SEQ Water Supply and Sewerage Design & Construction Code

(SEQ WS&S D&C Code)

Amendment to

Pressure Sewerage Code of Australia

(WSA 07 – 2007 V1.1)

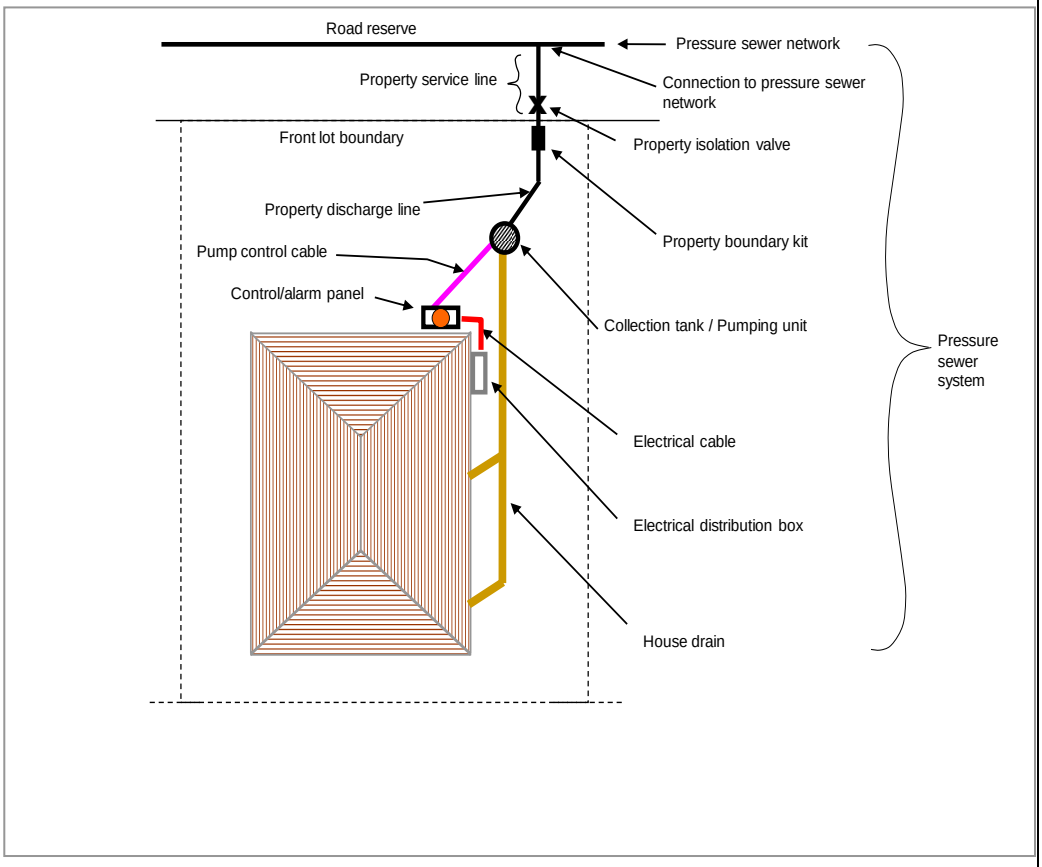
1 July 2013

Document History

Version	Description	Date
1.0	Initial Publication	01 July 2013

SEQ Amendment to
Pressure Sewerage Code of Australia
WSA 07 – 2007 V1.1

Reference:	Amendment to WSA 07- 2007 V1. 1
CONTENTS	
Part 4: Standard drawings	**Contents- number 27, replace the reference to PSS-1000 Series Drawings with the SEQ-PSS-1000 Series Drawings.**
INTRODUCTION	
Code Purpose	**Insert the following paragraphs at the end of this section:** The SEQ Design & Construction Code sets out SEQ Amendments to The Pressure Sewerage Code of Australia. The SEQ Amendments include: • The SEQ-SPs requirements for specific detail which the Code anticipates individual water agencies will address, and • Additions, deletions and variations to the Code where the Code's requirements are not compatible with the SEQ-SPs current requirements (due to local practice, climate, geographic and topographic conditions and statutory requirements, etc) or where the Code is otherwise silent. Any reference to the Pressure Sewerage Code of Australia ("the Code") shall be deemed to refer to the SEQ Design & Construction Pressure Sewer Code which contains the SEQ Amendments. The Code specifies mandatory requirements for the design and construction of Pressure Sewer that are to become the responsibility of the SEQ-SPs. The SEQ-SPs reserve the right to specify or approve other design and/or construction requirements for particular projects and/or developments. Before commencement of any construction, the SEQ-SPs approval shall be obtained to any design and/or installation that do not comply with the Code.
New Subheading Drawings and Figures	**Insert the following title and note after "Mandatory and Informative" section:** **Drawings and Figures** Drawing references are added throughout the Code. In the event of a clash between the individual drawings and the figures in the Code – the details shown on the individual standard drawings take precedence.
Proposed Amendments	**Insert the following note at the end of this section:** Users of the SEQ Design & Construction Code are invited to suggest amendments or improvements to the technical content and format or style of the document by contacting the individual SEQ-SPs.
New Sub-heading Conditions of Supply of SEQ Design and Construction Code	**Insert the following title and wording after "Proposed Amendments" section:** **Conditions of Supply of SEQ Design and Construction Code** SEQ Design & Construction Code is supplied subject to the following understandings and conditions: • SEQ Design & Construction Code is copyright and apart from any use as permitted under the Copyright Act 1968, no parts of the documents may be sold, reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission in writing of SEQ-SPs. • SEQ Design & Construction Code is intended for use in connection with SEQ-SPs related projects only. • SEQ-SPs do not warrant the applicability of SEQ Design & Construction Code to climates, topography, soil types, water and sewage characteristics and other local conditions and factors that may be encountered outside SEQ-SPs area of operations. • The holder of SEQ Design & Construction Code acknowledges that they may contain errors and/or omissions. • SEQ-SPs accept no responsibility for any works or parts thereof which may contain

