCT A WATER PIPELINE - MARMION AV

To improve the reliability of the water supply to Yanchep, the Water Corporation proposes to construct the following works;

- Approximately 3500m of 300mm nominal diameter below ground water pipeline including a crossing of Marmion Avenue.
- Complete with all valves and connections

The location of the proposed works is along Marmion Avenue as shown on the plan.

The proposed works are scheduled to be undertaken between and

Construction of the proposed water pipeline will be by open trench excavation which will be backfilled and restored. Marmion Avenue crossing will be by underground drilling.

Objections to the proposed works will be considered if lodge in writing, addressed to the Project Manager within 21 days of the date issue of the accompanying letter.

Further information is available by contacting the Project Manager, , telephone (08)

PLAN

ENLARGEMENT

MD61-0-1

A1

Example Notice Letter

<Insert Date Here>

Name of Land Owner/Occupier/Party/Organisation adversely affected by the Project

<Start Name Here>

<Start Address Here>

<PO Box No>

<SUBURB WA P/C>

Dear Sir/Madam/<Name>

SUBJECT: PROPOSED WORKS TO (DESCRIPTION OF LAND TO BE SERVED)

On behalf of Water Corporation, (INSERT YOUR COMPANY NAME) proposes to (Draft an opening paragraph that should contain brief and simple explanation of the proposed works, the reasons they are being built, the approximate month/year the works are scheduled to proceed and duration of works - same details as included in *Notice of Proposal*. Provide information on how the owner/occupier/parties may be affected and detail any restoration works that may be performed). The attached Notice of Proposal plan provides further detail of the land where the works will be constructed and installed.

If you have any queries regarding the proposed works, please contact the Project Manager

<name> on <email> or phone <123456>.

Any objections or comments on the proposed work can be made in writing to the Project Manager at <Insert business address> by <Insert the closing date for objections> fully stating your reasons for the objections.

Yours sincerely OR SINCERELY IF NAME OF ADDRESSEE IS KNOWN

<Name>

PROJECT MANAGER

Appendix 2 - A guide to delivering reticulation works in road reserves

Purpose

Reticulation works classed as 'exempt' (ref - Water Services Regulations 2013 Section 83A) do not need to follow the prerequisites to works process, however, to ensure that works cause minimal disruption to the public, Water Corporation requires confirmation that all parties have been informed and any issues with the proposal have been resolved.

Roles and responsibilities

Developer:

A Developer is anyone subdividing land or extending any of Water Corporation's infrastructure. It is the Developers responsibility to:

- appoint a Design Engineer, a Superintendent and a Contractor to carry out the work in accordance with Water Corporation design standards, Technical guidelines and the Developers Manual
- consult with affected owners or occupiers of land of the proposed construction; this is usually done via the Design Engineer
- resolve any issues or objections from the owners or occupiers of affected land. This can be done by minimising the impacts of the work by modifying the design or construction method or providing suitable compensation for any damage or inconvenience caused by the work

Affected occupier:

An affected occupier is an occupier of a property affected by the proposed works. This could include restricted access to their property and/or having their verge or cross over disturbed, including the use of their verge for storage of equipment or excavation.

Water Corporation:

It is Water Corporation's responsibility to ensure that the work handed over meets its requirements and that the Developer follows the necessary approvals process.

To meet these requirements, guidance and specifications are provided through:

- The Developers Manual
- The External Approvals Manual and
- Design and Technical Standards
- Technical Guidelines for safely working near Water Corporation assets

For further information about the above process, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

Relevant documents

- Water Services Act 2012
- Water Services Regulation 2013
- Utilities Providers Code of Practice (UPCoP)
- Water Corporations External Approvals Manual
- Water Agencies (Powers) Act 1984

The process

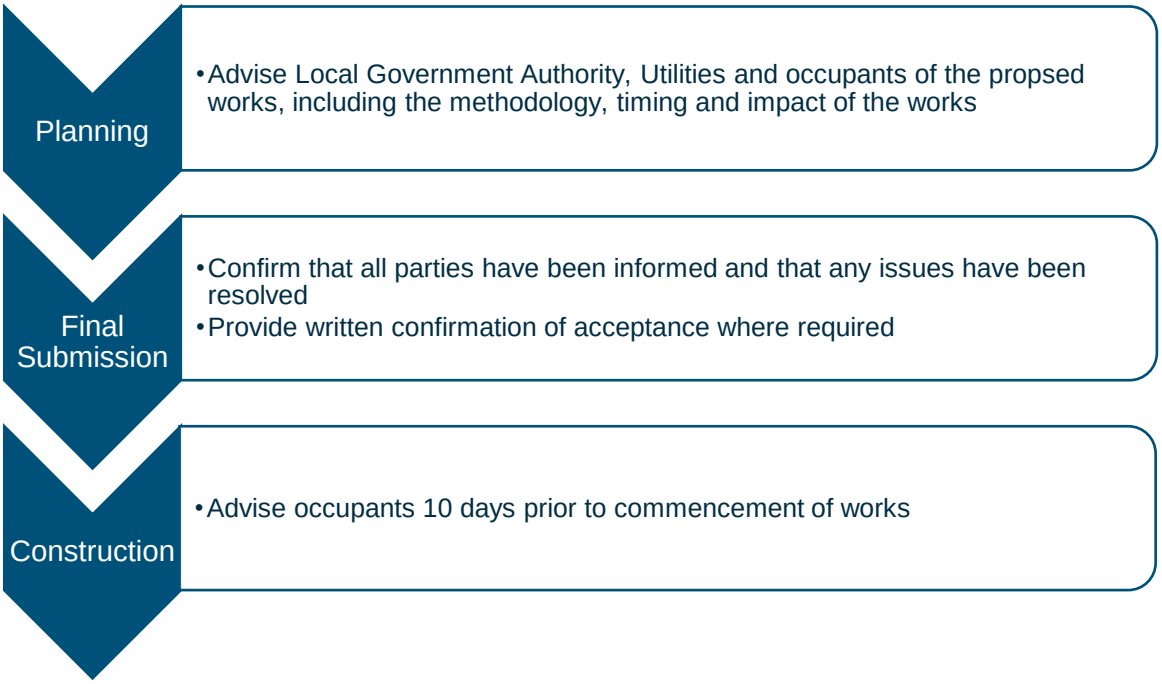
When delivering works, Design Engineers are representing Water Corporation.

During the Planning, Design and Construction of Exempt Works in road reserves, the Design Engineer shall undertake the following:

- carry out 'Before you dig' activities to assist in your design
- in accordance with the requirements of the Utility Providers Code of Practice, notify affected utilities of the works by way of a design plan, describing the methodology and planned timeframe of the works
- notify affected occupiers of the works with a brief description of the time frame and methodology and a basic design plan (whether a design plan or a Notice of Proposal is used is at the engineer's discretion. Where there are many affected occupants, a notice of proposal plan may provide more value) See
- notify the relevant road authority (LGA or Main Roads WA) by way of design plan and describing the construction methodology and planned time frame of the works. Prior to commencing construction, the road authorities requirements must be sought and complied with
- your design shall seek to minimise the impact of the construction on the public without compromising compliance with standards

  Please refer to the Affected owners example.

An overview of the steps and milestones is shown below:



Water Corporation reserves the right to view these documents and may carry out routine auditing to ensure compliance with these requirements.

Affected owner's letter

Typical letter to accompanying Notice of Proposal sent to Owner of Land within which proposed work will be constructed and where land matters are involved.

Where applicable, a draft of the letter should be forwarded and discussed with Water Corporation's Land Servicing Advisor before it is dispatched to the affected owner. (Negotiations for land should have commenced prior to this).

Example Letter

<Insert Date Here>

Name of Land Owner/Occupier/Party/Organisation adversely affected by the Project

<Start Name Here>

<Start Address Here>

<PO Box No>

<SUBURB WA P/C>

Dear Sir/Madam/<Name>

SUBJECT: PROPOSED WORKS TO (DESCRIPTION OF LAND TO BE SERVED)

On behalf of Water Corporation, (INSERT YOUR COMPANY NAME) proposes to (Provide a brief and simple explanation of the proposed work, the reasons they are being built, the approximate month/year the work may proceed and duration of work, the construction techniques etc. Provide information on how the owner/occupier/parties may be affected and explain how restoration of the work will be performed).

The attached plan provides further detail of the proposed work. (Provide options and a plan of the proposed work. Please ensure it is easy to understand and not crowded with detail that will confuse the land owner/tenant).

If you have any issues or concerns or would like to discuss this project further, please contact please contact me on <email> or phone <123456>.

Yours sincerely

OR SINCERELY IF NAME OF ADDRESSEE IS KNOWN

<Name>

PROJECT MANAGER

Appendix 3 - Start-up Meeting Checklist

This checklist provides a guide for Superintendents when conducting Start-Up Meetings. The items listed are the more common/important issues that require discussion and agreement to ensure the efficient construction and handover of the works.

