

Appendix A: Acceptable pipe and fitting materials Drawings

Commented [SC1]: Contents of new appendix A comes from old appendix G. Old appendix A (Drawings) is now in Appendix B

Where the table in NZS4404:2010 and the Supplement document table conflict, precedence shall be given to the supplement document.

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APPENDIX A: ACCEPTABLE PIPE AND FITTING MATERIALS

WDC APPROVED MATERIALS LIST – TABLE 4.2

Pipe Materials	Applicable Manufacturing Standards	Stormwater	Wastewater	Water Supply	Comments
VC (Vitrified Clay pipes and fittings)	AS/ 1741:1991	√	√		Has benefits for particularly aggressive wastes or ground conditions.
PVC – U (Unplasticised Poly Vinyl Chloride pipes and fittings) Class SN4 to 16 as required by TA	AS/NZS 1260:2009		√		For wastewater gravity pipes.
PVC – U (Unplasticised Poly Vinyl Chloride and fittings) Class SN4 to 16 as required by TA	AS/NZS 1254:2010	√			For stormwater gravity pipes.
PE (Poly Ethylene Pipes and fittings)	AS/NZS 4130:2009 AS/NZS 5065:2005	√	√	√	Note AS/NZS 4130 – for pressure applications and fittings. Note AS/NZS 5065 – For gravity drainage and sewage applications and fittings.
PVC (pressure pipe and fittings)	AS/NZS 1477:2006		√		PVC pipes and fittings for pressure applications. Wastewater applications only.
PVC-M (Poly Vinyl Chloride Pipe)	AS/NZS 4765:2007		√	√	For pressure applications
PVC – O (Poly Vinyl Chloride Oriented Pipe)	AS/NZS 4441:2008			√	For pressure applications, generally water applications only.
GRP (Glass Reinforced Plastic Pipe)	AS 3571	√	√		Lightweight. Resists many aggressive wastes in wastewater applications.
RRJ reinforced concrete pipes and Concrete Manhole Risers and lids	AS/NZS 4058:2007	√	√ (Large Pipe)	√	Principally used for pipe sizes 300mm or larger. Sometimes used for waste water pressure lines but subject to hydrogen sulphide attack.
RCP pipe (Roller Compacted Pipe)	AS/NZS 4058:2007	√	√		Approved for use of RCP pipes that can individually be verified to have passed the factory hydrostatic test.
Stormboss Pipe (and fittings)	AS/NZS 5065:2005	√			Limited to stormwater applications only. Prior approval required from the TA.
Nexus Pipe	AS 2439.1 & NZTA F2/1998	√			Punched & Non Punched pipe available
Spiral welded steel (Including CLS)	NZS 4442:1988	√	√	√	Internal linings included concrete, epoxy, bitumen and galvanizing. Principal mains only.
Ductile iron pipe (and fittings)	AS/NZS 2280:2004	√	√	√	Generally suspended pipes and high structural loadings.
Corrugated steel pipe	AS/NZS 2041:1998 NZS 4405 NZS 4406	√			Not acceptable to some TA's. Generally of short length (culverts etc). Joints need consideration in fine soils with high water tables. Invert may need lining. Stormwater applications only.
Grey Iron	AS/NZS 2544:1982		√	√	Generally special fittings pump stations etc.
ABS (Acrylonitrile-Butadiene Styrene High Pressure Pipe)	AS/NZS 3518:2004		√	√	Generally limited to pump stations, manifolds etc.
EW Manhole Channel Forms (U Shaped channel)	BS EN295-4:1995	√	√		All manhole channels shall be formed using Earthen Ware type preformed channels.
Access Covers & grates	AS 3996: 2006	√	√	√	All ironware to comply with the standard. (MH Covers to be Hygrade 500HD. Sealed down lids to be Saint Gabain Korum.)
Other Drainage Produces		√	√	√	With approval of the TA Engineer

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This approved materials list covers acceptable materials and fittings for use within the TA district, and covers the products which the TA has, or will assume responsibility for.