Reference:	Amendment to WSA 07- 2007 V1. 1
	design and/or construction defects due to errors or omissions in any part of a SEQ Design & Construction Code which has not been prepared or formatted by SEQ-SPs. • SEQ-SPs accept no responsibility for the incorrect application of SEQ Design & Construction Code by the holder or any other party.
Part 0 : GLOSSARY OF TERMS, ABBREVIATIONS AND REFERNCES	
GLOSSARY OF TERMS	**Add the following term and definition in alphabetical order**: **Design & Construction Code** The SEQ Design and Construction Code is required by legislation and is an instrument— • made jointly by the SEQ-SPs; and • that provides for technical standards relating to the design and construction of pressure sewerage infrastructure in the SEQ region. **SEQ Service Provider (SEQ –SP)** Providers of water services to individual customers/groups of customers. Services to the South East Corner are specified in the South-East Queensland Water (Distribution and Retail Restructuring) Act and Natural Resources Provisions Act 2009 and service providers include Gold Coast City Council, Redland Water, Logan City Council, Queensland Urban Utilities and Unitywater.
FIGURE I	**Replace FIGURE I and the Note with a new FIGURE I and Note as below:** FIGURE I PLAN OF TYPICAL ON-PROPERTY COMPONENTS OF PRESSURE SEWER SYSTEM * *Note: Figure below shows the preferred location of on-property components in both existing developed property and new subdivisions/developments. Refer to Section 6 and Standard Drawings SEQ-PSS-1100-1, SEQ-PSS-1101-1 and SEQ-PSS-1102-1 for details. 

Reference:	Amendment to WSA 07- 2007 V1. 1
FIGURE II	**Insert a note next to connection point that:** The gravity house drainage and it's associated Inspection Shaft that is at or near to the Collection Tank connection shall comply with Queensland Regulations.
ABBREVIATIONS	**Add the following abbreviations and interpretations in alphabetical order:** ADAC Asset Design As Constructed SEQ-SP South East Queensland Water Services Provider
REFERENCED DOCUMENTS	**Add the following references to the end of this section** SEQ Code 02 SEQ (Gravity) Sewerage Code 1.1, 1.7.1, 4.2, 4.4.1 SEQ Code 03 SEQ Water Supply Code 27.2 SEQ Code 06 SEQ Vacuum Sewerage Code 9.2.6
Part 1: DESIGN	
PREFACE	**Insert the following titles and the respective paragraphs at the end of this section:** **General** Pressure sewers shall not to be used as a substitute for gravity sewers. Pressure sewers may only be used where the construction of gravity sewers are not practical. Where site constraints make a gravity sewer difficult to implement, the developer shall negotiate with the relevant SEQ-SP, and approval is required in the planning stage. **Written consent from the relevant SEQ-SP is required for acceptance of pressure sewers.** Pressure sewers may be used for residential lots or non-residential lots where effluent is equivalent to residential. For large industrial or commercial development, alternative configurations need to be considered. **All on-property components of a low pressure sewer system**, including customer sanitary drains; grinder pumps / collection tanks; control / alarm panels; property discharge lines and boundary kits (up to but not including the property isolation valves) **shall be owned and maintained by property owner**. Refer to Drawing SEQ-PSS-1101-1 for the typical components layout. All on-property designs shall be submitted to **Council's Plumbing Services Group for acceptance**. *The property isolation valves provide a boundary between public reticulation components and private on-property components in terms of ownerships, licensing of installers and inspection of work etc.* All reticulation components outside the serviced properties shall be owned and maintained by **the relevant SEQ-SP**. The detail design with design calculations of the reticulation system shall be supplied to **the relevant SEQ-SP** for review. Where Pressure Sewerage Systems are the means of Reticulated Sewerage for a property, the on-property components of the Pressure Sewerage System shall comply with the requirements of SEQ-WSA-07. The Plumbing Application shall be made with the specific components defined so that the SEQ Water Service Provider can review and advise the Council Plumbing Department of the compliance or not of the proposal. **Innovative Solutions** SEQ-SPs encourage any innovation that offers enhanced productivity and serviceability; however, the relevant SEQ-SP input and endorsement must be obtained before acceptance of any innovative system. **Responsibilities** The nominated Registered Professional Engineer of Queensland (RPEQ) is responsible to ensure that the design aspects and the constructed works comply with the requirements set out in the SEQ Pressure Sewerage Code. The RPEQ must ensure that SEQ-SPs's endorsement is obtained for any variations from these requirements. Any

