

**SEWERS FOR ADOPTION 6 – PIPE MATERIALS TABLE AND CONDITIONS OF USE
VERSION 4 – March 09**

	Foul and Storm		Lateral Drains (100 & 150 mm Diameters)		Pumped		Storage	
	General	Exceptions	General	Exceptions	General	Exceptions	General	Exceptions
Clay	✓		✓		✗		✓	
Concrete	✓		✓		✗		✓	
Ductile Iron (Internal and external protection should be agreed)	✓		✓		✓		✓	
Polyethylene Pipes	<i>Not generally used for this application</i>	✓ AW, YW, SW	<i>Not generally used for this application</i>		✓	<i>Consult Undertaker: WxW</i>	✗	✓ AW
		<i>Consult Undertaker: TW</i>						
Solid Wall PVC-U (BS EN 1401) (*PVC-A only)	✓	✗ AW, UU*, SW, DCWW TW	✓	✗ TW	✗		✗	
Spiral wound welded HDPE (EN 13476 Parts 1 & 2)	✓	✗ SWW, YW	<i>Not generally used for this application</i>		✗		<i>Consult Undertaker</i>	✓ SW, NW, DCWW
		<i>Consult Undertaker: STW, TW, UU</i>						
Structure-walled thermoplastic with profiled external surface (EN 13476 Parts 1 & 3 and WIS 4-35-01 up to 900mm)	<i>Consult Undertaker</i>		<i>Consult Undertaker</i>		✗		<i>Consult Undertaker</i>	
Polypropylene (BS EN 1852)	<i>Consult Undertaker</i>	✗ DCWW	<i>Consult Undertaker</i>	✗ DCWW	✗		<i>Consult Undertaker</i>	✗ DCWW

AW – Anglian Water, DCWW – Dwr Cymru Welsh Water, NW – Northumbrian Water, SW – Southern Water, STW – Severn Trent Water, SWW – South West Water, TW – Thames Water, UU – United Utilities, WxW – Wessex Water, YW – Yorkshire Water, ✓ - Acceptable, ✗ - Unacceptable

Conditions of use for pipe materials

Version 4 - March 2009.

Polypropylene pipes – specification requirements

Polypropylene pipes and fittings for gravity sewers shall comply with the relevant provisions of BS EN 1852: Part 1 1998 *Plastics piping systems for non-pressure underground drainage and sewerage. Polypropylene (PP). Specifications for pipes, fittings and the system.*

Structured-wall plastic pipes – specification requirements (updates Sub-Clause 5.2.22(1))

Note: The new structured wall pipe European Standard BS EN 13476 and the old WIS 4-35-01 are now current documents. There is a transition period until May 2009 during which kitemarking of products against either standard is permitted then the WIS will be withdrawn and all kitemarking will be to the new standard.

Structured wall plastic pipes shall comply with the relevant provisions of WIS 4-35-01 Issue 1 2000: Thermoplastics structured wall pipes, joints and couplers with a smooth bore for gravity sewers for the size range 150-900 inclusive, or the relevant parts of BS EN 13476 as listed below.

All structured wall plastic pipes shall comply with BS EN 13476: Part 1 2007: *Plastics piping systems for non-pressure underground drainage and sewerage. Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE). General requirements and performance characteristics.* Note: the National Annex to BS EN 13476-1 refers to the application of additional tests included in WIS 4-35-01.

Structured wall pipes with a smooth external surface (includes spirally wound HDPE pipes) shall comply with the requirements of BS EN 13476: Part 2 2007: *Plastics piping systems for non-pressure underground drainage and sewerage. Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE).* Specifications for pipes and fittings with smooth internal and external surface and the system, Type A.

Structured wall pipes with a profiled external surface (includes ribbed pipes) shall comply with the requirements of BS EN 13476: Part 3 2007 *Plastics piping systems for non-pressure underground drainage and sewerage. Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE). Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B.*

Pipes shall be BSi Kitemarked or have equivalent Third Party Certification.

Note: sub-clauses 5.2.22(2), (3) and (4) are unchanged.

Polyethylene (pumped)

- WxW: For some applications Wessex would normally require an alternative to PE for pumping mains: mains above ground; crossing of a watercourse, canal, motorway or railway; in locations where ground contamination conditions are detrimental to PE.

Polyethylene (storage)

- TW; Pipes of diameters larger than 900mm will be subject to individual product approvals.

Solid wall PVC-U (pumped)

- STW: PVC-O Mondial and PVC-A Hep30

Spiral wound HDPE (foul and storm)

The Undertaker may accept structured wall plastic pipes if design calculations to BS EN 1295 are undertaken based on site specific conditions and indicate satisfactory performance.

- STW: can use on foul but restriction on type of manhole
- TW: 150 – 900mm diameter, capable of demonstrating a jetting resistance of 4000 psi (280 bar) without damage when tested in accordance with Section 6.10 of WIS 4-35-01.
- UU: Installation of this pipe material to be fully in accordance with manufacturers Instructions. Pipelines constructed of this material will be subject to post installation internal deformation testing prior to adoption.

Spiral wound HDPE (storage)

The Undertaker may accept spiral wound plastic pipes if design calculations to BS EN 1295 are undertaken based on site specific conditions and indicate satisfactory performance.

