


Pressure Sewer Solutions

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	BROADWATER SEWERAGE SCHEME	
	Client: Ledonne Constructions	Contract: 0602785-1
	Location: BROADWATER NSW	Document: DOC 300.42 Issue J

BROADWATER SEWERAGE SCHEME CONNECTION RULES


1.	<p>Source:</p> <ol style="list-style-type: none"> 1. RVC Pressure Sewer Policy 3.20.3 18/08/09 2. Home Owner manual 3. RVC, Ledonne Constructions and Pressure Sewer Solutions P/L meeting held on site 11/10/11 4. 1 in 100 Flood Level for Broadwater is 4.6M AHD.
2.	<p>Property Equipment Ownership and Easements Ownership for the following items shall reside in RVC.</p> <ul style="list-style-type: none"> • Pressure Sewer Unit • Boundary kit and Property discharge line (from pump unit to boundary kit) • Control panel and cable <p>Property owners are not required or permitted to interfere with the operation of property equipment. Operation and Maintenance will be undertaken by Council. Council has authority to enter properties via Local Govt Act 1993 (Section 191A). Easements are not generally required on private properties unless the collection main or property discharge main is required to pass through a neighbouring property. The property owner will be responsible for maintenance of the electrical circuit between the control panel and property switchboard. A positive covenant reinforcing Councils rights of access may be required as condition of consent for new sub-divisions serviced by a pressure sewerage system. Property owners will be provided a home owner manual which outlines the service standards, what to do if alarm sounds, power failure occurs and swimming pool discharge etc.</p>
3.	<p>Required Connections It is desirable that all properties within Broadwater sewerage scheme will be connected upon sewerage being available. The majority of premises will be connected under the contract even if plumbing upgrades are required as identified in the audits. Property owners may choose to use Ledonnes to carry out these upgrades or a licenced plumber. However, Council will issue orders (in accordance with the LG Act) for those property owners that choose to use a private plumber for any plumbing upgrade works.</p>
4.	<p>Single Dwelling Residential Properties The Broadwater sewerage scheme will cover the cost for residential properties for the following: The design, supply and installation of the street main network, the property discharge line, the boundary valves, a SINGLE pressure sewer unit with stub riser (property connection point), control panel and associated equipment. RVC will also connect up to 5 meters of the sewer drainage to the PVC stub-pipe in accordance with Councils plumbing standards (AS 3500). For some properties where the pump unit cannot be located within 5m of the septic/house due to physical constraints (not at the request of the property owner), Council will pay for the extra plumbing work to make this connection.</p> <p>Some properties have been amalgamated for rating purposes. For 2011/12, each lot that is capable of connection to water or sewer will now be subject to the sewer charge of \$800, whether occupied or vacant. Property owners may claim an exemption from the charges such as when the building opportunity may not be readily achievable or the owner has no intention of developing the separate lot.</p>



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	<p>▲ Sewer availability charge \$800 (2011/12).</p>	Formatted: Not Highlight
5.	<p>Vacant Lots Vacant lots paying a sewerage vacant charge will be entitled to a connection to the sewerage scheme. Once development of the property commences the property owner needs to contact council to arrange the works and payment of the Property Levy (as identified in Council's fees and charges). This entitles the property owner to a pressure sewer unit and associated equipment (as per RVC Pressure Sewer Policy) with the installation costs to be met by the property owner. A Boundary Kit is to be provided at each vacant lot (that is deemed to be sewerable with a building opportunity) 1m x 1m from the side and front boundary. The BK location is to be negotiated and agreed by the property owner. If the property owner is not available the BK is to be located on the low side of the lot.</p>	
6.	<p>Commercial and Multiple Dwelling Residential Properties The Broadwater sewerage scheme will cover the cost for Commercial (including non-single dwelling residential lots) properties for the following: The design, supply and installation of the street main network, the property discharge line, the boundary kit, pressure sewer unit with stub riser (property connection point), control panel and associated equipment. Where more than one dwelling exists on a single property a larger single pump unit (with 2, 3 or 4 pumps) may be used.</p>	
6A	<p>Flats with Separate Owners with or without Strata Title or Body Corporate Connection Requirements for Double or Multi Unit Developments - Strata title lots with 1 or 2 dwellings will get a PU for each dwelling. <i>If a single property has more than 2 dwellings owned by separate people with common strata title areas and existing sewer drainage system drains to multiple septic tanks. The RVC policy states that a single larger PSU shall be installed i.e. allow a 2 or 4 pump PSU (based upon sewage loading) for the site in a position where the drainage can be modified to connect and allow the strata body to connect the sewer drainage.</i> Where the above is not practical Pressure Sewer Solutions P/L will design the property works to install multiple PU's if in the opinion of the auditor it's the most practical solution. The property designer must document the reasons for the multiple PU's which will be desk top reviewed by RVC. The reasons may include the following. A single PU may require:-</p> <ol style="list-style-type: none"> 1. As single PU may not provide enough depth to obtain house sewer fall from all the dwellings. 2. Private house sewer to be installed under an existing structure, zone of influence or concrete slab. 3. Extensive decorative concrete cutting to install PU or house sewer. 4. 3 or 4 single PU will be lower capital cost than 1 large multi pump PU. 5. Electrical connection upgrade works for a common electrical supply to the PU may be extensive and expensive. 6. Restoration may be extensive e.g. structural surface finishes. 7. The house sewer drainage may need to pass through a property next door to connect to a single PU and the next door owner does not allow access for construction. <p>Ledonne to arrange to have RVC review on a case by case basis – a conditional signoff on the basis of unconfirmed information for that case is not desirable</p>	Formatted: Not Highlight