The outcomes and agreements of the start-up meeting must be noted in the minutes of the meeting.

Final Design:	**Works Programme:**
A1 & A3 hard copy provided	Commencement Date Completion Date
Site Contact/Reporting:	**Qualifications/Accreditation:**
Site Contact Superintendent's Representative Who signs/receives report Sub-Contractor (if applicable) Contractors Representative	Superintendent's Representative Accredited Pipe Layer(s) on site
Protection for Existing Assets:	**Isolation Requirements:**
Asset Protection Risk Assessment (APRA) Clearance to Work (If applicable) (Review arrangements in place)	Isolation Plan Clearance to Work (Review arrangements in place)
Entry to Non Commissioned Works:	**Site Safety (Water Corporation Staff):**
Confined Space requirements Fall entry prevention system	Safety Procedures/Requirements
Inspection Testing (Superintendent):	**Inspection Plan (Water Corporation Staff):**
Inspection Log location Standards (e.g. Australian Standards) Certification Quality Assurance, Inspection/Testing	Required Inspections Ad hoc Inspections Testing Other Technical Staff Equipment required Notification of Inspector
Connection Arrangements:	**Final Takeover Inspection:**
Quotes Work orders	Notification Inspection equipment required Audit testing/inspection testing Evidence of quality assurance testing, inspection/testing

Appendix 4 – Guidance Note - Isolation of Works

Purpose

The purpose of this note is to provide guidance to Design Engineers on how to plan and arrange for isolation of wastewater works.

Requirements

It is essential to isolate non-commissioned sewers from live sewers to provide a safe working environment for the construction, testing and inspection of new works.

Prior to the Start-Up meeting, the Design Engineer shall consider possible options to ensure that safe isolation can be achieved. The chosen isolation method undertaken will be discussed and agreed at the Start-Up meeting with the Superintendent's Representative, Contractors Representative and the Asset Inspector.

Before construction commences, the Superintendent shall ensure that the Contractor has arranged for the new works to be isolated from the live sewer and take the necessary steps to ensure the isolation is maintained until the connections occur.

Assessing the risks

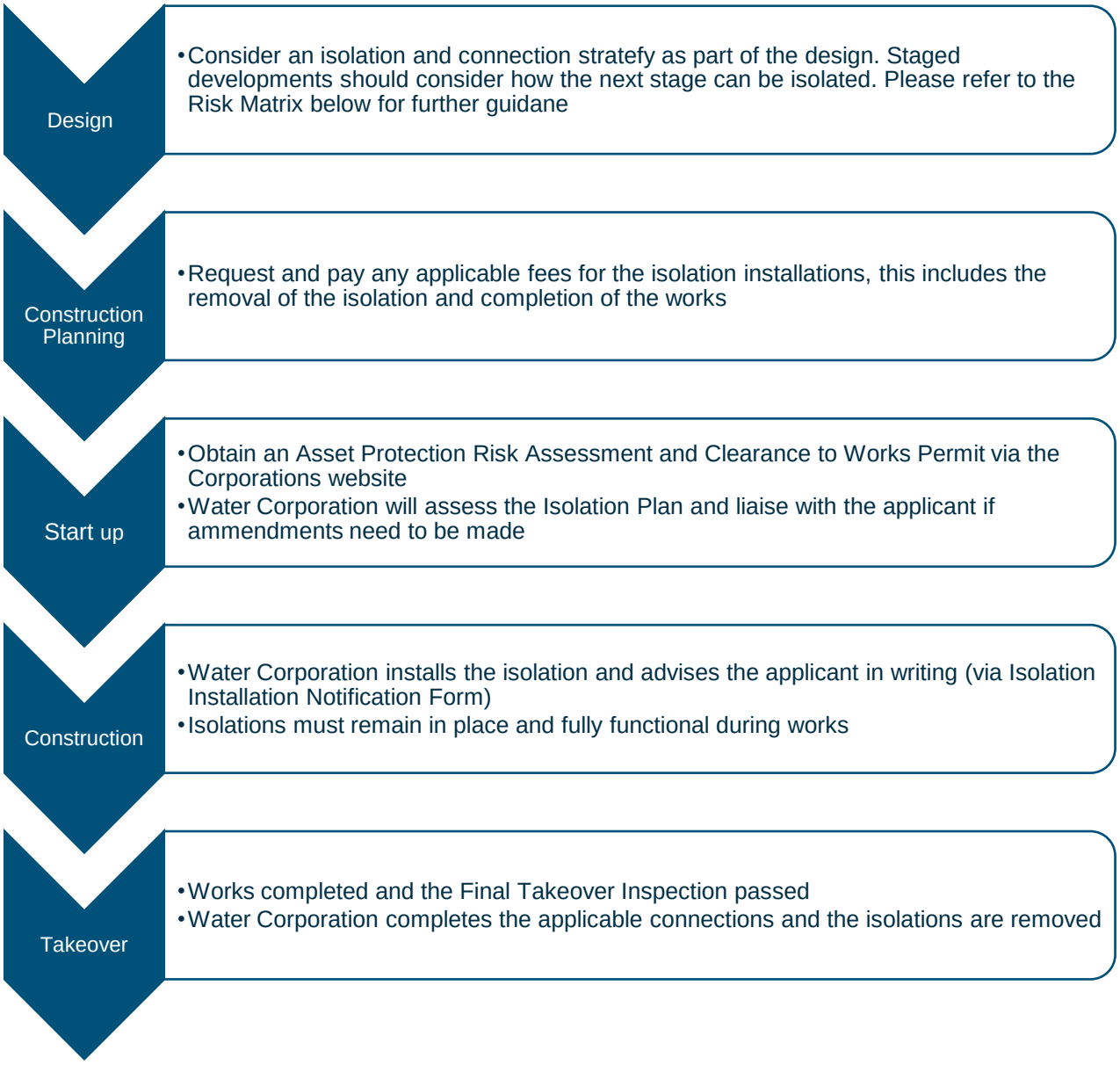
There are numerous variables that will determine which method of isolation should be used, such as how the scheme is operating for example: peak flows, storage volumes, the age and condition of any pipes. The information provided below is designed to provide some guidance in determining which isolation method is most suitable but may not be applicable in all cases.

A physical break is the preferred method and shall be used wherever practical. The non-commissioned sewers shall be either not connected (physical break) or shall be physically isolated from the live sewer. If a physical break is deemed impractical or excessive; the isolation plan should consider the following:

- duration of isolation (hours)
- volume of wastewater impacted by the isolation (litres)
- maximum head exerted by wastewater impacted by the isolation (m)
- system storage available upstream of the isolation (litres)
- overflow point/ manhole
- any tankering/ bypass pumping requirements (litres per hour)
- any confined space entry requirements
- details of plug locations

Process

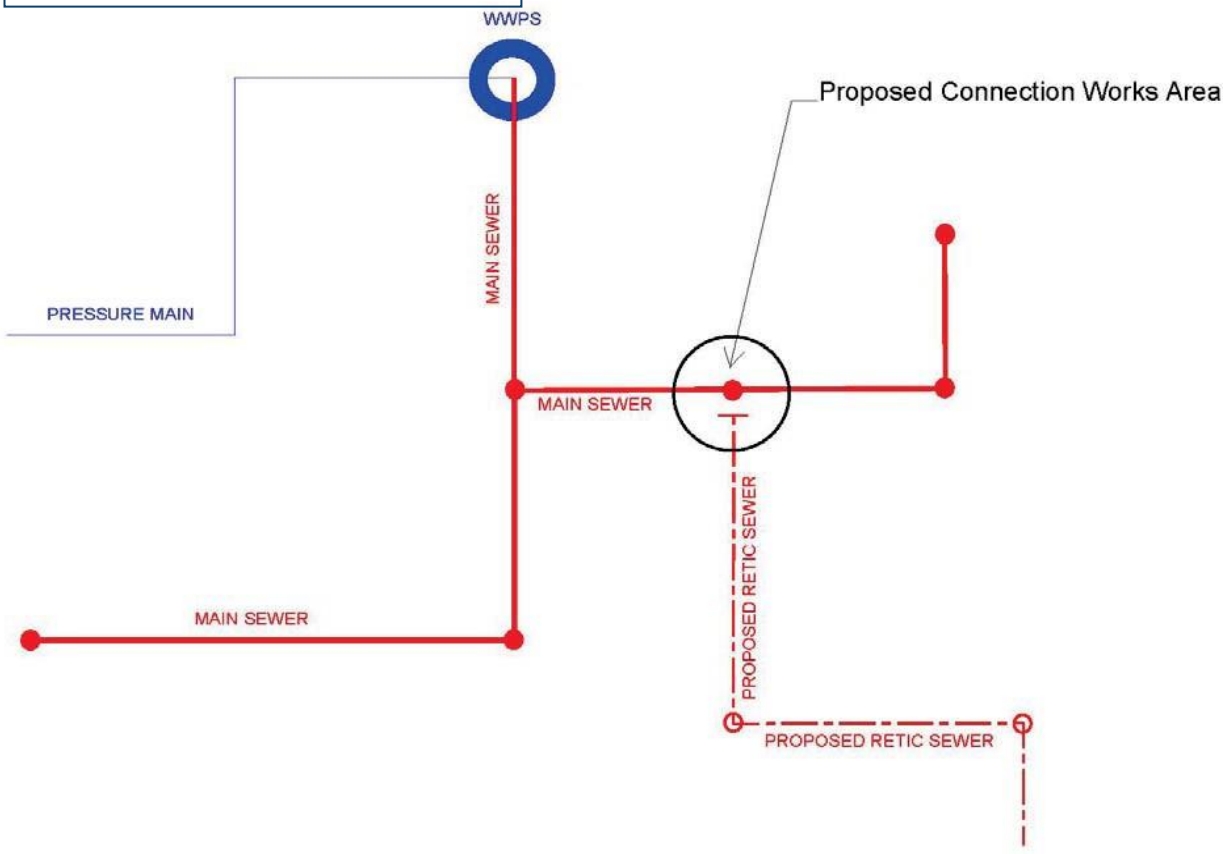
The diagram below shows the steps to be followed. The Clearance to Works request and Isolation Plan can be submitted prior the Start-Up Meeting, depending on how soon construction is scheduled to commence.