Products which are not in accordance with this list will be rejected, unless written approval is given prior to installation by the TA Engineer. Rejected products will be subject to removal at the subdividers cost.

All of the materials supplied by the subdivider shall be the best of their respective kinds and conform to the appropriate New Zealand, Australian or British Standard and or Specifications as specified hereafter. All materials and fittings shall be free from flaws and defects, and shall be subject to such tests as the TA Engineer may impose.

Unless otherwise specified the standards and specifications (and latest amendments) shall apply to the various materials and fittings installed.

The TA reserves the right to refuse any material or fitting from the Acceptable Materials list for any reason and at any time. In these circumstances the TA will provide written notification, stating the reasons why the material is not fit for purpose.

WDC APPROVED MATERIALS FOR WATER

Fittings	Approved Type, Brand Name or Manufacturer
<p>Universal (Gibault) Joints/Couplings (cast coated in accordance with AS/NZS 4158 and amendments) All bolts shall be Stainless Steel grade 316 with factory applied molybond coating and complying with AS/NZS 1252</p> <p>Mechanical Tapping Bands (standards Australia MP 52-2001, chapter six, section 6.25) Note: Aluminium and Universal tapping bands with u bolt support straps shall not be used All tapping bands on PVC shall be gunmetal DR LG2 - fully enclosed All tapping bands on MDPE shall be plassim – fully enclosed All bolts shall be Stainless Steel grade 316 with factory applied molybond coating and complying with AS/NZS 1252</p>	<p>AVK Tyco Viking Johnson</p> <p>Crevet Taptitle Milnes Pty Ltd Plassim</p>
<p>Medium Density Poly Ethylene pipe – MDPE Fittings All MDPE pipe shall be joined using compression fittings</p>	<p>Plasson /Iplex Philmac / Marley Pushlok / Marley Easygrip Hansen</p>
Valves and Fire Hydrants	Approved Type, Brand Name or Manufacturer
<p>Sluice Valves (manufactured to AS/NZS 2638:2, coatings to comply with AS/NZS 4158 and amendments, flanges to be drilled to AS 4087) 15mm diameter and larger. Resilient seated, nylon coated, minimum class PN 16, open clockwise with a non-rising stainless steel spindle, coated internally and externally with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured blue Valves shall be flanged (table D) when laid in conjunction with other ductile fittings. All valves 100mm or larger shall be strapped to a concrete anchor block = Surface boxes shall be cast iron fully coated with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured blue. Concrete base blocks shall be approved by the Engineer. They are to be accurately centred over the main and the lids are to conform to the finished ground surface. The "V" in SV lid is to point in the direction of pipe that the valve controls</p>	<p>AVK Series 55 and 57 Gillies SF Series Tyco figure 500 Series Hawle 4060E2/4500EAS Series/Hawle A Series = Technicast Surecast</p>
<p>Fire Hydrants (manufactured to NZS/BS 750, coatings to comply with AS/NZS 4158 and amendments, polyurethane cup washer to NZS/BS 750) Resilient seated, nylon coated tall pattern screw down standard, minimum class PN 16, with approved polyurethane cup washer, pure PTFE gland packing or "O" ring sealing system. Coated internally and externally with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured blue = Risers and tee's are to be ductile iron coated with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured blue. = Surface boxes shall be cast iron fully coated with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured yellow. Concrete base blocks shall be approved by the Engineer. They are to be accurately centred over the main and the lids are to conform to the finished ground surface.</p>	<p>AVK Series 29 Hydrant Tyco F502 Series Gillies Humes Torq-loc = Humes AVK Tyco Gillies = Technicast Surecast</p>
<p>Gate Valves (manufactured to NZS/AS 1628 Gunmetal to BS 5154) 15mm, 20mm, 25mm, 40mm and 50mm Diameter Dezincification resistant materials or LG2 gunmetal with malleable (cast) iron T bar handles, minimum class PN 16</p>	<p>Kitz Fig AS-H (with handle retaining nut changed to DR type) Tour Anderson Series 64MT DZR brass gate valve Maxiflo A59m JY gate valve</p>
<p>Combination Valves 2 or 3 way valves = Combi bases, risers 1050mm Diameter, Depth 450, 600mm or to suit. = Combi frame and lid – cast iron fully coated with fusion bonded Epoxy to 200u or nylon rilsan 11, coloured blue.</p> <p>Isolation valves Note: Suitable for Suitable for rider mains only Threaded Male, PE push fit (must include nose cone), Resilient seated, nylon coated, non-rising stainless steel spindle, coated internally and externally with Fusion-bonded Epoxy to 200u or Nylon Rilsan 11, coloured blue</p>	<p>Hygrade = Humes = Humes</p> <p>Humes SSV 10</p>