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	<p><i>Clearly where 1 PU is used it is preferable to connect the PU to a common property electrical circuit.</i></p> <p><i>In the above situation where the lot is not a strata and each unit is separately owned, a separate PSU shall be installed for EACH dwelling.</i></p> <p>Electrical Connection For a strata or body corporate the electrical connection is required to extend off the "house" or "common" supply. If a common or house electrical supply does NOT exist details of the property are to be taken and reviewed with RVC prior to determining the connection location.</p>
8.	<p>Caravan Parks A PSU will be provided for each existing amenities building and each permanently occupied residential dwellings septic tank. The pump unit selection is based upon existing property design loadings.</p>
9.	<p>Development Sites and Sub-Division If approved by Council and in accordance with RVC Pressure Sewer Policy:- Developer to meet all associated costs Developer to design and install all collection network and property works Developer to pay sewerage developer contribution Provide instrument on the lot of each title – Property has a pressure sewer system and home owner manual requirements. Pump units to be compatible with RVC units for Broadwater.</p>
10.	<p>Connection Timeframe It is desirable that all properties within Broadwater sewerage scheme will be connected upon sewerage being available. The majority of premises will be connected under the contract even if plumbing upgrades are required as identified in the audits. Property owners may choose to use Ledonnes to carry out these upgrades or a licenced plumber. However, Council will issue orders (in accordance with the LG Act) for those property owners that choose to use a private plumber for any plumbing upgrade works.</p>
11.	<p>Existing Sewer Drainage and Electrical Audits A plumbing and electrical audit shall be undertaken on each property by PS Solutions and Ledonne Constructions. Property owners will be advised and be responsible for the cost of upgrade works to their existing sewer drains and electrical switchboard should it be determined by the property audit. Property owners will be provided a price for Ledonne's to do the upgrades based on tendered rates or get their own licenced plumbers/electricians to do the works. It is desirable that property owners ensure that any upgrade work is completed prior to the pump unit being installed if they choose to use their own plumber/electrician.</p>
12.	<p>Separate Black and Grey Water Properties having split system (separate black and grey water) must be combined and connected to sewer (including caravan parks).</p>
13.	<p>Existing Sewer Drainage All property owners will be responsible for any plumbing upgrade works that are identified in the audits. The property owner may choose to use Ledonnes to carry out this work or they may choose to use a licenced plumber. If the home owner requests the pump unit to be located in a different location than that recommended by PSS Solutions (to be approved by Council first), then the cost of the additional plumbing/electrical works will be the responsibility of the property owner. Property owners are also responsible for the decommissioning of their existing on-site systems. Refer to Department of Health Guidelines and requirements of RVC Environmental Health section (EDS).</p>

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14.	<p>Council Fees Sewer availability charge is \$800 pa (2011) for both vacant and developed lots.</p> <p>Some properties have been amalgamated for rating purposes. For 2011/12, each lot that is capable of connection to water or sewer will now be subject to the sewer charge of \$800, whether occupied or vacant. Property owners may claim an exemption from the charges such as when the building opportunity may not be readily achievable or the owner has no intention of developing the separate lot.</p> <p>Section 64 charge for 2011/12 is \$26,000.</p> <p>Property Levy is: See attached email.</p>
15.	Existing on-site tanks cannot be reused for stormwater storage as required by RVC Environmental Health section.