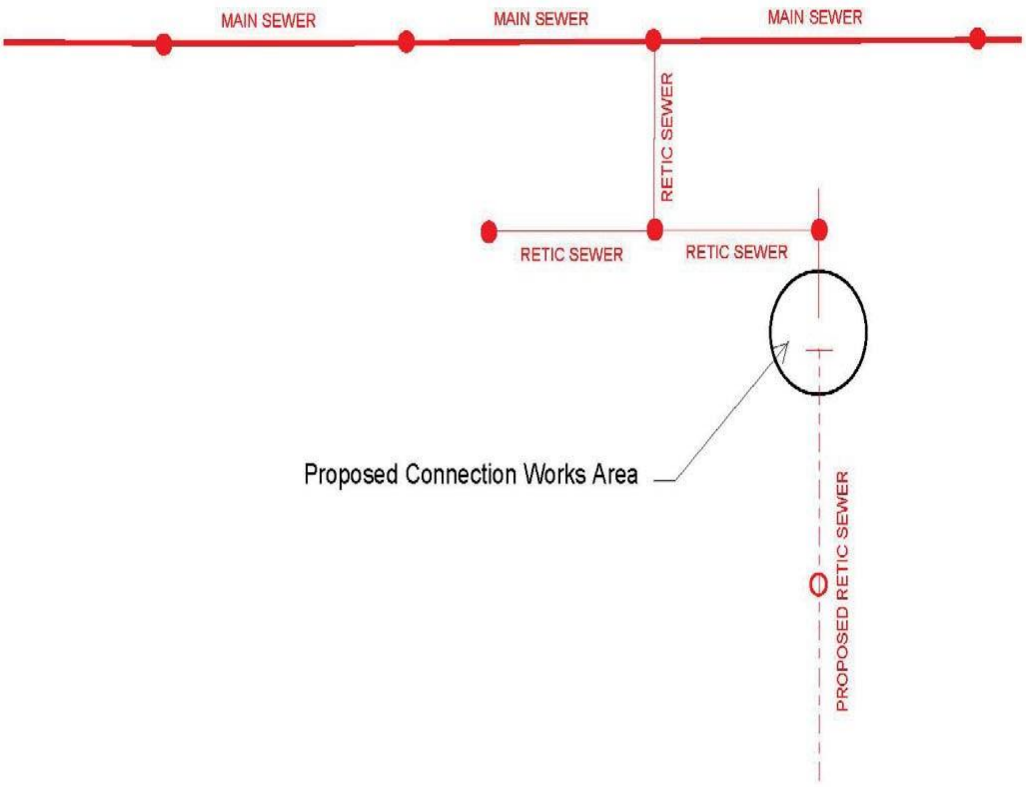
For further information about the above process, please contact us on land.servicing@watercorporation.com.au or call (08) 9420 2099

The diagrams below compliment the above table and provide typical scenarios of how risks are considered.