Reference:	Amendment to WSA 07- 2007 V1. 1
	change of the nominated RPEQ shall be accompanied with the transfer of responsibilities for all works including works completed prior to the change of RPEQ. **Disclaimer** Whilst SEQ-SPs endeavours to ensure that the accuracy of the information contained in this document, the SEQ-SPs will not be liable for any loss or damage that may occur as a result of using the information contained herein.
GENERAL	**Insert notes that:** On-property components of pressure sewer system are owned and maintained by residents/landowner. Developer to provide a ten year maintenance plan as a condition for obtaining planning approval.
1.5.2 Planning responsibilities	**Delete the whole second sentence as below:** "*The Water Agency is generally responsible for overall planning for the provision of sewerage services to its customers. ~~Unless otherwise agreed between relevant parties, the Water Agency should provide a Concept Plan setting out essential inputs to be used in design, such as catchment area, flows, flow estimating methodology, collection/pump unit type, discharge point, recommended staging, pressure sewer network layout, or particular requirements of the Water Agency~~."*
1.5.3 Design responsibilities	**Replace the third paragraph with the following paragraphs** *In the design of a pressure sewer system, a significant amount of the system, critical to the operation, actually takes place on the individual homeowner's private properties. This increases the level of detailed on-site information needed to complete the design of the system. It is necessary to consider the operational involvement associated with accessing, maintaining and repairing the on-site components to ensure a continually reliable system. These circumstances warrant a system of the highest quality that balances cost, performance, safety, customer satisfaction, and operational reliability.* The design of the low pressure system including pressure mains and associated components shall be undertaken and certified by a Registered Professional Engineer of Queensland (RPEQ) with minimum of 3 years continuous experience of the design and installation on low pressure sewer systems. Pressure sewer design shall be separated into two components, reticulation design and on-property design. Refer to Clause 'General' in 'Preface' of Part 1 for the ownerships and responsibilities of the two components. **Reticulation Design** concerns the design of the actual pressure sewer reticulation system including all components outside the serviced property, i.e. pressure sewer laterals (including property isolation valves), isolation valves and flushing points etc. **On-Property Design** concerns the design of the property boundary assemblies and discharge lines (up to but not including property isolation valves), collection tanks / pump units, control / alarm panel, electrical cables and property sanitary drains etc. *The property isolation valves provide a boundary between public reticulation components and private on-property components in terms of ownerships, licensing of installers and inspection of work etc.* **Replace the words "the Water Agency's" with the words "an agreed" in item (a) of this clause. So it reads as** a) translating the planning output into a detailed system/network design. The Designer shall undertake the necessary design and prepare Design Drawings compatible with an agreed Concept Plan and the design parameters (as detailed in this Code and/or Water Agency requirements) **Add the words "and gas valves" at the end of item (iv) (H). So this item read as:** (h) Locations of cleanouts, flushing points, isolation valves and gas valves.

Reference:	Amendment to WSA 07- 2007 V1. 1
1.7.1 Concept plan	**Amend the reference to Clause1.5:** In the first sentence of this Clause, change the reference of Clause 1.5 to Clause 1.3.
1.7.3 Detail design	**Add the following additional requirement at the end of this clause:** The Designer is to ensure that all services within the area of work are shown on the Design Plans and the Contractor is to protect services in accordance with the Clause 13.5.2.
2.9 Odour control	**Add the following paragraphs after the second paragraph:** SEQ-SPs will require the designer to provide a report detailing the odour generation potential. This analysis shall take into consideration the sewage detention time both within collection units and the pressure pipe lines. Such analysis including odour calculation shall be submitted to SEQ-SPs for review. Odour control to be installed in accordance with the outcomes of the designers odour management study (options may include ventilation, chemical dosing or other approved solutions). For vent pole details refer to Drawing SEQ-SPS-1405-2. For properties below flood level (e.g. 1 in 100yr) where tank lid is sealed, the ventilation needs to be located well away from residential areas as agreed with the relevant SEQ–SP.
2.13.1 General	**Add the following additional requirement to the end of this clause:** Ownership of on-property components (up to but not including the property isolation valve) will not transfer to SEQ-SPs. Refer to Clause 'General' in 'Preface' of Part 1 this Code.
3.2 Design tolerances	**Add as the last sentence of (b) (i):** The maximum cover over reticulation mains shall be 1500 mm. **Replace the reference to Standard Drawing PSS-1000 in item (b) (i) with SEQ-PSS-1000-1.**
3.6.5 Tidal Zone	**Change the title of this clause to read :** 3.6.5 Tidal Zones and High Water Table. **Add new item C to the end of this clause:** Item c) Tank installation to be in accordance with the manufacturer's recommendations (specifically for addressing buoyancy).
3.7.1 Reticulation Sewers	**Replace the 2nd paragraph with:** All pressure reticulation sewers shall be located in a dedicated public road reserve or access way.
3.7.2 On-property Components	**Add the following as the last paragraph in this clause:** The property discharge line for a given property shall not cross onto any adjacent property, or collect the discharge from any other property. Exceptions may include where the property discharge line crosses a common area. Approval by SEQ-SPs will be required for these exceptions.
3.8 Railway Reserves	**Replace the reference to Standard Drawing PSS-1004 with SEQ-PSS-1004-1**
3.10 Mechanical Protection of Pipelines	**Replace the reference to Standard Drawings PSS-1001 and PSS-1002 with SEQ-PSS-1001-1 and SEQ-PSS-1002-1 respectively.**

Reference:	Amendment to WSA 07- 2007 V1. 1
3.12.2 Deviation of pipelines around structures	**Add to the last paragraph:** The use of 90-degree bends will not be permitted. 90-degree bends shall be accomplished by installing two 45-degree bends with a separation of minimum 300 mm. Where the PE100 PN16 pipeline is curved on site, the minimum radius shall be as per POP 202.
3.12.3 Clearance from structures	**Add the following as the last paragraph in this clause:** All mains (including privately owned Property Discharge Lines) shall be located with sufficient clearance to structures to allow for maintenance and operation activities. Where practicable, SEQ-SPs preferred clearances will be as shown in Table 5.5 of the SEQ Water Supply Code and as defined in the separate SEQ Building Over Adjacent Assets document.
3.12.4 Clearance requirements	**Amend the Table 3.1 as :** **TABLE 3.1** **CLEARANCES BETWEEN PIPELINES AND OTHER UNDERGROUND SERVICES**

Utility (Existing or proposed)	Minimum horizontal clearance mm		Minimum vertical clearance[1] mm
	Pipeline size NB		
	≤ 200 mm	> 200 mm	
Water mains ≤ 375 mm	1000[2]	1000[2]	500[5]
Water mains > 375 mm	1000[2]	1000[2]	500[5]
Gravity sewers ≤ 300 mm	300[3]	600	500[5]
Gravity sewers > 300 mm	300[3]	600	500[5]
Sewers – pressure	300[3]	600	500[5]
Sewers – vacuum	300[3]	600	500[5]
Gas mains	300[3]	600	500
Telecommunication conduits and cables	300[3]	600	300
Electricity conduits and cables	500	1000	500
Stormwater drains ≤ 300 mm	300[3]	600	150
Stormwater drains > 300 mm	300[3]	600	300
Kerbs	150	600[4]	150 (where possible)