Note:	
Audits start date 14 th November 2011 Community Open Day 14/11/2011	

Other Things to Know Prior to Start on Site

- Properties outside the scheme boundary can they connect? Yes/No at what cost? Scheme boundaries have been defined. Future developments outside the scheme boundaries will be assessed at that time.
- Council's construction program – Completion by February 2013.
- Any confidential issues - No
- Trade waste policies – RVC trade waste officer has visited all the Broadwater commercial properties. Refer to RVC Trade Waste Policy.
- Sewer Rates payment history, e.g. Are there any properties that shouldn't be connecting because they haven't made payment – to be advised. Some properties have not been charged sewer rates and Council has written to these property owners. Rates department need to advise if any problems exist.
- PS Solutions to enquire with each property owner if their property holds rain / storm water or floods and document the flooding extent on the property plan and check list.
- Mortar jointed VCP sewer drainage is deemed by RVC to be a non-conforming material therefore the system requires upgrade. Mortar joints will not be acceptable. All VC pipe to be replaced.

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General PSU Equipment Location Rules


1. Pressure Sewer Solutions will provide an A4 size property outline plans which will incorporate the following information:-
 - a) Property boundaries
 - b) Location of the connecting street pressure sewer main.
 - c) Property address
 - d) Street name
 - e) Property DP numbers and property identification.
 - f) Standard clause for property owner's signature. The clause defining the property owner's consent of the various on lot pressure sewer equipment location and setout, also the owners consent for the construction works of the pressure sewer system.

2. Pressure Sewer Solutions will also provide a pressure sewer unit audit check list covering issues that need to be addressed on each property and with property owners. Each property will involve individual and unique issues that will require detailed attention or issue of notifications to the homeowner to upgrade the sewer drainage system to Australian Standards.

3. An appointment will be arranged with each property owner on each property to review and document on the above check lists and property outline plans resolutions regarding issues including but not limited to the following:-
 - a) How the pressure sewer system will work at the Village and the benefits to the property owners and occupiers.
 - b) Costs to the property owners (refer this to Council please).
 - c) Pressure Sewer Solutions in association with the property owner will define the locations of equipment on site. Items of pressure sewer system equipment on individual properties e.g. the pressure sewer unit, alarm panel, Boundary kit and access box, electrical connections and existing septic tank etc.
 - d) The location of the above equipment shall be coordinated by Pressure Sewer Solutions with the objective of integration into a complete and operating pressure sewer system. E.G. the location of the pressure sewer unit must be capable of collecting black and grey water from the existing dwelling.
 - e) Pressure Sewer Solutions will also review with the property owner any plans they may have for future on property developments which may interfere with the pressure sewer equipment selected locations and or sewage discharging fixtures which may require connection to the tank at a later stage. These issues will be incorporated into the property audit plans.
 - f) In extreme last resort circumstances only will the PSU be permitted to be installed in the existing septic tank.
 - g) Audit check list to nominate any long electrical cables.
 - h) Generator point will be provided on commercial properties.

4. The PSU agreed location is to be nominated on the property by a spray painted PINK dot. This is to done ONLY with the consent of the property owner.


5. Note that all information that will be discussed and provided to the property owner and/or resident shall be provided to Pressure Sewer Solutions prior to accessing the site. Speculation and issues subject to opinion will not be discussed with any property owners or residence and only approved information is to be provided to property owners. This is to insure the consistency of information being provided to the community which is critical in the implementation of the system.