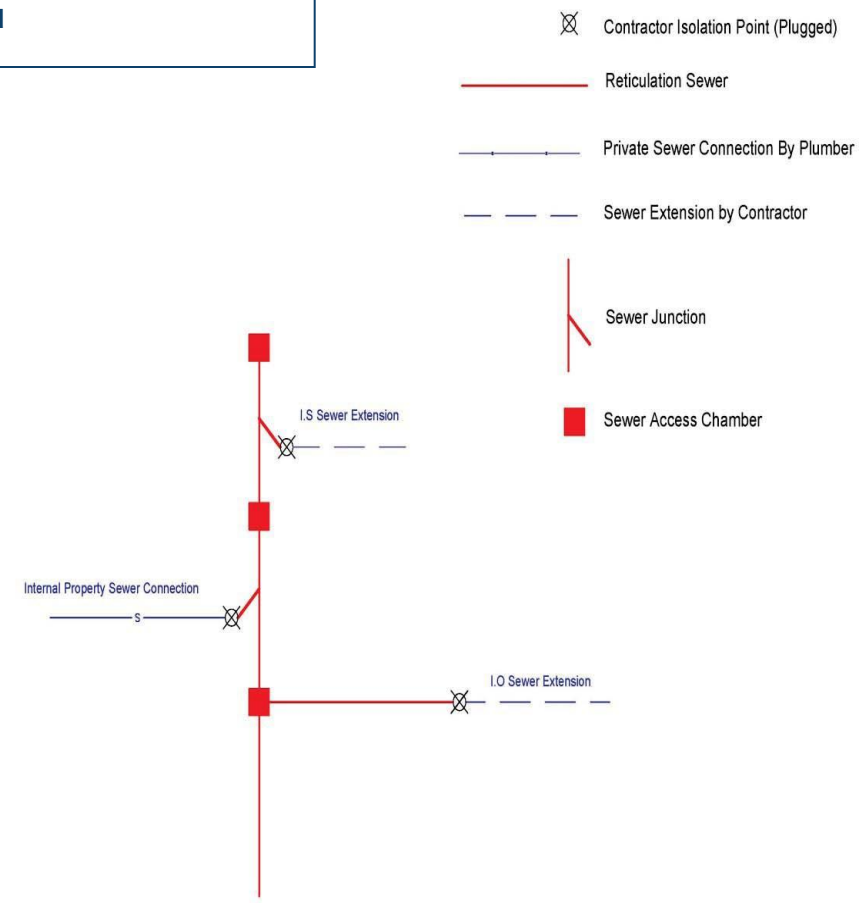
Typical High Risk Scenarios



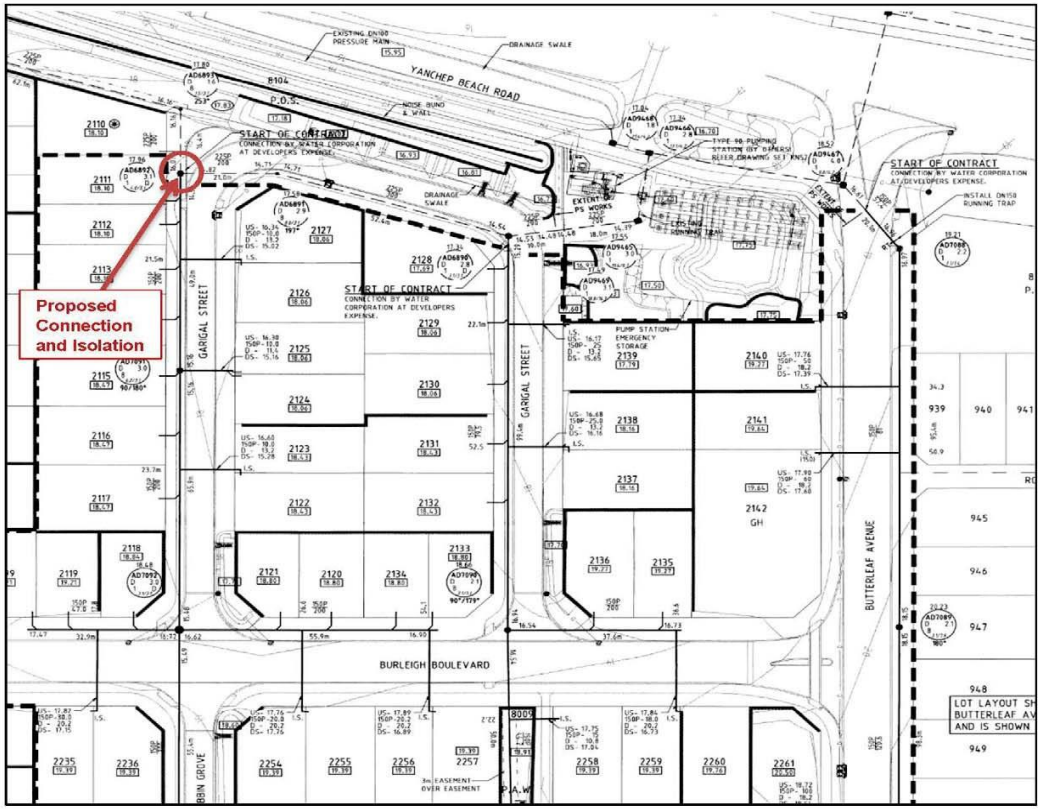
Typical Medium Risk Scenarios



Typical Low Risk Scenario – Clearance to Works Permit still required



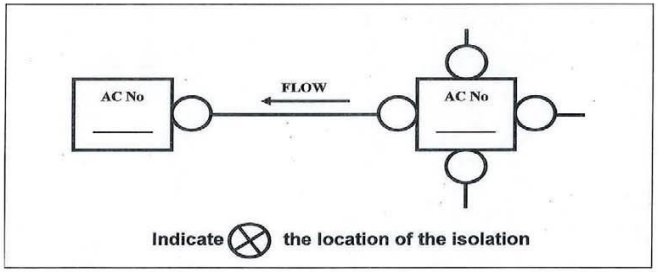
Example Isolation Plan



Project Name:
Project Location:
Planset Number:
Superintendent Name:
Superintendent Phone:
Contractor Representative Name:
Contractor Representative Phone:
Tentative Date Isolation Required:

Isolation Risk: **High / Medium / Low**
Type of Isolation: **Membrane / Plug / Other .....**
Maximum Potential Head on Isolation:
Overflow Point Upstream of Isolation:
Tankering within Catchment: **Yes / No**
Checked by Superintendent: **Yes / No**
Other Details:

LOCATION DIAGRAM



Appendix 5 – Guidance Note Wastewater Connecting Links and Clearance Milestones

(Subdivision clearances dependant on Headworks and/or external works)

Purpose

This note provides Engineers and Developers guidance on subdivision clearance requirements dependant on headworks and/or external works delivered by the Developer or others. This predominantly relates to wastewater works however water headworks and reticulation are also mentioned in the Clearance Milestone Table for overall clarity.

Introduction

Wastewater Connecting links are defined as reticulation works that are located outside of a Works Agreement Concept Plan area or headworks sewers and pumping stations that may be located within or outside of a Works Agreement Concept Plan area.

Typically, a Wastewater Connecting link will traverse through land not under the management of the Developer or be located in an existing road reserve.

For the purpose of this note Developer “A” refers to the proponent while Developer “B” refers to others who are dependent on the construction of the Wastewater Connecting link by Developer “A”.

Prior to Seeking Clearance of Subdivision Conditions

It is preferable that all necessary works be completed and taken over by Water Corporation and that the Developer makes every endeavour to connect their development to the existing wastewater scheme, particularly when the development is dependent on reticulation assets.

Early Clearance of Subdivision Conditions

For wastewater reticulation connection links, Water Corporation may agree to allow the Developer to enter into a Land Servicing Performance Agreement in order to gain their clearance of subdivision conditions. Approval of applications is at the discretion of Water Corporation, including altering the time allocated to complete the works. This applies to Works Agreement and Non-Works Agreement developments. Refer to the Clearance milestone table below.

For wastewater headworks connecting links, Water Corporation requires the works to be at an acceptable milestone in order to gain clearance of subdivision conditions. Refer to the Clearance Milestone Table below

Length of time to construct wastewater connecting links if a land servicing performance agreement is in place

Once clearance of subdivision conditions has been issued you typically have 22 weeks to complete the works. If there are valid reasons, the Servicing Obligation Date may be extended at the discretion of the Water Corporation. The Water Corporation will consider extending the Servicing Obligation Date for the sewer connecting link to coincide with the Project Practical Completion date for the proposed wastewater headworks.

Requirement for a Wastewater Tankering Agreement and security

Wastewater Headworks connecting links also require a wastewater tankering eligibility and strategy assessment. If tankering of wastewater flow is expected, a Tankering Performance Agreement will be required which includes a tankering financial security of $150,000.

Note, residential lots cannot be cleared within 100m of a tankering point due to a regulatory requirement. For more information on tankering, refer to the Tankering Fact Sheet

Financial security required for Wastewater Connecting Links

Wastewater Headworks and/or Reticulation Works funded and delivered by the Developer

- 150% of the cost estimate of constructing the Works

Wastewater Headworks funded by Water Corporation, delivered by a Developer

No security is required because the funding is secured via the Developer Constructed Works Agreement (DCWA)

Clearance Milestones Table

Works	Funding & Delivery	Residential Development*			Industrial Development		
		Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
Wastewater Headworks **Pumping Stations**	**Water Corp Funded Developer A Delivered**	**Developer A**			**Developer A**		
		Scoping Report Accepted DCWA Accepted	Detailed Design Finalised Approvals Finalised	Headworks Start Up	Contract Award	Takeover	
		Stage 1 + Stage 2 + Stage 3 = 150 cleared lots maximum**					
		Developer B			**Developer B**		
		Headworks Start Up	Takeover		Takeover		
		Stage 1 = 150 cleared lots maximum**					
Gravity Sewers DN375 or larger	**Developer A Funded Developer A Delivered**	**Developer A**			**Developer A**		
		Headworks Start Up	Takeover		Takeover		
		Stage 1 = 150 cleared lots maximum**					
		Developer B			**Developer B**		
		Takeover			Takeover		
Water Headworks **Booster Pump Station Tank**	**Water Corp Funded Developer A Delivered**	**Residential Development***			**Industrial Development**		
		Stage 1 Clearance	**Stage 2 Clearance**	**Stage 3 Clearance**	**Stage 1 Clearance**	**Stage 2 Clearance**	**Stage 3 Clearance**
		Developer A			**Developer A**		
		Takeover			Takeover		
		Developer B			**Developer B**		
		Takeover			Takeover		
Distribution Main	**Developer A Funded Developer A Delivered**	**Developer A**			**Developer A**		
		Takeover			Takeover		
		Developer B			**Developer B**		
		Takeover			Takeover		
Reticulation **Wastewater and Water**	**Developer A Funded Developer A Delivered**	**Residential Development***			**Industrial Development**		
		Stage 1 Clearance	**Stage 2 Clearance**	**Stage 3 Clearance**	**Stage 1 Clearance**	**Stage 2 Clearance**	**Stage 3 Clearance**
		Developer A			**Developer A**		
		Retic Start Up			Retic Start Up		
		Stage 1 = 150 cleared lots maximum**					
		Developer B			**Developer B**		
		Takeover			Takeover		

*Residential Clearances within the 100m tankering buffer will not be considered until the need for tankering has ceased.
**Early clearances that are dependent on Headworks are subject to an acceptable Tankering Strategy.

***A Single Tankering Point has a maximum capacity of 150 cleared lots.
Refer to the Tankering Fact Sheet for more information on wastewater tankering.
Note: Reticulation Takeover is *Satisfactory FTI* and Headworks Takeover is *Operational Commencement*.

Developer “A” and Developer “B” Joint Venture

Where there is a joint venture in place between Developer “A” and Developer “B”, Water Corporation is prepared to offer Developer “A” entitlements to both Developer “B” provided that written confirmation of the joint venture from Developer “A” is submitted to Water Corporation prior to requesting clearance of subdivision conditions.

Works Outside Scope

For sewer connecting links that are deemed to be outside the scope detailed in this document, a description of the works and clearance requirements shall be submitted in writing to The Manager, Land Servicing for further consideration.

For further information, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099

Appendix 6 – Guidance Note – Wastewater Private Pumping Stations

Introduction

This Guidance Note provides information for Design Engineers on the eligibility, design guidelines & requirements for Wastewater Private Pumping Stations connecting to Water Corporation's infrastructure.

Compliance with all standards mentioned within this guideline will not be checked by us and remain the responsibility of the Design Engineer.

Preliminary Requirements

Before Water Corporation can accept a Wastewater Private Pumping Station, the proposal will be assessed to make sure it meets planning and operational needs. You can lodge your proposal online through the Servicing Advice form

Each proposal is assessed individually, and its eligibility is determined by the following criteria:

Is the service required to satisfy a subdivisions servicing condition imposed by the WAPC?

As Wastewater Private Pumping Stations are non-standard servicing arrangements, they do not satisfy a subdivision servicing condition imposed by the WAPC.

Is there a gravity solution?

If there is an option to extend the gravity reticulation network, then a proposal for a Wastewater Private Pumping Station will not be considered.

Is the proposal dependent on Water Corporation delivering Headworks assets?

Servicing of the lot must be dependent on future headworks assets (e.g. pump stations, main sewers sized DN375 and above) being delivered.

Is there adequate capability or capacity in the network?