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Tobies and Fire Hydrants	Approved Type, Brand Name or Manufacturer
<p align="center">Domestic Tobies (manufactured to AS 1460") ≈</p> <p>Toby boxes shall be a black high density polyethylene (HDPE) surface box, with base plate, and with a blue lid marked 'water'. ≈</p> <p>Risers shall be 150mm Diameter PVC stormwater pipe by 260mm long.</p>	<p>Plasson Compression Stopcock. ≈</p> <p>Aculfo Industries Ltd Hygrade Products Ld Draper Enterprises Ltd ≈</p>
Miscellaneous	Approved Type, Brand Name or Manufacturer
<p align="center">Standard Water Meter (Supplied by the Principal)</p> <p>Note: Device shall conform to Water NZ Water Meter Code of Practice 2003 15 – 40mm Diameter Fan Jet / Class C</p>	Socam
<p align="center">Combo Water Meter (Supplied by the Principal)</p> <p>Note: Device shall conform to Water NZ Water Meter Code of Practice 2003 50 – 150mm Diameter Combination (meter and Backflow)</p>	Meinecke Metwin / Sensus
<p align="center">Fire Meter</p> <p>Note: Device shall conform to Water NZ Water Meter Code of Practice 2003 Shall be used on dedicated fire sprinkler mains</p>	Metwin / Sensus
<p align="center">Backflow Preventer (Supplied by the Principal) (Shall comply with AS/NZS 2845.1 and the ASSE standards).</p> <p>Note: Type to be installed shall comply with the Levels of Risk table as defined in the Building Code G12. The device shall comply with the Water NZ Backflow Prevention for Drinking Water Suppliers Code of Practice.</p> <p align="center">Non testable dual check valve – Low risk ≈ Testable double check valves – Medium risk ≈ Testable Reduced Pressure Zone Device (RPZ) – High risk</p>	Wilkins
<p align="center">Repair Straps Straps should be used with 316 stainless steel bolt sets. Mild steel minimum dimensions 60mm wide x 6mm thick</p>	
<p align="center">Pipe Wrapping 50 – 100 mm Petroleum based</p>	Polyken Petrotech
<p align="center">Thread Tape</p> <p>Note: To be used when joining PVC or MDPE to metal fittings</p>	Ceelon (red only)
<p align="center">Hemp (with manufacturers specified grease) Shall be used for all metal to metal fittings.</p>	Good quality, standard plumbers Hemp
<p align="center">Conduit trace Wire 1.5mm Copper sheathed in PVC Installed with all non-metallic pipe (including mains, riders and connections).</p>	Installed with all non-metallic pipe (including mains, riders and connections)
<p align="center">Gaskets 32mm thick diameter to suit flanges Nylon Reinforced Insertion Rubber</p>	
<p align="center">Bolt Sets 316 stainless steel All new replacement bolt sets are to include bolt, nut, flat washers and one spring washer. 'ROCL' grease is to be used will all bolt installations.</p>	
<p align="center">Security Cage Lockable galvanised steel cage fixed onto a Concrete pad</p>	
<p align="center">Valve Packing (for existing valves) PTFE 210kg/tm2 (20,594 KPa) Chesterton, Style 1724 Super -Lon To be installed as per Chesterton's recommended packing procedure.</p>	
Other Water Products	With Approval of TA Engineer