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6. The house lot plan will also nominate relevant surface hard and soft finishes such as landscaping, driveways and pathways etc.
7. Photos of the front of the property, equipment and piping locations will be taken and tabulated.
8. Pressure sewer unit locations will also give consideration the adjacent buildings structural issues such as footings zone of influence.
9. The drawings will also nominate the construction methodology for the all items of pressure sewer equipment on site e.g. installation of the pressure main to be open cut trenched by a ditch witch or require trenchless technology for the pressure main installation due to extensive property disruption. In this instance quantity of required boring will be clearly shown on the drawing and the reason for it.
10. Once property audits have been documented and signed off by the property owners they will be scanned and copied onto CD ROM, for filing.
11. Each of the property plans will then be documented in CAD, reprinted and the original property owner signed off plan, photos and other documentation will be attached and reissued ready for construction.
12. Working hours will be to suit the individual property owner's appointments therefore this scope of works will require some out of normal hours work.


Property Audit Issues from the Project Specification

1.	Review the audit check list on site with each property owner.
2.	Determine location of pressure sewer equipment in accordance with the following list and in consultation with the property owner.
3.	<p>16.2.1.2 Hydraulic Audit</p> <p>The Contractor shall confirm the location and arrangement of the existing sanitary drainage and on-site disposal system (e.g. septic tank and absorption trench) to ensure the adequacy of these, that no stormwater is gaining access to the system and if there are separate greywater and blackwater lines and what will be required to get these into the new collection/pump unit.</p>
4.	<p>16.4.4 LOCATION OF COLLECTION / PUMP UNITS</p> <p>Where possible, the collection/pump unit shall be installed in accordance with the following criteria:</p> <ul style="list-style-type: none"> · within 12 metres of the control / alarm panel due to pump standard control cable lengths (15m). Longer length control cables can be used where confirmed with supplier; · For non-standard collection/pump unit installations, separation from buildings and other structures will be required to clear the "45 degree zone of influence" on the foundation; · 2 metres from building walls or other structures (including retaining walls) to clear the "45 degree zone of influence" on the foundation (for a 2000 mm pressure sewer collection tank depth); · 3 metres from opening window; and · 1.5 metres from the side boundary of the property. <p>Where possible gully traps shall be at a level slightly lower than the collection tank lid to provide a dedicated point of relief.</p> <p>Where there is insufficient space to install a collection/pump unit on the property or the property is based on hard rock, a collection/pump unit may be installed inside an existing septic tank (if one exists on the property) providing that the tank is structurally adequate and it has been cleaned to council's satisfaction before the installation is made. This option is a last resort.</p> <p>Where possible, the pumping unit cover shall have a minimum 1 metre clearance all around the outer</p>

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	<p>circumference of the collection tank for at least 270 degrees on plan, with 2.5 metres clearance above. For pumping units installed above grade, such as under decking or a pole foundation, a winching point shall be provided above the cover with a 100 kg load capacity for grinder pump removal. Any such installations will be subject to the Principal's approval.</p> <p>The pumping unit shall not be located within buildings or other enclosed areas.</p> <p>Existing property sanitary lines and property grey water lines shall be exposed prior to installing the pressure sewer collection tank. Levels of these existing lines shall be confirmed to ensure that all sanitary and grey water lines can be drained to the collection tank. The pressure sewer collection tank shall be located at a level that permits sufficient slope on the new property sanitary lines as required by prevailing codes and standards. Where installations occur in flood areas the breather ports shall be sealed and venting provided above 1:100 Flood Level.</p>
5.	<p>16.6.2 PROPERTY DISCHARGE LINE The property discharge line shall be constructed either by open trench excavation or by trenchless technology.</p> <p>The property discharge line for a given property shall not cross onto any adjacent private property (unless an easement is provided), or collect the discharge from any other property. Any easements shall be in favour of the benefited property, and any legal or compensation costs for the creation of easements shall be the responsibility of the property owner. All easement conditions shall be met and approved by the Principal. Exceptions that may require easements include special properties where the access drive for a given property serves as access to additional properties as well. The property discharge line shall be offset from buildings at the required distance to clear the 45degree zone of influence on the foundation.</p>
6.	<p>16.7 PROPERTY BOUNDARY KIT The property boundary kit is an EOne kit supplied by the Principal as part of the EOne pressure sewer unit.</p> <p>The property boundary kit is to be located 1.0 metre inside the property line that parallels the pressure sewer network, and 1.0 metre inside the nearest side property line, unless obstructions or other site conditions dictate another location.</p>
7.	<p>16.8.1 CONTROL/ALARM PANEL Installation works shall be completed as per the following conditions;</p> <p>(a) The control/alarm panel shall be mounted on the building being serviced by the pressure sewer system, wherever possible. Where the pressure sewer pumping unit installation is required to be located more than 10 metres from the building being serviced, and there are no other suitable structures upon which to attach the panel, the panel must be mounted on a structurally sound frame.</p> <p>(b) The control/alarm panel shall be located in a location that can be safely accessed by maintenance personnel without obstructing access to any features of the property by the owner. The control/alarm panel shall be located within line of site of the Pressure Sewer Pumping Unit, and shall be positioned in a location such that visible and audible alarms should be noticed during an alarm condition.</p> <p>(c) Where possible, the control/alarm panel shall be mounted at a height of between 1200 and 1500 mm above ground level and a minimum of 400mm above the 1:100 year Flood Level if possible. The panel should be accessible and on a double storey house located on the upper verandah.</p> <p>(e) Cable connection to the panel shall be through the bottom and shall have a compression gland supplied with the unit and installed inside to ensure it is waterproof. The cable shall terminate in the panel, while the conduit shall not extend into the panel. No holes shall be drilled through the panel.</p>

