Specification

EPS 500 – Engineering Product Specification for Standard Pipes and Fittings for Networks

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Revision details

Version No.	Clause	Description of revision
1	All	New Revision
2	Acronyms	Updated table
		Requirements for gate valves, ball valves and air valves removed
	1.0	Revision of designer responsibility
	2.0	Revised notation of applicability of EPS-500 to facilities covered by BMIS0209
	4.0	Minor change in notation of recycled water to non-drinking water supply
	6.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-246 in reference standards table removed
	7.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-236 included
	7.2.2 g)	Requirements for variable bend, post-formed PVC-U fittings for non-pressure application to WSA PS-236 included
	8.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-216 removed from reference standards table
		WSA PS-218 removed from reference standards table
		WSA PS-281 removed from reference standards table
		WSA PS-309 included into reference standards table
	8.2.1 b)	Requirements for plastic moulded fittings for pressure applications with PE pipe amended to comply to WSA PS-208 from WSA PS-216. Added requirement for adjustable elbow fittings limited to use with drinking water or recycled water applications.
	8.2.1 e)	Requirements for PE, plain wall pipes and fittings for non-pressure applications to WSA PS-216 removed
	8.2.1 g)	Minor wording amendment
	8.2.1 i)	Requirements for backing rings for PE Flanges to comply with WSA PS-309 added
	8.2.2 a)	Added requirement of adjustable elbow fittings.
	8.2.2 b)	Requirements for fabricated PE fittings and post formed bends to comply with WSA PS-242 from PS-218.
	8.2.2 c)	Amendment to requirements of stiffness class of PE100 SDR21
	9.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		AS/NZS 5065 Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications added to reference standards table
	9.2 a)	Minor grammar amendment
	9.2 b)	Requirements for polyethylene and polypropylene pipes and fittings for drainage and sewerage applications to comply with AS/NZS 5065 added
	9.2 c)	Minor amendment to add specificity of application

Version No.	Clause	Description of revision
	9.2 d)	Minimum pipe stiffness class for stormwater drainage application added
	9.2 e)	Added additional pipe colour requirement added
	10.2 d)	Minor amendment to notation for concrete durability requirements
	12.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-219 added to reference standards table
	12.2 a)	Minor notation amendments
	12.2 a) i	Inclusion of applicability of use for respective WSA Product Specification
	12.2 a) ii	Inclusion of applicability of use for respective WSA Product Specification
	12.2 a) iii	Requirements for compliance to WSA PS-219 added
	12.2 b)	Minor amendments of requirements of type of service applicability of GRP pipes
	12.2 c)	Removed requirements for centrifugally cast glass reinforced plastics non-pressure pipes and fittings in open trench installations for wastewater applications to AS 3571.1
	12.2 e)	Minor amendment to type of application
	13.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
	15.1	Reference to WSA PS-346 stainless steel sewer OB junctions clamps – sewerage added to reference standards table
	15.2 b)	Compliance statement for stainless steel sewer OB junctions clamps to WSA PS-346 added
	16.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WS PS-327 removed from reference standards table
	16.2 a) ii	Requirements for tapping bands to WSA PS-327 removed
	17.1	WSA PS-288 added to reference standards table
		Reference to AS 3718 removed from reference standards table
		Reference to AS 3688 removed from reference standards table
	17.2 a)	Requirements for tapping ferrules to WSA PS-288 added
		Compliance statement for main taps to AS 3718 removed
		Compliance statement for fittings to AS 3688 removed
	19.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		EPS 301 added to reference standards table
	19.2 b)	Requirements for screw hydrants to EPS 301 added
	20.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
	21.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-271 added to reference standards table
		AS 4087 added to reference standards table
	21.2.1 a)	Minor amendment to classification of mechanical coupling use