Amend Notes 3 and 4 of Table 3.1 to read as:

Note 3 *Clearances can be further reduced to 150 mm for distances up to 2 m when passing installations such as concrete bases for poles, pits and small structures, providing the structure is not destabilised in the process.*

Note *4* Clearance from kerbs shall be measured from the nearest point of the kerb. *For pressure sewers ≤ 375 mm clearances from kerbs can be progressively reduced until the minimum of 150 mm is reached for sewers ≤ 200 mm.*

<table>
<tr><th>Reference:</th><th>Amendment to WSA 07- 2007 V1. 1</th></tr>
<tr><td>3.12.5 Crossings</td><td>Insert the following after the first paragraph:

Pressure pipes which cross roadways shall be installed in accordance with the requirements of the relevant road authority.
Pressure pipes which traverse creek crossings shall be in accordance with the DERM requirements.

Replace the reference to Standard Drawings PSS-1002 and PSS-1003 with SEQ-PSS-1002-1 and SEQ-PSS-1003-1 respectively.</td></tr>
<tr><td>3.15.1 Septicity</td><td>Remove “where necessary” at the end of Item (iii) of this clause:</td></tr>
<tr><td>4.3 Design inputs and outputs</td><td>Add the following to the end of item (e):

The volume in each tank at the time of power recovery, shall be based on the longest power outage in the previous five years (as provided by the relevant power authority) occurring during the peak property discharge period.
Where less than five years of records are available the designer shall determine an appropriate outage period based on available records and document the rationale for their determination.</td></tr>
<tr><td>4.4.3 Peak flows from homes and required pumping rates</td><td>Replace the second paragraph with the following:

For operational reasons, swimming pool discharges including backwash from either commercial or domestic pools shall not be discharged to the pressure sewerage reticulation system.</td></tr>
<tr><td>4.4.4.1 General (Design flows)</td><td>Add the following after the fourth paragraph:

For example, the following table may be used as a guide.

<table>
<tr><th>Number of grinder pumps connected</th><th>Number of grinder pumps operating simultaneously</th></tr>
<tr><td>1</td><td>1</td></tr>
<tr><td>2—3</td><td>2</td></tr>
<tr><td>4—9</td><td>3</td></tr>
<tr><td>10—18</td><td>4</td></tr>
<tr><td>19—30</td><td>5</td></tr>
<tr><td>31—50</td><td>6</td></tr>
<tr><td>51—80</td><td>7</td></tr>
<tr><td>81—113</td><td>8</td></tr>
<tr><td>[81+33(n)]—[113+33(n)]</td><td>8 + n</td></tr>
</table>
</td></tr>
<tr><td>4.4.4.3 Design flow verification</td><td>Add as a last sentence to this clause:

SEQ-SPs will not accept a design without the System Supplier’s endorsement.</td></tr>
<tr><td>4.5.2 Minimum pipe sizes</td><td>Replace the first and second paragraphs with:

For single pressure sewer pumping units, the lateral and property discharge line sizes shall be DN 40 (OD).
For duplex pressure sewer pumping units, the lateral and property discharge line sizes shall be DN 50 (OD).
Pressure reticulation sewers shall be ≥ DN63 (OD) unless Clause 4.5.3.4 requires a smaller size.</td></tr>
</table>

Reference:	Amendment to WSA 07- 2007 V1. 1
4.5.3.1 Pipe sizing by analysis- General	**Add the following additional requirements as the last paragraph of this clause:** For operational reasons SEQ-SPs has limited the sizes of PE100, PN16 pipe to DN 40, 50, 63, 90, 125, 180, 250, 315 and 355.
5.1.3 Location of network system	**Add the following additional requirements as the last paragraph of this clause:** The reticulation pressure sewers shall be located in the approved services corridor as specified by the relevant authority.
5.1.4 Alignment of pressure sewers	**Replace item (iii) with the following:** (iii) Refer to Clause 3.7 for any easement requirements.
New Clause 5.1.7 Bends	**Insert the following as a new clause:** **5.1.7 Bends** Reticulation pressure sewers will achieve any bend greater than 45 degrees by use of multiple bends (i.e. two 45 degree bends instead of one 90 degree bend) or a long radius bend with a minimum radius for cold bending as per POP202. Bends are not to be achieved by using multiple butt welds.
5.3.4 Installation	**Replace clause with:** Typical valve installation and chamber details are shown in Standard Drawing SEQ-PSS-1005-1.
5.4.1 General	**Delete the first two lines.** **Replace the third paragraph and "NOTE" with:** Isolation valves ≥ DN80 shall be resilient seated gate valves. Isolation valves < DN80 shall be ball valves.
5.4.2 Isolation valve locations	**Replace item a) with the following:** The maximum spacing of isolation valves on reticulation mains shall be: a. 200 m for DN 100 and 150 mains; b. 300 m for DN 200, DN 250 and DN 300 mains. **Add additional items after item (c):** (d) at the end of the Lateral immediately adjacent to pressure sewer mains, where the property service connection crosses a roadway, to isolate the section of property service connection across the road from the Service Provider network, (e) at the end of the Lateral immediately outside the property being serviced. This Property Isolation Valve services as the connection between the Property Discharge Line (including boundary kit) and the Lateral. Refer to Standard Drawing SEQ-PSS-1101-1, (f)at each incoming reticulation pressure main branch, i.e. at Tee's. (g) immediately upstream of the discharge MH at the connection to the gravity sewer, and (h) at other positions on the network pressure mains to provide operational flexibility for system operation, repair, line flushing and the like. These requirements will necessitate the installation of two isolation valves where a property service connection crosses a roadway.
5.5 Air release and vacuum break valves	**Replace the word "air" with "gas" in the title of this clause**.
5.5.1 Installation design criteria	**Replace the word "air" with "gas" in this clause**. **Delete the "Note: Air also includes sewer gases" following the first paragraph.**