- AW: Not to be used under roads
- STW: can use on foul but restriction on type of manhole
- TW: pipes of diameters larger than 900mm will be subject to individual product approvals.
- UU: Installation of this pipe material to be fully in accordance with manufacturers Instructions. Pipelines constructed of this material will be subject to post installation internal deformation testing prior to adoption
- WxW – Not to be located in a highway, near existing services or where future services are likely to be laid. Install minimum of 100mm thick concrete layer on top of surround with a marker tape 150mm above the slab to warn of pipe storage existence. Warnings signs will also be required at each end of the unit plus intermediate signs dependent upon length.
- YW:

Structured wall thermoplastic (foul, storm)

Structured wall plastic pipes should be Stiffness Class 8kN/m². The Undertaker may accept structured wall plastic pipes with a lower ring stiffness if design calculations to BS EN 1295 are undertaken based on site specific conditions and indicate satisfactory performance.

- AW: Pipe must be capable of demonstrating a jetting resistance of 4000 psi (280 bar) without damage when tested in accordance with Section 6.10 of WIS 4-35-01.

- DCWW: 150 – 900mm diameter using the products specifically approved by DCWW Product Group. Where 450 mm to 900 mm diameter pipes for gravity sewers and pipes larger than 900 mm diameter for storage use are proposed the ultimate settlement of the ground surface from the combination of consolidation of backfill and ovalization of the pipe shall be calculated by the Developer and verified as acceptable by the ultimate owner of that surface.
- STW: The Nominal short term stiffness shall meet the requirements of Clause 6.15 in WIS 4-35-01 and the pipes shall be marked showing Stiffness Class 8 in accordance with Clause 8.1 in WIS 4-35-01. See table below for approved materials – products not shown in the table will be subject to individual product approval. Prior to adoption, the Developer shall be required to demonstrate by an acceptable physical test that the pipe work satisfies the long-term deformation criteria.

Polysewer – Polypipe Building Products	Size 150 mm, 225 mm and 300 mm
Quantum- Marley	Size 150 mm, 225 mm and 300 mm
Ultrarib - Uponor	Size 150 mm, 225 mm and 300 mm
Ultrarib - Wavin	Size 150 mm, 225 mm and 300 mm
Ridgisewer – Polypipe Civils Ltd	Size 400 mm, 450 mm, 500 mm, 600 mm, 750 mm and 900 mm
Weholite – Asset International	Size 450 mm to 3000 mm

- SW:
 - o for sizes 150-300mm pipes must have a jetting resistance of 4000 psi, when tested in accordance with the methodology set out in Section 6.10 of Water Industry Specification 4-35-01, and must satisfy all other provisions of that specification.
 - o for sizes 450-900mm pipes must have a jetting resistance of 2600 psi, when tested in accordance with the methodology set out in Section 6.10 of Water Industry Specification 4-35-01, and must satisfy all other provisions of that specification.
- SWW: 150 – 300mm diameter, plastic channel sections will not be permitted, pipes to be either ‘Ultrarib’ (Osma), ‘Quantum’ (Marley), Polysewer and Ridgisewer (Polypipe); prior approval from SWW for each site, which will take into account factors such as site conditions and land contamination
- TW: 150 – 900mm diameter, capable of demonstrating a jetting resistance of 4000 psi (280 bar) without damage when tested in accordance with Section 6.10 of WIS 4-35-01. Pipes > 900mm diameter subject to individual product approvals until there are appropriate national or European standards. For the avoidance of doubt it is confirmed that Weholite polyethylene pipes manufactured by Asset and Rigidrain manufactured by Polypipe are so approved. There are further limitations on the use of plastic pipes with respect to their siting.
- UU: 150 – 900mm diameter, Pipelines constructed of this material will be subject to post installation internal deformation testing prior to adoption
- WxW: The Nominal short term stiffness shall meet the requirements of Clause 6.15 in WIS 4-35-01 and the pipes shall be marked showing Stiffness Class 8 in accordance with Clause 8.1 in WIS 4-35-01. 150 – 900mm diameter, factory made junctions to be used to make post-construction connections. If deformation exceeding 6% occurs the developer should carry out remedial works to rectify the situation as soon as possible.

- YW: (Size limitation?), design calculations to be submitted together with site conditions to substantiate the values used in the calculations, approved drawings shall show that plastic pipes are to be used and bedding details shown, Section 104 Agreement shall be in place before any pipes are laid on site, plastic channel sections will not be permitted.

Structured wall thermoplastic (storage)

- AW: Pipe must be capable of demonstrating a jetting resistance of 4000 psi (280 bar) without damage when tested in accordance with Section 6.10 of WIS 4-35-01.
- DCWW:
- NW: early consultation required and a decision would be site specific.
- STW: can be used for storage (usually larger dia pipes > 300 mm dia).
- SW:
 - o for sizes 150-300mm pipes must have a jetting resistance of 4000 psi, when tested in accordance with the methodology set out in Section 6.10 of Water Industry Specification 4-35-01, and must satisfy all other provisions of that specification.
 - o for sizes 450-900mm pipes must have a jetting resistance of 2600 psi, when tested in accordance with the methodology set out in Section 6.10 of Water Industry Specification 4-35-01, and must satisfy all other provisions of that specification.
- Sww
- TW: Structured wall pipes of diameters larger than 900mm will be subject to individual product approvals until there are appropriate national or European standards.
- UU: Pipelines constructed of this material will be subject to post installation internal deformation testing prior to adoption.
- WxW:, should not be located in a highway, near existing services or where future services are likely to be laid. Install minimum of 100mm thick concrete layer on top of surround with a marker tape 150mm above the slab to warn of pipe storage existence. Warnings signs will also be required at each end of the unit plus intermediate signs dependent upon length.
- YW: only use off highway.