Version No.	Clause	Description of revision
	21.2.1 a) ii	Requirement for mechanical couplings and flange adapters to WSA PS-271 added
	21.2.1 b)	Requirement to restrict use of end thrust restraint applications with PE pipe added
	21.2.3	Requirement for thrust restraint mechanical couplings and flange adapters to WSA PS-271 removed
	22.1	Minor change in notation in reference standards table to be in line with WSA Product Specification Version 7.6
		WSA PS-293 removed from reference standards table.
		WSA PS-294 removed from reference standards table.
	22.2 a)	Added requirement to not use WSA PS-291
	22.2 b)	Requirement for thermoplastic access covers amended to comply with WSA PS-292 added
	22.2 d)	Requirement to restrict use of thermoplastic access covers to class B load applications added
		WSA PS-339 added to reference standards table
		WSA PS-340 added to reference standards table
		WSA 137 removed from reference standards table
	24.2 c)	Requirement for PE MH to WSA PS-339 added
	24.2 d)	Requirement for PP MH to WSA PS-340 added
	24.2 f)	Requirement for plastic MH to WSA 137 removed
	25.2 e)	Requirement for no steps and/or ladders in MC’s added
	27.2 f)	Requirement for polymeric material to meet requirements of AS 3996-2019
	28.1	WSA PS-248 added to reference standards table
	28.2 b)	Requirements for kerb markers to WSA PS-248 added
	30.0	Title change
	30.1	Requirements for marker posts to WSA PS-286 added
	30.2 a)	Requirements for marker posts to WSA PS-286 added

Disclaimer

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Acronyms

Acronym	Definition
Al	Aluminium
AS/NZS	Australian standards / New Zealand standards
BMIS	Business management information system
CAC	Calcium aluminate cement mortar lined
CC-GRP	Centrifugally cast -– glass reinforced plastic
CCTV	Close circuit television
CIOD	Cast iron outside diameter
CML	Cement mortar lined
Cu	Copper
DI	Ductile iron
DN	Diameter nominal
FW-GRP	Filament wound -– glass reinforced plastic
GB	General blended
GP	General purpose
GRP	Glass reinforced plastic
ISO	International organisation for standards
JAS-ANZ	Joint accreditation system for Australia and New Zealand
MC	Maintenance chambers
MH	Maintenance holes
MS	Maintenance shafts
NSF/ANSI	American national standards institute
OD	Outside diameter
Pb	Lead

Acronym	Definition
PE	Polyethylene
PN	Pressure nominal
PP	Polypropylene
PU	Polyurethane
PVC-M	Polyvinylchloride modified
PVC-O	Polyvinylchloride oriented
PVC-U	Polyvinylchloride unplasticised
RC	Reinforced concrete
RRJ	Rubber ring jointing
SN	Stiffness
SR	Sulphate resisting
VC	Vitrified clay
WSAA	Water services association of Australia
Zn	Zinc

1. Introduction

This Specification is for the manufacture of pipes and fittings for Sydney Water network assets. It describes the minimum requirements that manufacturers and suppliers must comply with during manufacturing, fabricating, testing and certification. This Specification does not cover requirements for packaging, transportation, and delivery requirements.

This specification must be read in conjunction with the associated Australian Standards, International Standards, Water Services Association of Australia (WSAA) Product Specifications, Water Industry Standards and relevant Sydney Water specifications.

It is the Designer's responsibility to undertake all the necessary investigation and design work to ensure the nominated product specification is fit for purpose for their intended application. This product specification must be read in conjunction with any specific contract documentation for the relevant project.

2. Scope

This specification applies to the manufacture, fabricating, testing and certification of standard pipes and fittings used in Sydney Water's drinking water, non-drinking water supply, sewerage and stormwater networks. For non-standard products, refer to EPS 501 - List of Approved Non-Standard Products for Networks (D0001614).

This specification does not apply to pipes and fittings within Sydney Water facilities covered by the Sydney Water Technical Specification – Mechanical (BMIS0209).

3. Quality assurance

Products must have third party product certification issued by a conformity assessment body accredited by JAS-ANZ, as evidence of conformity to the relevant specification.

Manufacturers of pipes and fittings covered by this specification must be capable of demonstrating certification of their quality management system to ISO 9001 and environmental management system to ISO 14001 by conformity assessment bodies that are certified by the national accreditation authority.

All items must be suitable for the purpose intended and must be standard commercial items proven in actual service conditions in similar applications. Only manufacturers who are fully experienced, reputable and qualified in the manufacture of such items must supply items specified herein.

4. Water quality

Pipes and fittings that are intended for conveyance of drinking water must comply with the requirements of AS/NZS 4020. Evidence of compliance to AS/NZS 4020 must be less than 5 years old. A scaling factor of 1 for pipe and 0.05 for fittings must be used.

Compliance must apply to pipe and fittings in the finished condition considering all coatings, linings, joint seals, flange gaskets, O-rings, and joint lubricants, which may come into contact with the drinking or non-drinking water (e.g. recycled water) in the pipeline.