Reference:	Amendment to WSA 07- 2007 V1. 1
	Replace the reference to Standard Drawings PSS-1006 with SEQ-SPS-1605-1 (applicable to QUU only) and SEQ-SPS-1606-1 (applicable to GCCC, LCC, RCC and UW). **Insert the following additional requirement at the end of this clause :** Manual or automatic gas release/anti vacuum valves shall be located at parts of the main where the designer considers gas may accumulate over time. However, the design shall ensure that where possible the pressure sewer is designed to avoid the use of gas valves. Gas valve shall be located in pits with appropriate covers as shown in drawings SEQ-SPS-1605-1 (applicable to QUU only) and SEQ-SPS-1606-1 (applicable to GCCC, LCC, RCC and UW). In circumstances where air accumulation will cause significant impact on the system hydraulics, an automatic gas release valve which suits sewerage system is to be installed. The designer is to determine where this situation occurs and take into account the following factors: (a) proximity to properties, (b) venting requirements and subsequent odour issues, (c) aesthetics of vent, and (d) additional depth of cover required to install an gas valve. Detail provided on separate drawings as follows: • Manual Valving – Standard Drawing SEQ-SPS-1605-1 • Automatic Valving – Standard Drawing SEQ-SPS-1606-1
5.5.5 Chambers	**Replace the last paragraph with:** Refer to Drawings SEQ-SPS-1605-1 (applicable to QUU only) and SEQ-SPS-1606-1 (applicable to GCCC, LCC, RCC and UW) for the typical chamber.
5.6.2 Flushing points and scours	**Replace the second paragraph with:** All dead ends to pressure sewers shall be provided with an end flushing point. **Add additional item (v) after item (iv):** *(v) At high points for the manual entry of air or for the release of gas during maintenance activities.* Refer to Drawing SEQ-PSS-1007-1 for typical flushing point arrangements.
New Clause 5.8 Discharge Maintenance Holes	**Insert the following as a new clause:** **5.8 Discharge Maintenance Holes** The pressure sewer main shall discharge to the gravity sewer through a discharge MH in accordance with the details on Drawings SEQ-SPS-1406-1, SEQ-SPS-1406-2, SEQ-SPS-1406-3 and SEQ-SPS-1406-4. Discharge MH's shall not be located on private property. Refer to Design Criteria for limitations on discharge to receiving sewers. Discharge MH may not be required for a small pressure sewer system. Where pressure sewers directly discharge into gravity sewers, designer shall ensure the turbulence and sulphide generation potential to downstream gravity sewers meet the odour Control requirements of Clause 2.9.
New Clause 6.1.3 Design and construction policy	**Insert the following as a new clause:** **6.1.3 Design and construction policy** For development projects the developer is required to install all pressure sewer laterals and property isolation valves. Property isolation valve is located on public side immediately outside the boundary of the private property being serviced. Property isolation valves serve to connect property boundary kits (private components) to pressure sewer laterals (public components). Refer to Drawing SEQ-PSS-1101-1 for a typical arrangement.

Reference:	Amendment to WSA 07- 2007 V1. 1
6.3 Vacant lots	**Remove references to Appendix B and Figure 6.1.** **Replace the third paragraph with the following:** Residential vacant lots shall be provided with pressure sewer laterals at the time of construction of the reticulation system. The lateral shall be terminated at the property isolation valve and finished with a threaded cap. The property isolation valve shall be located immediately outside the front property boundary line. The location of the property isolation valve shall be identified with detectable marking tape secured to the last fitting and terminated above ground. **Delete the last sentence of this clause.** **Delete Figure 6.1.**
6.4 Existing property data collection	**Insert additional item to the end of this clause:** (q) Significant vegetation.
6.6 Control and alarm panels	**Insert the following additional requirements at the end of this clause:** All control/alarm panels shall have an emergency generator connection point. All control/alarm panels shall be clear of 1-in-100 year flood level as advised by relevant local authority.
7.1 General design requirements	**Insert the following at the end of this clause:** Design of collection/pump units is the responsibility of the on-property designer. The designer shall certify, to Council Plumbing Section, that the work have been designed and installed to approved plan and manufacture's specification to ensure that the system will perform satisfactorily**.** Collection/pump units must be sized to ensure that their operation does not overwhelm or compromise the system (new and existing) in any way**.**
7.2.1 General	**Insert the following requirement at the end of the first paragraph of this clause:** Pressure sewer collection tank shall be designed to provide a minimum of 24hours of emergency storage at Average Dry Weather Flow for the property being served. **Delete reference to Appendix B at the end of the first paragraph**.
7.4 Maximum flows to collection/pump units	**Include the following as a last paragraph:** For operational and hydraulic reasons, flow, backwash or other discharge from a pool or spa shall not be connected to a collection/pump unit and then into reticulation system.
7.7 Connection to customer sanitary drain	**Replace reference to Standard Drawing PSS-1101 with SEQ-PSS-1101-1**. **Delete the last paragraph.**
8 Service connection pipe work	**Include the following into this clause:** Design of service connection pipe work (not the lateral) is the responsibility of the on-property designer**.**
8.2 Laterals	**Replace the second paragraph with the following:** A property isolation valve shall be installed immediately outside property boundary between laterals and property boundary kits.
8.4 Depth of	**Replace this clause with the following:**