Water Corporation will carry out a capability assessment to determine if there is capacity in the network, which takes into account current and future flows and the impact on assets.

Internal plumbing should be designed such that when a gravity sewer becomes available, internal plumbing can connect to it.

For all Industrial and Commercial Private Pumping Station proposals, an Industrial Waste Permit should be investigated. Please visit the Trade Waste section of Water Corporation's website for further information.

Wastewater Private Pumping Stations are considered a last resort servicing option as they frustrate orderly extension of services for future development.

Design Guidelines

General

All Gravity works must be designed to Water Corporation's requirements, as outlined in Design Standards 50 (DS50).

All private works should be designed and built in accordance with the current version of AS/NZ3500.

The maximum discharge will be determined by Water Corporation. On-site retention should be designed to minimise the chance of the sewage going septic, and as such should turn over at least once per day. Emergency storage shall be provided for equal to 3 hrs at the Gravity Sewer Design Flow.

In order to conduct scheme maintenance there may be times that the Private Pumping Station will need to be isolated from the scheme. All Pump Stations shall be designed to facilitate a complete shutdown, isolating both flow into Water Corporation's scheme and power to the Private Pump Station.

Pressure Main

It is recommended that a minimum size 50mm ID pipe (i.e. 63MDPE) be used for pressure mains in public land. If Water Corporation is required to attend an emergency situation, this is the minimum size available for fittings on service vehicles. Smaller pipes may be considered on a case to case basis.

The last 10 metres of the pressure main discharging into an Access Chamber shall be in a straight line with the outgoing gravity sewer and a minimum rise of 300mm to discharge into the Access Chamber (see Figure 2). Maintenance Shafts shall be invert to invert, but also in a straight line.

The Pressure Main shall be Self Cleansing with a minimum flow of 0.75m/s for DN80 or greater and 1.0m/s for pipes smaller than DN80.

Minimum Cover for Pressure Mains should be 1.0m within Public Land and 1.2m under roads.

Pump Selection

Pumps shall be selected to meet the minimum cleansing velocities outlined above and the maximum allowable discharge into our scheme. Pumps shall be selected based on industry accepted practice using system/duty curves developed for the proposed arrangement. Maximum and minimum head curves for the pressure main shall be developed in accordance with our Design Standard DS51, refer to example in Figure 1.

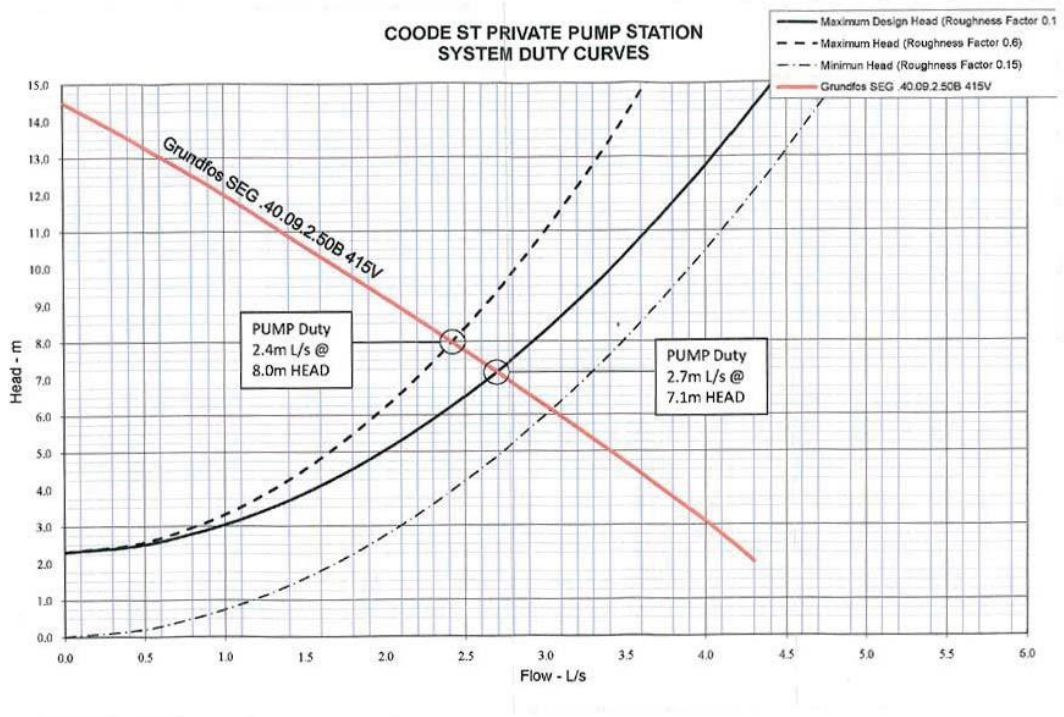


Figure 1 – Example of System Duty Curve

Discharge Arrangements

All gravity sewer components of the discharge arrangement will be taken over by Water Corporation and designed in accordance with Design Standards DS50 and 51.

Boundary Traps shall be provided for all junctions within a 150m radius of the discharge chamber. Alternatively, a Running Trap can be designed, as per requirements in DS50.

Lodging the Submission

No formal submission shall be made without first confirming:

- Eligibility,
- Suitable pump rate for the scheme, and
- Discharge location

The Submission shall be made to Water Corporation by following the processes outlined in this manual, irrespective of whether there is any gravity component or not.

At a minimum the Design Submission shall contain:

- Correspondence confirming eligibility, pump rate and discharge location
- A set of design drawings which shall comprise:
  - System Duty Curves (see Figure 1),
  - a long section of the pressure main, including gravity (if required),
  - general arrangement/ site plan of the pumping station
  - Details of the discharge arrangement.

At a minimum, the following information is to be provided to us before the accepted drawings are released to allow for construction to commence:

- All relevant Agreements to be signed and completed,
- All relevant payments made, as per the Tax Invoice,
- Any Section 70A documentation completed and lodged with Landgate (Lodgement receipt will be required) and
- Contractor Details provided.

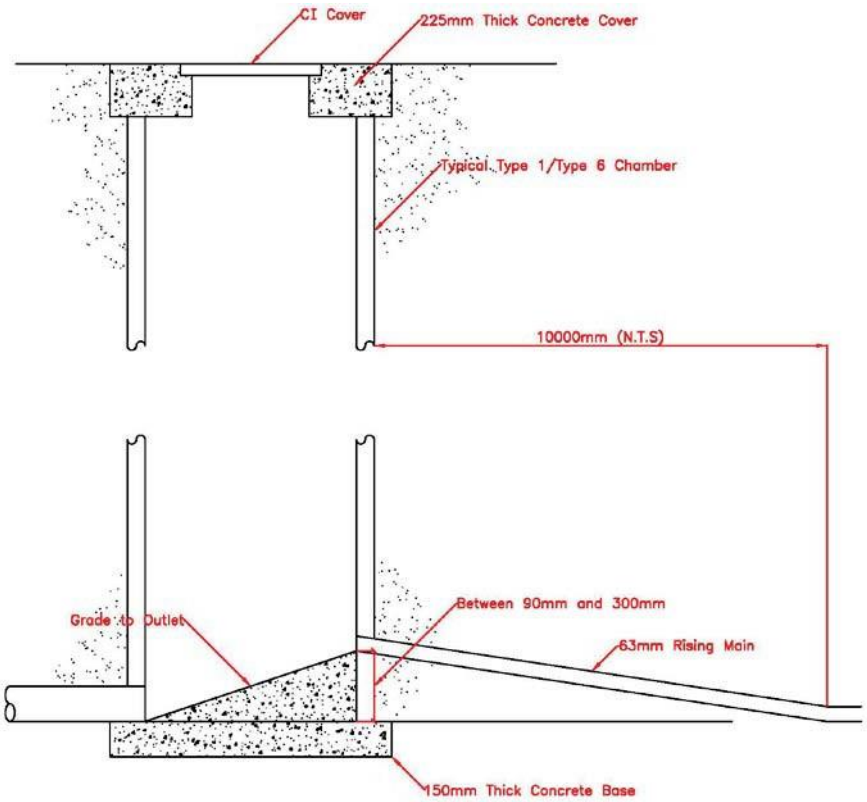
Construction & Inspection

Upon receipt of the accepted Final Submission, you will be instructed to contact the relevant Asset Inspection team. This is required also for submissions without any gravity component as Water Corporation may need to inspect the Pressure Main connecting to our system.

As part of the Final Inspection, a pressure test is required providing at least twice the working head of the accepted design.

As-Constructed drawings must be supplied and submitted to Water Corporation and meet the standards required in the Developers Manual. Even if there isn't any gravity component to the design, mapping the pressure main and location of the Private Pump Station is important for emergency maintenance and failures. This information is also used by Before You Dig Australia.