5. Steel pipes and fittings

All steel pipes and fittings must comply with Sydney Water's *EPS 210: Engineering Product Specification for Welded Steel Pipes and Fittings*.

6. Ductile Iron pipes and fittings

6.1 Reference standards

Standard No	Document title
WSA PS-200	Ductile Iron Pipes (CIOD) for Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-201	Ductile Iron Fittings (CIOD) for Pressure and Non-Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-320	Sleeving, polyethylene (PE) for ductile iron pipes and fittings - Drinking Water, Non-Drinking Water Supply and Sewerage

6.2 Requirements

a) Ductile Iron (DI) pipes and fittings must comply with requirements of WSAA Product Specification:

   i. WSA PS-200

   ii. WSA PS-201

b) Pipes must be externally coated with either:

   i. 50 µm bituminous coating

   ii. 200 g/m^2 Zn coating

   iii. 400 g/m^2 Zn-Al coating

   iv. 800 µm PU coating

   v. 1800 µm extruded PE coating

Refer to Sydney Water's procedure of "Soil Assessment for Installation of Ductile Iron Pipes without Sleeving" for further details on appropriate selection of external coating.

a) Fittings must be externally coated with thermal-bonded polymeric coating.

b) Pipes and fittings must be internally cement mortar lined (CML - types GP, GB or SR cement), calcium aluminate cement mortar lined (CAC), or thermal bonded polymeric lined as required.

c) Flanged pipes and fittings must be Flange Class pipe. Spigot and socket pipes and fittings must be PN35.

d) Seal coating is required for drinking water and non-drinking water supply DN300 and smaller pipes and fittings.

e) For fittings used in pressure applications, the minimum pressure class is PN35 for cement lined and PN16 for thermal bonded polymeric lined fittings.

f) Pre-Tapped Connectors must comply with requirements of WSA PS-246.

g) Polyethylene sleeving for DI pipes and fittings must comply with WSA PS-320.

7. Polyvinyl chloride (PVC) pipes and fittings

7.1 Polyvinyl chloride (PVC) pipes and fittings

7.1.1 Reference standards

Standard No.	Document title
WSA PS-209	Polyvinylchloride, Modified (PVC-M) Pressure Pipes for Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-210	Polyvinylchloride, Oriented (PVC-O) Pressure Pipes for Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-211	Polyvinylchloride, Unplasticised (PVC-U) Pressure Pipes for Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-212	Ductile Iron Fittings (CIOD) for Plastics Pressure Pipe for Pressure and Non-Pressure Applications - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-230	Polyvinylchloride, Unplasticised (PVC-U) Pipes and Fittings for Non-Pressure Applications - Sewerage and Drainage
WSA PS-236	Variable bend, post-formed PVC-U fittings for non-pressure applications - sewerage
AS/NZS 1254	PVC-U pipes and fittings for stormwater and surface water applications

7.2 Requirements

7.2.1 Pressure applications

a) Modified (PVC-M), Oriented (PVC-O) and Unplasticised (PVC-U) Polyvinylchloride pipes and fittings for pressure applications must comply with requirements of WSAA Product Specification:

   i. WSA PS-209

   ii. WSA PS-210

   iii. WSA PS-211, as applicable.

b) Ductile iron fittings for use with PVC pipes must comply with requirements of WSA PS-212.

c) The minimum pressure class of PVC pipes must be PN16.

d) Pipe material classification for PVC-O pipes must not be less than 450.

e) All PVC pipes must be joined by elastomeric ring joints.

7.2.2 Non-pressure applications (sewerage and drainage, stormwater)

a) Un-plasticised Polyvinyl Chloride (PVC-U) pipes and fittings for sewerage and drainage must comply with requirements of WSAA Product Specification WSA PS-230. Pipes must be Stiffness Class SN10 up to DN100 and SN8 for DN150 and above.

b) Un-plasticised Polyvinyl Chloride (PVC-U) pipes and fittings for stormwater must comply with requirements of AS/NZS 1254. Pipes and fittings must be Stiffness Class SN8.

c) Fittings must have a minimum stiffness class of SN8.

d) Method of jointing must be rubber ring (RRJ) or solvent cement.

e) Pipe colour sewerage and drainage must be grey to AS 2700 no darker than cloud grey N22 and no lighter than pearl grey N11.

f) Pipe colour for stormwater must be white.

g) Variable bend, post-formed PVC-U fittings for non-pressure applications – sewerage must comply with requirements of WSAA Product Specification WSA PS-236.