Reference:	Amendment to WSA 07- 2007 V1. 1
pipework	The minimum and maximum depths of service connection pipework shall be in accordance with the Standard Drawing SEQ-PSS-1000-1.
9.2.2 Pipe cover	**Replace the reference to Standard Drawing PSS 1000 with SEQ-PSS-1000-1.**
9.2.3 Trench design	**Replace the reference to Standard Drawings PSS 1000 and PSS 1001 with SEQ-PSS-1000-1 and SEQ-PSS-1001-1**
9.2.5 Pipe embedment	**Replace the reference to Standard Drawing PSS 1000 with SEQ-PSS-1000-1**
Part 2 : PRODUCTS AND MATERIALS	
10.6.1 Collection tank/ pump units - General	**Add the following additional requirement as a second paragraph:** Where Pressure Sewerage Systems are the means of Reticulated Sewerage for a property, the on-lot components of the Pressure Sewerage System shall comply with the requirements of SEQ-WSA-07. The Plumbing Application shall be made with the specific components defined so that the SEQ Water Service Provider can review and advise the Council Plumbing Department of the compliance or not of the proposal. **Add the following as the last paragraphs:** The pump system supplier shall provide a pre-assembled package of the low pressure sewer on-property components, including pumps, collection tanks, associated piping and valves, liquid level sensors, electrical control panel, electrical distribution box, and all other associated components. Pump motors shall be continuous rated, IP68 electrical rating. *A pre-assembled package has distinct advantages that the assembly has been refined, as dictated by previous experience. The pre-assembled package also provides a single source of responsibility in the event of malfunction, and for component replacements.*

<table>
<tr><th>Reference:</th><th>Amendment to WSA 07- 2007 V1. 1</th></tr>
<tr><td>10.7.2 Polyethylene (PE) pipes and fittings</td><td>
Amend the first sentence of this clause to read as:

DN40, 50, 63, 90, 125 180, 250, 315 and 355 PE 100 pipes and fittings suitable for jointing with electrofusion fittings or butt fusion welding shall be used for pressure sewers, laterals and property discharge lines.

Add the following requirement to the end of the first paragraph:

Debeading is not required for E-F joints unless otherwise specified by SEQ-SPs.

Replace the fourth paragraph with:

For operational reasons SEQ-SPs has limited the sizes of PE100, PN16 pipe within its pressure sewer systems to DN 40, 50, 63, 90, 125,180, 250, 315 and 355.

Amend the Table 10.2 - Internal Diameters of PE Pipes as:

<table>
<tr><th>Pipe Size DN
PE100, PN16/SDR11</th><th>Internal Diameter
mm</th></tr>
<tr><td>40</td><td>32</td></tr>
<tr><td>50</td><td>40</td></tr>
<tr><td>63</td><td>51</td></tr>
<tr><td>90</td><td>73</td></tr>
<tr><td>125</td><td>102</td></tr>
<tr><td>180</td><td>146</td></tr>
<tr><td>250</td><td>203</td></tr>
<tr><td>315</td><td>256</td></tr>
<tr><td>355</td><td>289</td></tr>
</table>
</td></tr>
<tr><th colspan="2">Part 3 : CONSTRUCTION</th></tr>
<tr><td>12.2 Personnel qualifications</td><td>
Add the following requirement after the second paragraph:

Personnel carrying out or supervising the installation of pressure sewer shall hold minimum qualifications as required by AS2033 Installation of Polyethylene Pipe Systems. The minimum PE accreditation is PMBWELD301B and PMBWELD302B. On-property works are Regulated Plumbing and shall be carried out by a Licensed Person.
</td></tr>
<tr><td>13.5.1 Safety of people</td><td>
Replace the second last paragraph with:

Adhere at all times to the Queensland Works Health and Safety Act 2011 (WHS Act) and the Work Health and Safety Regulation 2011 (WHS Regulation).
</td></tr>
<tr><td>13.5.2 Protection of other services</td><td>
After the first sentence add:

Should information on Water Supply and Sewerage assets not be available from Dial Before You Dig, a direct application to the relevant Water Service Provider will be required.
</td></tr>
<tr><td>13.5.3 Disused/ Redundant sewers, drains and tanks</td><td>
Replace the Clause with:

The Contractor is responsible for any disused sewers as defined within the Contract Drawings.
</td></tr>
</table>

Reference:	Amendment to WSA 07- 2007 V1. 1
	It is the Owner's responsibility to take action regarding disused sanitary drains and septic tanks e.g. removal, filling, capping at points of disconnection and removing surface fittings as specified etc. Disused/redundant drains and tanks are to be disposed off in accordance with local requirements as specified/approved by the relevant authority.
14.2 Authorised products and materials	**Add to the second paragraph :** "and listed within the SEQ Products and Materials List."
16.8 Foundations and foundation stabilisation	**Replace the reference to Standard Drawing WAT-1200 with SEQ-WAT-1200-1 and SEQ-WAT-1200-2.**
17.3 placement of bedding	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**
17.4 Special pipe support for non-supportive soils	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**
18.1 General	**Insert below sentence after the second paragraph:** *All pipes to be stored and handled in accordance with the manufacturer's recommendations.*
18.3.3 Quality Plans	**Replace the reference to Standard Drawings WAT-1102 and WAT-1409 with SEQ-WAT-1102-1 and SEQ-WAT-1409-1 respectively.**
18.4 Open trench installation	**Replace the fourth sentence of this clause with:** Do not exceed a bending radius as recommended in POP202 **Replace the reference to Standard Drawings WAT-1209 and WAT-1210 with SEQ-WAT-1209-1 and SEQ-WAT-1210-1 respectively.**
18.5 Trenchless installation	**Delete first line of this clause as below:** ~~Use trenchless installation only where specified in the design.~~ **Replace the last sentence of the 3rd paragraph with:** Do not exceed a bending radius as recommended in POP202. **Replace the 6th paragraph with:** After installation by HDD methods, the pipe will contract and is to be left unrestrained for a period of 24 hours, or such period that is observed to coincide with practical cessation of contraction, as recommended by the pipe manufacturer. Depending on temperature, the method of installation, etc the length of time required for the pipe contraction can be quite significant. **Add the following requirement after the 6th paragraph:** Electrofusion welding shall not be permitted on lengths of PE pipe pulled through a HDD bore unless an appropriate design for the coupling's oversize & stress has been carried out and approved
18.6 Jointing	**Replace the 2nd & 3rd paragraph with:** Either electrofusion, butt welding or mechanical "gripper" joints shall be used for PE pipe jointing. All jointing shall comply with AS2033 and rated PN16 as a minimum. For PE pipes of different SDRs, use only electrofusion jointing to the thinner pipe. Butt welding shall not be used for pipes of different SDRs.