Roading

RD-WDC-001	Urban Residential Concrete Path
RD-WDC-002	Urban Residential Sealed Path
RD-WDC-003	Right of Way Crossing Concrete Path
RD-WDC-004	Right of Way Sealed Footpath
RD-WDC-005	Right of Way Concrete Path (4-6 Dwellings)
RD-WDC-006	Right of Way Sealed (4-6 Dwellings)
RD-WDC-007	Commercial Concrete Path
RD-WDC-008	Commercial Sealed Footpath
RD-WDC-009	Maximum Change of Grade (Urban Vehicles)
RD-WDC-010	Maximum Breakover Angles
RD-WDC-011	Rural Heavy
RD-WDC-012	Rural Residential
RD-WDC-013	Typical Cross Section—Cul De Sac
RD-WDC-014	Typical Cross Section—Section
RD-WDC-015	Typical Cross Section—Right of Way
RD-WDC-016	Typical Cross Section—Services
RD-WDC-017	Transformer Location (Preferred)
RD-WDC-018	Footpath Construction
RD-WDC-019	Mobility Crossing Ramps
RD-WDC-020	Kerb and Channel Details

Common Details

CM-WDC-001	Linetypes and Symbols
CM-WDC-002	Depth Contours Cut/Fill Areas
CM-WDC-003	Typical MH As Built Level Requirements
CM-WDC-004	Typical Sewer Manhole
CM-WDC-005	Open Back Sump
CM-WDC-006	Max Pit
CM-WDC-007	Catch Pit
CM-WDC-008	Stormwater Connection to Kerb & Channel (standard)
CM-WDC-009	Stormwater Connection to Kerb & Channel (sealed system)
CM-WDC-010	Stormwater Connection to Existing System
CM-WDC-011	Stormwater Connection to Kerb (well up sump)
CM-WDC-012	Sanitary Sewer Connection Upgrade of Existing Lateral
CM-WDC-013	Sanitary Sewer Lateral Connection Detail
CM-WDC-014	Carriageway Restoration
CM-WDC-015	Manhole Haunching
CM-WDC-016	Pipe Installation
CM-WDC-017	Redding Point
CM-WDC-018	Sanitary Sewer Discharge Lot with Street Frontage
CM-WDC-019	Sanitary Sewer Discharge Rear Lots on ROW (2)
CM-WDC-020	Sanitary Sewer Discharge Rear Lots on ROW (3+)
CM-WDC-021	Sanitary Sewer Discharge Public Sewer on Private Land
CM-WDC-022	Sanitary Sewer Discharge Common Private Sewer
CM-WDC-023	Alternative Subsoil Drain
CM-WDC-024	Subsoil Details
CM-WDC-025	Installation of Lead-ins for Telecommunications (new subdivisions)

Water Supply

WS-WDC-001	Valve Installation
WS-WDC-002	Hydrant Installation
WS-WDC-003	Box Frame Details
WS-WDC-004	Connections — Service Marking
WS-WDC-005	Connections — Two Riders off Fire Main
WS-WDC-006	Connections — Half Way Rider Link to Main
WS-WDC-007	Connections — Mains to Main
WS-WDC-008	Connections — Combie Tee (PVC Main)
WS-WDC-009	Connections — Combie Cross (PVC Main)
WS-WDC-010	Reduced Pressure Valves
WS-WDC-011	Service Connection Main or Rider to Boundary
WS-WDC-012	Principal Main to Boundary