Pressure Sewer Code of Australia (Extracts)

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WSA 07 – 2007

6.2 CLEARANCES

Minimum horizontal clearance between buried water services and any pressure sewer system components shall be 300 mm. Where the crossing of a buried water service is required, the property discharge line shall be located below the water service with a minimum vertical clearance of 100 mm.

The preferred crossing angle is 90 degrees.

6.3 VACANT LOTS -

A Boundary Kit is to be provided at each vacant lot 1m x 1m from the side and front boundary. The BK location is to be negotiated and agreed by the property owner. If the property owner is not available the BK is to be located on the low side of the lot.

6.4 EXISTING PROPERTY DATA COLLECTION (Extract from Pressure Sewer Code - WSA 07 2007)


The following data shall be collected in the field during the property inspection and documented on the Property Sewer Service Diagram:

- (a) -
- (b) -
- (c) Property access issues such as fencing, gates, and animals.
- (d) All Building outlines based on aerial photography or survey data.
- (e) List of building plumbing facilities for all buildings.
- (f) Any excessive discharge fixtures such as pools or spas.

Property owners need to be aware that all pool backwash / discharge water is to be directed to sewer. RVC require that residents regulates pool backwash volumes and rates so as not to exceed the capacity of the pressure sewer pumping unit and to avoid alarms being needlessly generated. The same provisions shall apply to draining swimming pools. The pump backwash / discharge rate must be less than 0.45L/sec. If this requirement cannot be met it will be necessary to provide additional storage (holding tank) with controlled discharge of less than 0.45L/sec.

- (g) Driveways, concrete footpaths, patios, decks, landscaping, fencing, and any other significant potential obstructions.
- (h) Layout of all existing customer sanitary drains, including those which are not connected to an on-site effluent disposal system.
- (i) Depth and material of each customer sanitary drain at building perimeter and at on-site effluent disposal system (if known).
- (j) The location of all storm water drainage system components, including sub-surface drains, and the point(s) of discharge.
- (k) -
- (l) Electrical distribution box shown in its actual location.
- (m) Any restoration considerations on the property as discussed.
- (n) Underground services (if known).
- (o) Geological formations, such as rock, at less than 1 m depth (if known).
- (p) Steep, difficult grade or particularly rugged terrain.




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6.5 DESIGN AND LAYOUT OF NEW ON-PROPERTY COMPONENTS

The following factors shall be considered prior to locating any on-property pressure sewer system components, listed in descending order of priority:

- 1 Avoid risk to structure foundations and other property assets. Locate the tank **AWAY** from any structure zone of influence.
- 2 Allow for access to and ongoing operation and maintenance of equipment being installed. Generally, access to the collection/pump unit by a 900 mm wide trolley, and walking access to all other on-property components.
- 3 Locate collection/pump unit away from natural drainage paths and depressions.
- 4 Minimise encroachment of equipment on property.
- 5 Locate equipment to minimise the extent, and associated cost, of new infrastructure.
- 6 Minimise the length of customer sanitary drain to be installed to minimise potential infiltration and to minimise the property owner's connection expense.
- 7 Any preferential locations requested by the property owner.
- 8 - Consideration from planned future extensions



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Where possible and unless site conditions dictate a larger offset, property discharge lines shall be located within 1 m of a side boundary.