Reference:	Amendment to WSA 07- 2007 V1. 1
	Electrofusion jointing shall comply with POP001. Butt welding jointing shall comply with POP003. All jointing shall be performed under controlled conditions by skilled and experienced operators using approved equipment. All operators to be used on the work shall be accredited by a registered training organisation.
18.7 Thrust and anchor blocks and restrained joints	**Replace the reference to Standard Drawings WAT-1205, WAT-1206, WAT-1207 and WAT-1208 with SEQ-WAT-1205-1, SEQ-WAT-1206-1, SEQ-WAT-1207-1 and SEQ-WAT-1208-1 respectively.**
18.8 Pressure sewer laterals, Property boundary assemblies	**Replace 1st paragraph with:** At the time of construction of the reticulation system, install pressure sewer laterals including property isolation valves as specified, refer to Clauses 1.5.3, 6.1.3 and 6.3. Only SS316 valves may be used on services (brass or plastic valves are not acceptable). **Replace the reference to Standard Drawings WAT-1102, WAT-1106, WAT-1107, WAT-1108 and WAT-1109 with SEQ-WAT-1102-1 and SEQ-WAT-1200-2.**
18.9.1 Collection/pump units	**Replace the 1st paragraph with:** Install the collection/pump units in accordance with the Design Drawings, the manufacturer's recommended installation instructions and Council Plumbing Section's requirements. The tank shall be filled, up to the inlet pipe invert level, with water prior to pouring the concrete anchor to prevent the tank from "floating" before the concrete sets.
18.9.2 Customer sanitary drains	**Replace the reference to Standard Drawing PSS-1101 with SEQ-PSS-1101-1.**
18.9.3 Property discharge lines	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**
18.10 Pipeline tracer wires and detectable marking tapes	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**
18.11 Mechanical protection of pipelines	**Replace the reference to the Standard Drawings PSS-1001, PSS-1002 and PSS-1003 with SEQ-PSS-1001-1, SEQ-PSS-1002-1 and SEQ-PSS-1003-1 respectively.** **Add the following requirement as a last sentence of this clause:** Any mechanical protection shall be approved by SEQ-SPs.
18.13 Valves, valve chambers, scours and surface fittings	**Replace the reference to Standard Drawing WAT-1307 with SEQ-WAT-1307-3.**
18.14 Crossings	**Replace the reference to Standard Drawings PSS-1003 and WAT-1312 with SEQ-PSS-1003-1 and SEQ-WAT-1312-1 respectively.**
18.15 Location markers	**Insert the following paragraph at the end of this clause:** Location markers are also required where pressure sewer pipes are installed at varying offsets or in locations that may make it difficult to locate the pipes in the future. Location markers are generally required at changes of direction/crossings.

Reference:	Amendment to WSA 07- 2007 V1. 1
19.2 Embedment Materials	**Replace Clause 19.2 (a) with:** "Listed in the SEQ Accepted Product and Material List" **Delete Table 19.1.** **Replace the reference to Standard Drawings PSS-1000 and PSS-1001 with SEQ-PSS-1000-1 and SEQ-PSS-1001-1 respectively.**
19.4 Special bedding and embedments / geotextile surround and pillow	**Replace the reference to Standard Drawing PSS-1001 with the SEQ-PSS-1001-1**
19.7 Concrete embedment and encasement	**Replace the reference to Standard Drawings PSS-1001, PSS-1002, PSS-1003 and PSS-1004 with SEQ-PSS-1001-1, SEQ-PSS-1002-1, SEQ-PSS-1003-1 and SEQ-PSS-1004-1 respectively.**
20 Fill	**Insert the following into this clause:** Where the trench exists within a Roadway, the requirements of the relevant road authority take precedence over this Section.
20.1.1 Placement	**Replace the reference to Standard Drawings PSS-1000 and PSS-1001 with SEQ-PSS-1000-1 and SEQ-PSS-1001-1 respectively.**
21.1 General	**Add the following requirements at the end of this clause:** All the installations of on-property components for new or existing houses shall be inspected and approved (including final inspection and acceptance) by the relevant Council Plumbing Section. SEQ-SPs are responsible for the reticulation system outside the serviced property, refer Part 1 Preface and Clause 1.5.3.
21.3.3.1 Applicable pipe sizes	**Replace the reference to Standard Drawing WAT-1200 with SEQ-WAT-1200-1.**
21.3.4 Trench fill compaction testing	**Insert the following into this clause:** Where the Trench exists within a Roadway, the requirements of the relevant road authority shall take precedence over this Clause.
21.3.4.1 Trafficable areas test zone	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**
24.1 Asset documentation	**Replace the last paragraph with:** Submit documents to the Council Plumbing Section and relevant SEQ-SP upon completion of construction.