Figure 2 – Example of typical Discharge Access Chamber

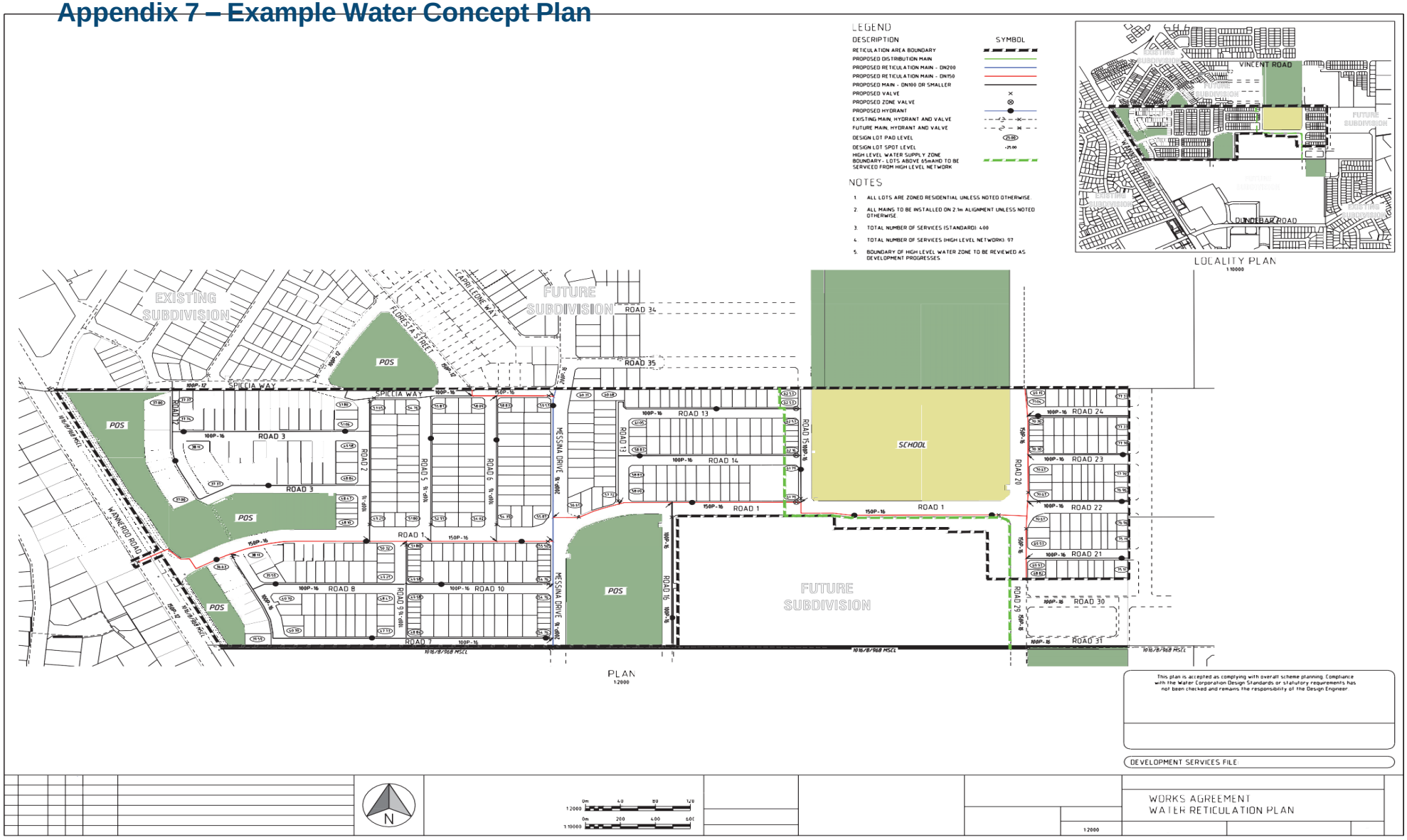


Resources

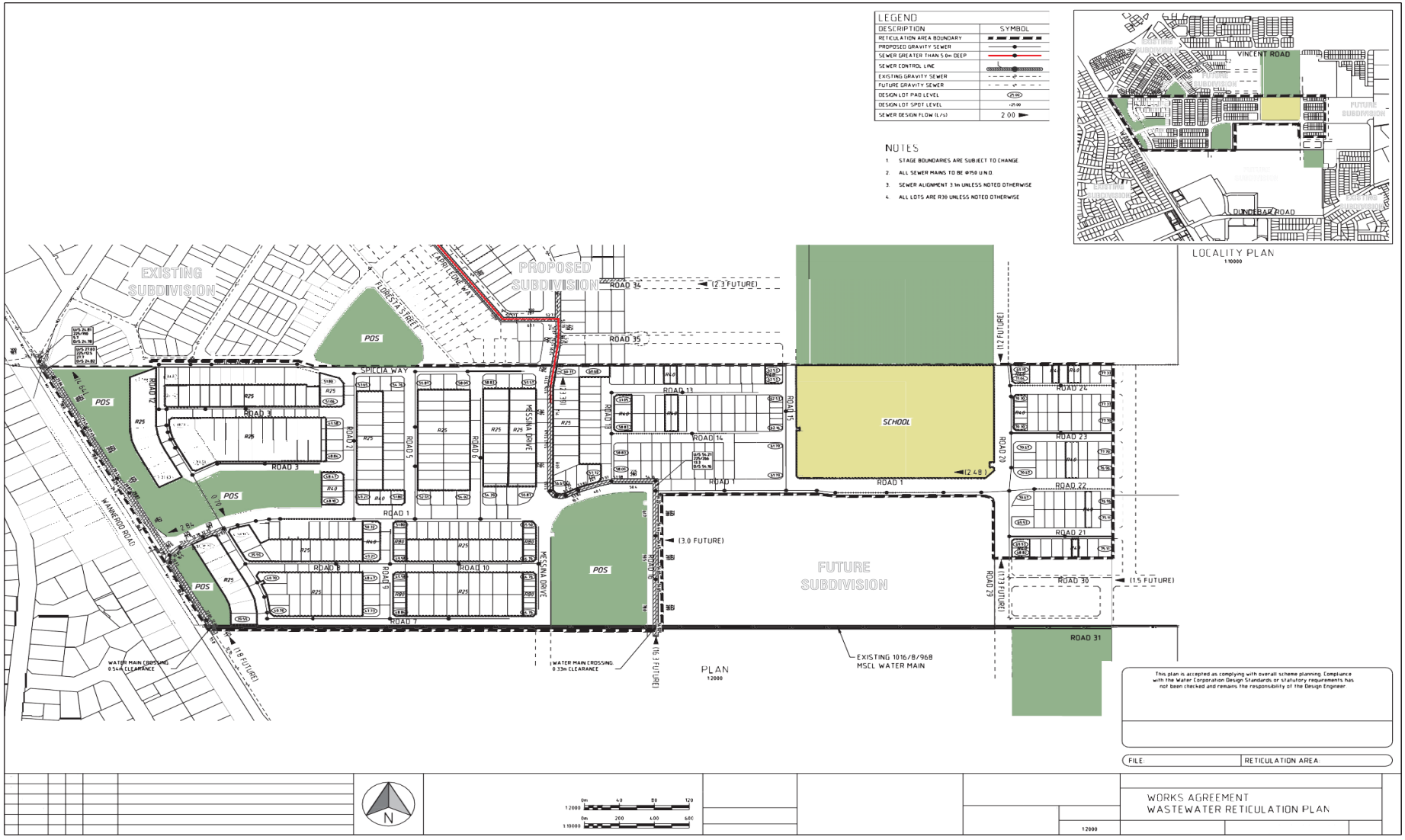
Design Standard 50 - Design and Construction Requirements for Gravity Sewers DN 150 to DN 600

Design Standard 51 – Design and Construction of Wastewater Pumping Stations and Pressure Mains 4 to 90 litres per second capacity