8. Polyethylene (PE) pipes and fittings

8.1 Reference standards

Standard no	Document title
WSA PS-207	Polyethylene (PE) Pipes for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-208	Plastics Fittings for Pressure Applications with PE Pipe - Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-242	Polyethylene (PE), Plain Wall, Pipes and Fittings for Non-Pressure Applications - Sewerage
WSA PS-245	Ductile Iron Fittings with Restrained Flexible Joints for Polyethylene Pipe of Nominal Sizes 90 to 710 in Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage
WSA PS-309	Backing ring for PE flanges

8.2 Requirements

8.2.1 Pressure applications

a) PE pipes and fittings must comply with requirements of WSAA Product Specifications:

   i. WSA PS-207

   ii. WSA PS-208

b) Plastics Fittings for Pressure Applications with PE Pipe must comply with requirements of WSA PS-208. Adjustable elbow fittings must only be used with drinking water or recycled water applications.

c) Ductile iron fittings for use with PE pipes must comply with requirements of WSA PS-245

d) PE pipes and fittings for pressure applications must be PE100 Series 1

e) The minimum pressure class of PE pipes and fittings must be PN16

f) Resilient seated gate valves with restrained flexible joints must comply with the requirements of WSA PS-281

g) All flanges must be circular and conform in dimension and drilling to AS/NZS 4087 PN16

h) The colour for pressure pipeline must be:

   i. Drinking Water - Blue or black with blue stripes

   ii. Non-drinking water supply - Purple or black with purple stripes

   iii. Pressure Sewer - Cream or black with cream stripes.

j) Backing rings for PE flanges must comply with requirements of WSAA Product Specification WSA PS-309.

8.2.2 Non-pressure application

a) PE plain wall pipes and fittings for non-pressure applications must comply with requirements of WSA PS-242. Adjustable elbow fittings must not be used.

b) Fabricated PE Fittings and Post Formed Bends must comply with requirements of WSA PS-242.

c) The minimum stiffness class must be PE100 SDR21 SN8 or PE100 SDR21 PN8.

d) The pipe colour for non-pressure sewer pipe must be black with co-extruded white or light grey interior suitable for CCTV inspection.

9. Polypropylene (PP)

9.1 Reference standards

Standard no.	Document title
WSA PS-240	Polypropylene (PP), Plain and Structured Wall Pipe and Fittings for Non-Pressure Applications – Sewerage.
AS/NZS 5065	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications.

9.2 Requirements

a) Pipes and fittings for sewerage applications must comply with requirements of WSAA Product Specifications WSA PS-240.

b) Pipes and fittings for stormwater (drainage) application must comply with requirements of WSAA Product Specifications AS/NZS 5065.

c) The minimum Pipe Stiffness Class for sewerage applications must be SN10.

d) The minimum Pipe Stiffness Class for stormwater (drainage) applications must be SN8.

e) Pipe must have an internal white, light grey, orange, yellow or green liner suitable for CCTV inspection.

10. Reinforced concrete (RC)

10.1 Reference standards

Standard no.	Document title
WSA PS-233	Reinforced Concrete (RC) Plastics-Lined Pipes for Non-Pressure Applications - Sewerage
WSA PS-249	Reinforced Concrete (RC) Unlined Rubber Ring Jointed Pipes for Non-Pressure Applications - Drainage in Open Trench Installations
CPDMS0023	Technical Specification - Civil

10.2 Requirements

a) The pipes and fittings must comply with requirements of WSAA Product Specifications WSA PS-233. Unreinforced or fibre reinforced concrete pipes are not permitted.

b) Reinforced concrete pipes in sewerage networks must be internally lined complying with the requirements of WSA 113

c) The minimum pipe class must be Class 4

d) Concrete must comply with the requirements of CPDMS0023.

11. Vitrified clay (VC)

11.1 Reference standards

Standard no.	Document title
WSA PS-231	Vitrified Clay (VC) Pipes and Fittings for Non-Pressure Applications - Sewerage

11.2 Requirements

a) The pipes and fittings must comply with requirements of WSAA Product Specifications WSA PS-231.