Reference:	Amendment to WSA 07- 2007 V1. 1
24.2 Work as constructed details	**Amend the first sentence of this clause as below:** Prepare and submit work as constructed drawings and documentation in accordance with the SEQ Asset information Specification. **Replace (a), (h) and (i) with the followings:** (a) The Asset Register Table for all components. (h) The total length of pressure sewer main for each pipe diameter. (i) The number and the total length of each size of pressure sewer lateral. **Add items (j) and (k) after (i) as below:** (j) Construction start and completion dates. (k) Any variations to the fitting list. **Add the following requirement at the end of this clause:** All "As Constructed" drawings shall have a text block as shown in the SEQ Total Asset Information Specification which shall be signed by an RPEQ to certify that they represent a true record of works.
Part 4 : STANDARD DRAWINGS	
26 Listing of standard drawings	**Amend Table in this clause as below:** **LISTING OF STANDARD DRAWINGS**

DRAWING NUMBER	ACTIVITY	TITLE
PRESSURE SEWERAGE NETWORK		
SEQ-PSS-1000-1	Embedment and Trench Fill	Typical Arrangement
SEQ-PSS–1001-1	Special Embedments	Concrete and Cement Stabilised Systems
SEQ-PSS–1002-1	Buried Crossings	Major Roadways
SEQ-PSS–1003-1	Buried Crossings	Under Obstructions
SEQ-PSS–1004-1	Buried Crossings	Railways
SEQ-PSS–1005-1	Typical Valve Installation	Shroud Pipe and Fittings Assembly
SEQ-PSS–1007-1	Typical Appurtenances	Details - Flushing Point
ON-PROPERTY COMPONENTS		
SEQ-PSS–1100-1	Design Layout	Typical Locality and Site Plan
SEQ-PSS–1100-2	Typical Property Sewer Service Plan	
SEQ-PSS–1101-1	Typical Property Connection	
SEQ-PSS–1102-1	Boundary Kit	
PIPELINE LAYOUT		
SEQ-WAT–1102-1	Typical Mains Construction	Reticulation Main Arrangements
EMBEDMENT / TRENCHFILL AND RESTRAINTS		
SEQ-WAT–1200-1	Typical Soil Classification Guidelines	And Allowable Bearing Pressures for Anchors and Thrust Blocks

Reference:	Amendment to WSA 07- 2007 V1. 1		
	SEQ-WAT-1200-2	Embedment & Trenchfill	Typical Arrangement
	SEQ-WAT–1205-1	Typical Thrust Block Details	Mass Concrete
	SEQ-WAT–1206-1	Typical Thrust and Anchor Blocks	For Valves
	SEQ-WAT–1207-1	Typical Thrust and Anchor Blocks	For Vertical Bends
	SEQ-WAT–1208-1	Typical Restrained Joint System	DN 100 To DN 375 DI Mains
	SEQ-WAT–1209-1	Typical Trench Drainage	Bulkheads and Trench stop
	SEQ-WAT–1210-1	Typical Trench Drainage	Trench Systems
	INSTALLATION PRACTICES / STRUCTURES		
	SEQ-WAT–1307-3	Typical Appurtenance Installation	Scour Arrangements
	SEQ-WAT–1312-1	Aerial Crossings	Typical Bridge Crossing Concepts
	FABRICATION DETAILS		
	SEQ-WAT–1409-1	Hydrant Installation Fittings	Typical PE Assemblies Nomenclature
	TYPICAL APPURTENANCES - GAS RELEASE VALVES		
	SEQ-SPS-1605-1	DN32 Air Bleed Assembly for OD250 Rising Mains or Smaller	Sewage Pump Station Gas Release Valve
	SEQ-SPS-1606-1	Automatic Gas Release Valve	Sewage Pump Station Gas Release Valve
	RISING MAIN DISCHARGE		
	SEQ-SPS-1406-1	Rising Main Discharge to Gravity Sewer	Sewage Pump Station Standard Drawing
	SEQ-SPS-1406-2	Preferred Rising Main Discharge	Manhole to Gravity Sewer- 900mm Dia
	SEQ-SPS-1406-3	Alternative Rising Main Discharge	Manhole to Gravity Sewer- 900mm Dia
	SEQ-SPS-1406-4	Rising Main Discharge Manhole	To Gravity Sewer- 1200mm Dia
27 Commentary on PSS-1000 Series drawings	**Replace the reference to Standard Drawing PSS-1000 Series with SEQ-PSS-1000 Series.**		
27.2 PSS-1000- embedment and trench fill	**Replace the reference to Standard Drawing PSS-1000 with SEQ-PSS-1000-1.**		
27.3 PSS-1001- special embedments	**Replace the reference to Standard Drawing PSS-1001 with SEQ-PSS-1001-1.**		
27.4 PSS-1002, PSS-1003 and PSS-1004- buried crossings	**Replace the reference to Standard Drawings PSS-1002, PSS-1003 and PSS1004 with SEQ-PSS-1002-1, SEQ-PSS-1003-1 and SEQ-PSS-1004-1.**		

Reference:	Amendment to WSA 07- 2007 V1. 1
27.5 PSS-1005- typical valve installation	**Replace the reference to Standard Drawing PSS-1005 with SEQ-PSS-1005-1.**
27.6 PSS-1006- Typical appurtenances- valve and vent shaft details	**Delete reference to PSS-1006.** **Add the following to the end of the title of this clause:** Refer to SEQ Sewage pumping Station Drawings SEQ-SPS-1605-1 and SEQ-SPS-1606-1. **Delete the content of this clause.**
27.7 PSS-1007- Typical appurtenances- flushing point details	**Replace the reference to Standard Drawing PSS-1007 with SEQ-PSS-1007-1.**
27.8 PSS-1100- Design layout	**Replace the reference to Standard Drawing PSS-1100 with SEQ-PSS-1100-1.** **Add reference to the drawing SEQ-PSS-1100-2.** **Add the following after the first paragraph:** SEQ-PSS-1100-2 shows typical existing property sewer service plan.
27.9 PSS-1101- On-property layout	**Replace the reference to Standard Drawing PSS-1101 with SEQ-PSS-1101-1.** **Change the drawing title to "TYPICAL PROPERTY CONNECTION".**
27.10 PSS-1102- property boundary assembly	**Replace the reference to Standard Drawing PSS-1102 with SEQ-PSS-1102-1.** **Change the drawing title to "BONDARY KIT".**