Appendix 7 – Example Water Concept Plan

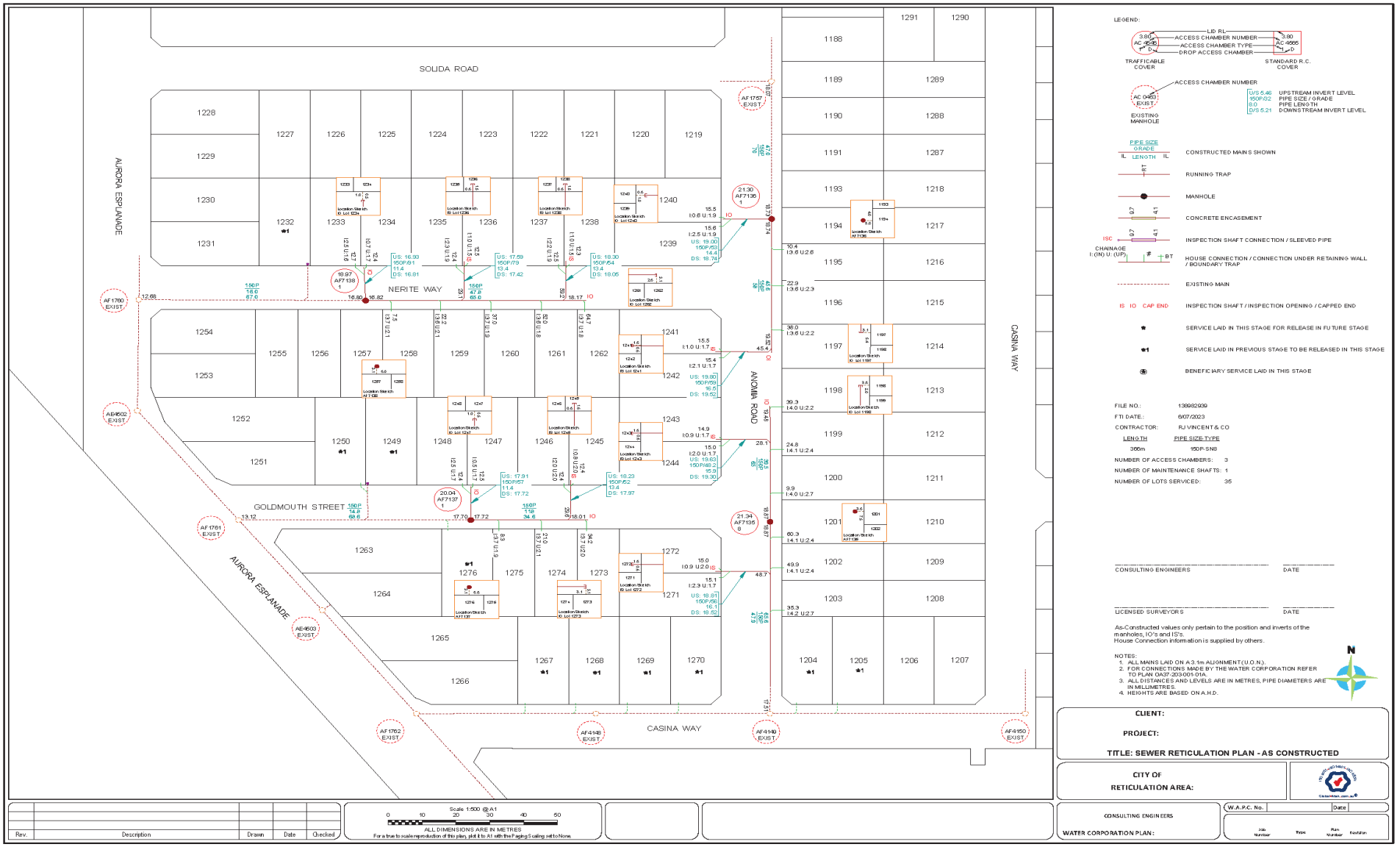


Appendix 8 – Example Wastewater Concept Plan



Appendix 9 – Example As Constructed Plan – Water

Appendix 10 - Example As Constructed Plan - Sewer



Appendix 11 – Sewer Pre-handover Checklist

WASTEWATER PREHANDOVER CHECKLIST

Subdivision Name		Contractor	
WAPC and Plan number		Superintendent	

CHECKLIST ITEMS

Copy of accepted Isolation Plan/CTW attached		Access Chamber and Maintenance Shaft levels set (correct types used)	
Water Corporation products used as per Strategic Products Register (documentation attached)			
Pipe layer certification attached		Access Chamber numbers verified and fitted correctly	
Boring methodology attached (if applicable)		Property connection locations confirmed and adequately marked	
Ovality Test (Calibration Certificate) attached		Pre Handover inspection complete	
Pressure test documentation attached		Associated work order numbers issued by Water Corporation	
Spark testing verification attached (if applicable)			

Water Corporation has been notified of inspections agreed to at the Start-Up meeting - Yes/No

If no please provide an explanation for why –

INSPECTION ITEMS

Line		Pressure Test		Ovality Test		Sighted		Compaction		Pipe layer	
D/stream Access Chamber	Upstream Access Chamber	Date	Initials	Date	Initials	Date	Initials	Date	Initials	Initials	Pipelayer ID number

Please Note:

- By signing this document the Superintendent's Representative confirms that periodic visual inspections have been carried out. Based on the evidence witnessed and/or provided, the Superintendent's Representative is confident that the works have been constructed in accordance with the accepted plan.
- Compaction information and/or supporting documentation is only required where the depth of sewer exceeds 5 metres.

Non-conformance:

Are there any non-conformances that the Superintendent believes should be accepted by the Water Corporation? **Yes/No**
*If yes please attach supporting documentation for consideration and advise how/why they occurred and what will be done to avoid them occurring on future projects.

Contractor's Statement:

We the Contractor confirm that the assets constructed comply with Water Corporation's applicable design and construction manuals, standards and specifications for these works.

Contractor - _____ Contractor's Representative - _____

Signature - _____

Superintendents Statement:

Based on the visual inspection of the works completed, viewing and auditing of all contractors test results, we the superintendent are satisfied that the works are practically complete and ready for handover to Water Corporation in accordance with all requirements of the Developers Manual.

Superintendent - _____ Superintendents Representative -_____

Signature - _____

Appendix 12 – Water Pre-handover Checklist

WATER PREHANDOVER CHECKLIST

Subdivision Name		Contractor	
WAPC and Plan number		Superintendent	

CHECKLIST ITEMS

Clearance to Work Permit obtained (If applicable)		Thrust blocks to Water Corporation standards	
Water Corporation products used as per Strategic Products Register (documentation attached)		Supports installed under hydrants and valves	
Pipe layer certification attached		Valve Spindle risers tightened. Spindle risers and hydrants at correct level	
Existing pipe locations and depths checked		Denso wrapping of all fittings complete	
Boring methodology attached (if applicable)		Water service security plug tight	
Disinfection plan attached		Furniture set to correct specifications	
Torque wrench calibration certificate attached		Kerb markings/Marker posts in place	
Pressure test documentation attached		Pre Handover inspection complete	
Clearance to other services verified		Associated work order numbers issued by Water Corporation	

Water Corporation has been notified of inspections agreed to at the Start-Up meeting - Yes/No
If no please provide an explanation for why –

INSPECTION ITEMS

Section	Bedding		Witness Marks		Thrust Blocks		Property Connections		Pipe layer	
Road name/Lot No	Date	Initials	Date	Initials	Date	Initials	Date	Initials	Initials	Pipelayer ID number

Please Note:

- By signing this document, the Superintendent's Representative confirms that periodic visual inspections have been carried out. Based on the evidence witnessed and/or provided, the Superintendent's Representative is confident that the works have been constructed in accordance with the accepted plan.

Non-conformance:
Are there any non-conformances that the Superintendent believes should be accepted by the Water Corporation? **Yes/No**
*If yes please attach supporting documentation for consideration and advise how/why they occurred and what will be done to avoid them occurring on future projects.

Contractor's Statement:

We the Contractor confirm that the assets constructed comply with Water Corporation's applicable design and construction manuals, standards and specifications for these works.

Contractor - _____ Contractor's Representative - _____

Signature - _____

Superintendents Statement:

Based on the visual inspection of the works completed, viewing and auditing of all contractors test results, we the superintendent are satisfied that the works are practically complete and ready for handover to Water Corporation in accordance with all requirements of the Developers Manual.

Superintendent - _____ Superintendents Representative -_____

Signature - _____

Appendix 13 - Guidance Note - Drainage Connection

Introduction

This Guidance Note is designed to assist Design Engineers on the eligibility, design guidelines & requirements for Drainage Connection(s) to the Water Corporations infrastructure.

Compliance with all standards mentioned within this guideline will not be checked by us and remain the responsibility of the Design Engineer.

Preliminary Requirements

Before Water Corporation can accept a Drainage Connection, the proposal will be assessed to make sure it meets planning and operational needs.

Each proposal is assessed individually however, applicants should note that the Corporation is not obliged to accept any additional stormwater into the main drainage system.

Is there adequate capability or capacity in the network?

Water Corporation will carry out a capability assessment to determine if there is capacity in the network, which will take into account the proposed connection and the impact on existing Drainage assets.

Connections carrying trade waste shall not be connected to a Water Corporation drain.

Design Guidelines

General

All Drainage Connections must be designed to Water Corporation's requirements, as outlined in Design Standards 66 (DS66).

Trapped Silt Access Chambers to be built to the specification of Drawing DG16-3-20 (See Drawing List & Drawings Link in Resources).

Outlet Structures to be built to the specifications of Drawing DG16-13-11 (See Drawing List & Drawings Link in Resources).

Maintenance of the Trapped Silt Access Chamber(s) is the responsibility of the connecting property owner. This includes all works up to the connecting Structure.

Lodging the Submission

To action the assessment of the connection(s), return the filled out and signed Application for Connection to Stormwater Main Drain Form (below) with required drawings to land.servicing@watercorporation.com.au and attention it to Infill Development Team. Proposals can also be lodged through this email.