12. Glass reinforced plastic (GRP)

12.1 Reference standards

Standard no.	Document title
WSA PS-205	Filament Wound Glass Reinforced Plastics (FW-GRP) Pipes and Fittings for Pressure Applications - Drinking Water and Non-Drinking Water Supply.
WSA PS-205J	Centrifugally Cast Glass Reinforced Plastics (CC-GRP) Pipes for Pressure And Non-Pressure Applications - - Installed Using Trenchless Installation
WSA PS-205S	Filament Wound Glass Reinforced Plastics (FW-GRP) Pipes and Fittings for Pressure and Non-Pressure Applications - Sewerage
WSA PS-206J	WSA PS - 206J Filament Wound Glass Reinforced Plastics (FW-GRP) Pipes for Pressure and Non-Pressure Applications - Water Supply And Sewerage - Installed Using Trenchless Installation
WSA PS-219	Glass reinforced plastics (GRP) pipes and fittings for pressure and non-pressure applications – drinking water, non-drinking water supply and sewerage

12.2 Requirements

a) Glass reinforced plastic (GRP) pipes and fittings in open trench installations must comply with requirements of WSAA Product Specification:

   i. WSA PS-205 for pressure drinking water and non-drinking water supply applications, or

   ii. WSA PS-205S for pressure and non-pressure wastewater applications, or,

   iii. WSA PS-219

b) Glass reinforced plastic (GRP) pipes in trenchless installations must comply with requirements of WSAA Product Specification:

   i. WSA PS-205J, or

   ii. WSA PS-206J

c) The minimum pressure rating must be PN16 for pressure applications.

d) The minimum stiffness class must be SN10000.

e) The outside diameter (OD) for pressure drinking and non-drinking water applications must correspond to the Cast Iron Outside Diameter (CIOD) as specified in AS 2280.

13. Property services pipes

13.1 Reference standards

Standard no.	Document title
WSA PS-214	Copper (Cu) property service pipes for pressure applications – drinking water, non-drinking water supply
WSA PS-215	Polyethylene (PE) property service pipes for pressure applications – drinking water and non-water supply
WSA PS-247	Metallic bodied mechanical compression joint fittings for pressure applications with polyethylene (PE) pipe of nominal sizes DN 20 to DN 90 – drinking water, non-drinking water supply and sewerage

13.2 Requirements

a) Property services pipes and fittings must comply with requirements of WSAA Product Specification:

   i. WSA PS-214

   ii. WSA PS-215

   iii. WSA PS-247

b) Copper tube dimension must be Type A or B

c) Copper tube hardness must be “bendable” temper

d) Polyethylene property service pipes must be:

   i. minimum pressure class PN16

   ii. series 1 pipe dimension

   iii. compound PE100

   iv. blue or black with blue stripes for water

   v. purple or black with purple stripes for non-drinking water supply.

14. Casing spacers

14.1 Reference standards

Standard no.	Document title
WSA PS-324	Casing spacers

14.2 Requirements

a) Casing spacers must comply with requirements of WSAA Product Specification WSA PS-324.

15. Clamps

15.1 Reference standards

Standard no.	Document title
WSA PS-313	Repair and off-take clamps for pressure applications – drinking water and non-drinking water supply
WSA PS-346	Stainless steel sewer OB junction clamps –sewerage

15.2 Requirements

a) Repair and off-take clamps must comply with requirements of WSAA Product Specification WSA PS-313

b) Stainless steel sewer OB junction clamps must comply with requirements of WSAA Product Specification WSA PS-346.

16. Tapping bands

16.1 Reference standards

Standard no.	Document title
WSA PS-310	Tapping bands - mechanical for pressure applications – drinking water and non-drinking water supply
WSA PS-329	Tapping bands, electrofusion for use with polyethylene (PE) mains for pressure applications – drinking water and non-drinking water supply and sewerage

16.2 Requirements

a) Tapping bands must comply with requirements of WSAA Product Specification:

i. WSA PS-310

ii. WSA PS-329

17. Main taps and fittings

17.1 Reference standards

Standard no.	Document title
WSA PS-288	Tapping ferrules – pressure applications for drinking water and non-drinking water supply

17.2 Requirements

a) Tapping ferrules for pressure applications for drinking and non-drinking water must comply with WSAA Product Specification WSA PS-288.