The preferred property boundary assembly location is 1 m inside the property boundary crossed by the pressure sewer lateral and 1 m inside the nearest side property boundary, unless obstructions or other site conditions dictate otherwise.

6.6 CONTROL AND ALARM PANELS

Shall be located in a weatherproof enclosure at least 1,200mm to 1,500mm above finished surface level in a clearly visible location in direct line-of-sight from the collection tank and as close as practicable to the tank.

In the case of flood-prone areas the weatherproof enclosure shall be located above the 1 in 100 year flood level, except where this would require ladders to access the panel. In any installations below the 1 in 100 year flood level, the enclosure shall be no lower than the existing property switchboard.

It is preferable that the control and alarm panels are attached to the external wall of the building on the property being serviced. Where this is not practicable a panel on a post is acceptable.

Locate the panel within 10 meters of the pressure sewer unit

7.3 LOCATION

The collection/pump unit should be located on the property being serviced and clear of any built improvements so as to minimise the length of customer sanitary drain and power supply from the building switchboard within the limitations of the site and requirements of the property owner.

7.6 COVERS AND FRAMES

The top of the tank shall be located at least 150 mm above the 1 in 100 year flood level.

Where permission has been given to locate the collection tank in areas subjected to flooding or ponding of water, the tank shall be provided with a watertight cover and a vent from the tank to a level above the roofline of the house in accordance with Clause 6.8.4 of AS/NZS 3500.2. Where the tank is located below the 1 in 100 year flood level, the watertight covers shall also be capable of being bolted-down.

The appropriate class of covers and frames for trafficable and non-trafficable areas shall be nominated on the Design Drawings i.e. Class B for non-trafficable and Class D for trafficable.


Where collection/pump units are to be located on public land, the covers shall be capable of being locked in place to prevent entry by non-authorised personnel (Refer to the Water Agency regarding supply of a standard master keyed lock).

Collection tank covers shall provide sufficient access opening for easy pump removal and routine maintenance of fixed items within the tank.

8.1 PROPERTY DISCHARGE LINE

8.2 LATERALS

Pressure sewer laterals shall connect the property boundary assembly of each property to the pressure reticulation sewer. Laterals shall connect the reticulation pressure sewer at right angles and, wherever practicable, cross roadways at right angles. Where a property boundary assembly is located more than 5 m inside the boundary crossed by the pressure sewer lateral, an isolation valve shall be installed on the pressure sewer lateral immediately adjacent to the pressure reticulation sewer.

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8.3 DESIGN CRITERIA

Service connection design shall conform to the requirements of [Clause 4.5](#) except that the minimum pipe size shall be DN 40. The service connections shall be also sized to cater for any known future development of the lot.

9.1 DIFFICULT GROUND CONDITIONS

9.1.1 Foundation design and ground water control

As necessary, the Design Drawings shall specify special precautions required to mitigate the effects of difficult geological and foundation conditions.

If the foundation conditions and/or the groundwater conditions (present or predicted to occur) call for special design details or construction practices, such requirements shall be specified in the Design Drawings. Where foundation treatments are necessary, and/or groundwater conditions affect either the design or construction of the sewer, then the Design Drawings shall specify:

- (a) Details of any special foundations treatment required.
- (b) Special methods necessary to control groundwater flow along the pipe embedment and/or trench fill e.g. by means of bulkheads.
- (c) All sections of the sewer where the Constructor will need to pay particular attention to controlling groundwater prior to excavation to prevent heave of or loss of density in the trench floor material e.g. "boiling" sand.
- (d) Areas subject to subsidence.
- (e) Other geotechnical considerations e.g. zones of influence near structures.

Where two or more dwellings are to be served by a single unit e.g. a strata title subdivision or where two families in the one building are to be served e.g. a dual-occupancy, the collection/pump unit should be located outside on common property clear of any built improvements to minimise the length of gravity sewers.

Collection/pump units located in geologically unstable (slip / talus) ground may require specialist geotechnical analysis and design and the Designer may need to consider the use of piered support. In rocky terrain the collection/pump units should be located on level compacted ground wherever practicable to assist in installation and maintenance of the unit





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40 PSS PERFORMANCE SPECIFICATION

Figure 1: Schematic of Typical On-Property Components of Pressure Sewerage System