Design Submissions shall contain, at a minimum:

- A set of design drawings which shall comprise:
- Depiction of Cadastral boundaries, Lot numbers, Street Names and depiction of connecting Drain or Compensating Basin.
- Relevant measurements such as length of pipe, size of pipe, pipe type, invert level in AHD at connection, distance from cadastral boundaries and any other information that would be pertinent.
- Volume of onsite storage, including dimensions of soak wells.
- Location of the Trap Access Chamber and the type relevant to the pipe size (please bear in mind the Trap Access Chamber must be within the property served but at the closest point to the drain or compensating basin).

- The design must consider future connection of neighbouring lots to minimise number of connections to the drain.
- Any correspondence from the Water Corporation or Local Authority pertaining to drainage of the site.

Onsite detention may be required, the volume of which is to be determined by the Water Corporation, the applicant is responsible for ensuring this also meets Local Government's requirements.

Construction & Inspection

Upon receipt of the accepted Submission, you will be instructed to contact the relevant Asset Inspection team as per contact details in Section 1.5

As-Constructed drawings must be supplied and submitted to Water Corporation and meet the standards required in the Developers Manual. This information is also used by Before You Dig Australia.

Resources

Design Standard 66 – Drawing List

Design Standard 66 – Drawing Link

Application for Connection to Stormwater Main Drain

Please complete this form and email this together with the Drawings of the proposed connection and site plan of the development to: land.servicing@watercorporation.com.au

The drawings accompanying this form shall show the following:-

1. Dimensions to locate the connection horizontally with reference to cadastral boundaries.
2. Location of any trap access chambers/gullies and details of any proposed access chambers, gullies cut-in-junctions, or structures that are not to Water Corporation standards.
3. Details of the connecting drain including size, type of pipe, invert levels together with gully levels and floor levels of proposed and/or existing buildings.
4. The location and lot number of the property to be connected.

APPLICANT TO COMPLETE THIS SECTION

APPLICANT Name.....
Address ..... P'code.....
Email…….. Ph No ……..

CONTRACTOR Name.....
Address ..... P'code.....
Email…… Ph No……

CONNECTION Location…….....
Nearest Intersection.....

[ ]To Open Drain [ ] To Piped Drain [ ] To Access chamber [ ] To Exist. Structure [ ] To Comp. Basin

Signature of Applicant ..... Date .....

OFFICE USE ONLY

Drain Name ..... No. ..... File .....

CONDITIONS OF APPROVAL
[/] Your line is to discharge stormwater only.
[/] Existing structures, access chambers and pipes are to be adequately protected during construction.
[/] The connection shall be trapped in accordance with the Urban Main Drainage Standard. Trap access chambers shall be in accordance with Drawing DG16-3-20 attached. Trap access chambers shall not be located within the Water Corporation drain reserve.
[ ] Piles must be used where your connecting drain crosses existing Water Corporation services.
[ ] This connection will be constructed by Water Corporation staff at your cost.
[ ] Details of connecting structure attached
[ ] This connection will be constructed by the contractor nominated above.
[ ] Special Conditions – see below
.....
.....
.....

This application is valid until ……/……/……..

In order for necessary inspections to be made, please contact the relevant Inspection Services as per Developers Manual section 1.5 at least five days prior to the commencement of work.

APPROVED BY..... Date……

Appendix 14 – Sewer in Basement/Building Design Proposals

Introduction

This Guidance Note is designed to assist Design Engineers on the eligibility, design guidelines & requirements for constructing sewers in basements/buildings.

Compliance with all standards mentioned within this guideline will not be checked by us and remain the responsibility of the Design Engineer.

Preliminary Requirements

Before Water Corporation can accept a sewer in a basement/building design, the proposal will be assessed to make sure it meets planning and operational needs.

The feasibility of each proposal shall be assessed through the Protection of Assets (POA) process to determine if it is the most suitable option possible for the Water Corporation.

A submission through the POA Portal will be required prior to submitting the designs to Land Servicing. Design submissions that involve sewers in basements/buildings will not be assessed against Design Standards and Guidelines if they do not have a POA Reference Number.

Design Guidelines

General

All Sewer in Basement/Building proposals must be designed to Water Corporation's requirements, as outlined in Design Standards 50 (DS50, Section 4.3.7).

Lodging the Submission (POA)

If the Applicant proposes to construct a sewer in a building/basement, A POA submission is required to assess the proposal's feasibility before an Initial Design Submission is made to Development Services Branch. It should be noted that the Water Corporation may not judge a sewer in a basement/building to be the most suitable option and the Applicant may be required to find an alternative servicing solution in accordance with the Protection of Assets Technical Guidelines and Design Standards.

Sewer in Basement/Building Proposals submitted through the POA Portal shall contain, at a minimum:

- Justification for constructing the sewer through the basement/building and an outline of any other alternatives that were considered and why they were ruled out
- Information outlining how Water Corporation will access the sewer for operation and maintenance purposes
- How the sewer will be protected within the building/basement

Lodging the Submission (Development Services)

POA Assessment Accepts Proposal In-Principle

When a response from the POA assessment has been provided back to the Applicant, they can then submit their Initial Designs via the website for review. Applicants shall select 'Yes' to *"Does your submission propose a sewer within a basement/building?"* and are required to attach any correspondence from the POA Assessment to their submission, as well as the POA Reference number. If no POA Reference Number is provided, the Design Submission will be rejected.

POA Assessment Rejects Proposal

The Applicant will be required to consider other design alternatives based on the response provided from the POA Assessment in accordance with Water Corporation's Protection of Assets Technical Guidelines and Design Standards and submit an Initial Design Submission. Applicants shall select 'No' to *"Does your submission propose a sewer within a basement/building?"* as the design shall **not** include a sewer through a basement/building.

Construction & Inspection

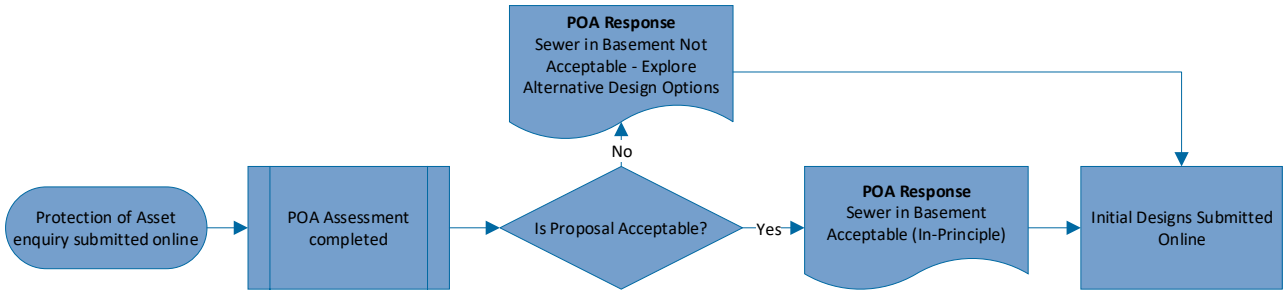
Upon receipt of the accepted Submission, you will be instructed to contact the relevant Asset Inspection team as per contact details in Section 1.5.

As-Constructed drawings must be supplied and submitted to Water Corporation and meet the standards required in the Developers Manual. This information is also used by Before You Dig Australia.

Resources

Design Standard DS50 – Section 4.3.7 Sewers with Buildings (Basements)

Sewer in Basement/Building Process Map



Appendix 15 – Service Obligation Date (SOD) Letter Template

(Developer Letterhead)

<Insert Date Here>
Name of the Purchaser(Cc Builder)/Builder
<Start Address Here>
<PO Box No>
<SUBURB WA P/C>

Dear Sir/Madam/<Name>

SUBJECT: LOT DETAILS – DEVELOPMENT NAME & STAGE – WATER & WASTEWATER SERVICE AVAILABILTY

This letter/email is to inform you that as part of creating and servicing your new land Title, our subdivision works are ongoing, including water and wastewater works.

This means before a building application is lodged with Water Corporation Building Services, you must confirm with us (insert Developer**) that our works are complete, and services are available.**

Currently, our completion date is <**PLANNED AS-CONSTRUCTED SUBMISSION DATE + 6 weeks**>. This includes time for us to submit as-constructed drawings to Water Corporation and for Water Corporation to connect the new water and sewer mains to the existing network.

We are closely monitoring our works and will inform you of any change to the above date or if services become available earlier.

If you already have a builder, it is critical you share this letter/email with them to keep them informed.

You're welcome to provide us your builder's contact details so we can keep them informed as well.
*Alternatively, if the developer has other ways to keep **builders** informed of key dates (e.g. an online portal / webpage / fortnightly updates, etc.) include instructions here of how builders find this info (and delete this note).

Any request for progress updates can be directed to us in the first instance.

If you or your builder have any queries, please contact me on <email> or phone <123456>.

Yours sincerely

<Name>
<Company position/role>

Cc Builder if already known

Appendix 16 – Development Services Structure and Contacts