18. Flange gasket and O-rings

18.1 Reference standards

Standard no	Document title
WSA PS-312	Flange gaskets and O-rings

19. Hydrants

19.1 Reference standards

Standard no.	Document title
WSA PS-267	Hydrants (spring) for pressure applications – drinking water and non-drinking water supply
EPS 301	Specification for screw hydrant

19.2 Requirements

a) Hydrants must comply with requirements of WSAA Product Specification WSA PS-267

b) Screw hydrants must comply with requirements of EPS 301

20. Hydrant and air valve isolator valves – water supply

20.1 Reference standards

Standard no.	Document title
WSA PS-282	Hydrant and air valve isolator valves – drinking water and non-drinking water supply

20.2 Requirements

a) Hydrant and air valve isolator valves must comply with requirements of WSAA Product Specification WSA PS-282.

21. Pipe couplings

21.1 Reference standards

Standard no.	Document title
WSA PS-235	Couplings, metal-banded flexible, for non-pressure applications - sewerage
WSA PS-270	Mechanical Couplings, Non-End Thrust Restraint for Pressure Applications – Drinking Water and Non-Drinking Water Supply and Sewerage
WSA PS-271	Ductile iron wide tolerance mechanical couplings and flange adapters, end thrust restraint, for pressure applications – drinking water, non-drinking water supply and sewerage
AS 4087	Metallic flanges for waterworks purposes

21.2 Requirements

21.2.1 Pressure

a) Mechanical couplings for non-end thrust restraint pressure water and sewerage applications must comply with requirements of WSAA Product Specification:

   i. WSA PS-270

   ii. Mechanical couplings and flange adapters for end thrust restraint pressure water and non-drinking water supply and sewerage applications must comply with requirements of WSA PS-271.

b) Only PE pipe is permitted for end thrust restraint of AS4087.

c) Flanges must comply with requirements of AS4087.

21.2.2 Non-pressure

a) Metal-banded flexible couplings for gravity sewers must comply with requirements of WSA PS-235

b) The metal band and fasteners must be stainless steel grade 316.

22. Access covers and frames

22.1 Reference standards

Standard no	Document title
WSA PS-290	Ductile Iron access covers and frames for drinking water, non-drinking water supply and sewerage to AS 3996
WSA PS-292	Polymeric access covers and frames for drinking water, non-drinking water supply and sewerage to AS 3996

22.2 Requirements

a) Access covers and frames for water supply and sewerage must comply with requirements of WSA PS-290. WSA PS-291 must not be used.

b) Thermoplastic access covers and frames must comply with requirements of WSA PS-292.

c) Covers and frames must be supplied with stainless steel holding down bolts as per requirements in AS 3996:2019.

d) Thermoplastic access covers must be limited to uses in Class B or lower load applications.

23. Maintenance Hole Make-up Rings

23.1 Reference standards

Standard no	Document title
WSA PS-323	Maintenance Holes (MH) – Pre-Cast Concrete for Non-Pressure Applications – Gravity Sewerage
WSA PS-345	Polymeric Make-up Rings for Sewerage Access Chambers.

23.2 Requirements

a) Concrete maintenance hole make-up rings must comply with requirements of WSA PS-323.

b) Thermoplastic maintenance hole make-up rings must comply with requirements of WSA PS-345.

c) Make-up rings must be supplied with suitable flexible join sealants and stainless steel holding down bolts.

24. Maintenance holes (MH)

24.1 Reference standards

Standard no.	Document title
WSA PS-323	Maintenance Holes (MH) – Pre-Cast Concrete for Non-Pressure Applications – Gravity Sewerage
WSA PS-333	Pre-Cast Concrete Conical Bases for Concrete Maintenance Holes (MH) for Non-Pressure Applications - Gravity Sewerage
WSA PS-339	Maintenance holes (MH) – Polyethylene (PE) for non-pressure applications – sewerage
WSA PS-340	Maintenance holes (MH) – Polypropylene (PP) for non-pressure applications – sewerage
CPDMS0023	Sydney Water Technical Specification - Civil

24.2 Requirements

a) Pre-cast concrete MH for non-pressure sewerage application must comply with WSA PS-323.

b) Pre-cast concrete conical bases for concrete MH for non-pressure sewerage application must comply with WSA PS-333.

c) Pre-cast concrete MH must comply with the requirements of CPDMS0023.

d) PE MH for non-pressure sewerage applications must comply with WSA PS-339.

e) PP MH for non-pressure sewerage applications must comply with WSA PS-340.

25. Maintenance chambers (MC)

25.1 Reference standards

Standard no	Document title
WSA PS-331	Maintenance Chambers (MC) - Pre-Cast Concrete for Non-Pressure Applications - Gravity Sewerage
WSA PS-337	Maintenance Chambers (MC) - Polypropylene (PP) for Non-Pressure Applications - Sewerage
WSA PS-338	Maintenance Chambers (MC) - Polyethylene (PE) for Non-Pressure Applications - Sewerage
CPDMS0023	Sydney Water Technical Specification - Civil

25.2 Requirements

a) Pre-cast concrete MC for non-pressure sewerage application must comply with the requirements of WSA PS-331.

b) Polypropylene MC for non-pressure sewerage application must comply with requirements of WSA PS-337.

c) Polyethylene MC for non-pressure sewerage application must comply with requirements of WSA PS-338.

d) Pre-cast concrete MH must comply with the requirements of CPDMS0023.

e) No steps or ladders to be installed.

26. Maintenance shafts (MS)

26.1 Reference standards

Standard no.	Document title
WSA PS-321	Maintenance Shafts (MS) - Polyvinylchloride, Unplasticised (PVC-U) For Non-Pressure Applications - Sewerage
WSA PS-322	Maintenance Shafts (MS) - Polyethylene (PE) For Non-Pressure Applications - Sewerage
WSA PS-341	Maintenance Shafts (MS) - Polypropylene (PP) for Non-Pressure Applications - Sewerage

26.2 Requirements

a) Polyvinylchloride MS for non-pressure sewerage application must comply with requirements of WSA PS-321.

b) Polyethylene MS for non-pressure sewerage application must comply with requirements of WSA PS-322.

c) Polypropylene MS for non-pressure sewerage application must comply with requirements of WSA PS-341.

27. Surface fittings

27.1 Reference standards

Standard no.	Document title
AS 3996	Access covers and grates
EPS-352	Stop valve - surface cover and frame
EPS-354	Spring hydrant - surface cover and frame
EPS-359	Plastic surround for spring hydrant and stop valve covers
WAT-1305-V and WAT-1306-V	Typical surface fitting installation - hydrants

27.2 Requirements

a) Access covers for MH, MC and MS and other structures must comply with the requirements of AS 3996.

b) Surface cover and frame for stop valves must comply with requirements of AS 3996 and EPS-352.

c) Surface cover and frame for spring hydrant must comply with requirements of AS 3996 and EPS-354.

d) Surface cover and frame for isolation valve with hydrant or air valve must comply with requirements of AS 3996 and WAT-1305-V and WAT-1306-V.

e) Plastic surround for spring hydrant and stop valve covers must comply with requirements of EPS-359.

f) The polymeric material shall be type tested to meet the requirements of AS 3996-2019 Clause 4.2.9 to demonstrate satisfactory ultra-violet ray resistance for a minimum 25-year life.

28. Marking tape

28.1 Reference standards

Standard no.	Document title
WSA PS-318	Marking tape, detectable
WSA PS-319	Marking tape, non-detectable
WSA PS-248	Kerb markers

28.2 Requirements

a) Marking tape must comply with requirements of WSAA Product Specification:

   i. WSA PS-318

   ii. WSA PS-319.

b) Kerb markers must comply with requirements of WSAA Product Specification WSA PS-248

29. Tracer wire

29.1 Reference standards

Standard no.	Document title
WSA PS-343	Tracer wire, detectable

29.2 Requirements

a) Tracer wire must comply with requirements of WSAA Product Specification WSA PS-343.

30. Polymeric marker Posts

30.1 Reference standards

Standard no.	Document title
WSA PS-286	Polymeric valve and hydrant marker posts

30.2 Requirements

a) Polymeric marker posts must comply with requirements of WSAA Product Specification WSA PS-286

Ownership

Ownership

Role	Title
Group	Engineering & Technical Support
Owner	Norbert Schaeper, Engineering Manager, Urban Design and Engineering ET&S Engineering
Author	Viv Jude - Civil Engineer

Change history

Version No.	Prepared by	Date	Approved by	Issue date
1	Jerry Sunarho, Gary de Leeuw, Robert Loncar	18/02/2020	Steve Keevil-Jones, Manager UD&E	31/8/2023
2	Viv Jude, Henry Pisanko, Gary de Leeuw, Robert Loncar	31/8/2023	Norbert Schaeper, Engineering Manager	13/02/2024