




# HDPE VS CONCRETE VS PVC MATERIAL COMPARISON GUIDE

	 <b>CONCRETE</b>	 <b>PVC</b>	 <b>HDPE</b>	COMMENTS
Low Cover installations with heavy loading (>300mm)	Recommended	Not Recommended	Recommended	NZ Standards min 600mm
Flotation in the trench	Recommended	Not Recommended	Not Recommended	Irrelevant is trench is completely dewatered
Earthquake Prone areas	Not Recommended	Recommended	Highly Recommended	
Connects to Manholes, Wingwalls, sumps	Highly Recommended	Highly Recommended	Highly Recommended	
Cutting of pipe	Not Recommended	Highly Recommended	Highly Recommended	
Material Price 250mm to 500mm	High	High	Low	
Installed price 250mm to 500mm	High	Middle	Low	
Material price 630mm to 1200mm	Middle	No option	Middle	
Installed price 630mm to 1200mm	High	No option	Low	
Transportation	Very heavy	Light	Light	
Install Safety Factor	Not Recommended	Highly Recommended	Highly Recommended	
Chemical Resistance	Not Recommended	Recommended	Highly Recommended	
Expected Service Life	100 year	100 year	100 year	
Number of joins per 100m	41	17	18	
Flow Coefficient "Gaukler-Stickler KS (m <sup>1/3</sup> s <sup>-1</sup> )"	68-75	80	80	Concrete pipe surface degrades over time
Size Range	225mm to 2400mm	100mm to 450mm	250mm to 2100mm	
Installation speed (Greenfield)	Low	High	High	
Installation speed (Brownfield)	Middle	Middle	Middle	
Loading similarities <sup>1</sup>	Class 4 / 50 tonne	SN 16 / 50 tonne	SN 8 / 50 tonne	Installed to the respective NZ Standards
Installation standard	AS/NZS 3725	AS/NZS 2566	AS/NZS 2566	
Fittings	Saddles	Bends, Junctions, Saddles	Bends, Junctions, Go-In	PVC has biggest range of fittings
Sealing method	Slip rubber ring	Prefitting rubber ring or Glue Joint	Rubber ring on spigot	Euroflo & PVC very tight connections
Common ratings	Class 2,3,4,8	SN 2,4,8,16	SN 4, 8	Euroflo SN8 = Class 4
Sustainability (Cradle to Grave) <sup>2</sup> based on large diameter pipes >600mm ID	Not Recommended		Recommended	

<sup>1</sup> The respective installation standards are important to follow, different ratings and installation conditions will affect load capacity outcomes.

<sup>2</sup> A Comparative Analysis of the Carbon Footprint of Large Diameter Concrete and HDPE Pipes - Conference Paper - September 2013 ([https://www.researchgate.net/publication/315575892\\_A\\_COMPARATIVE\\_ANALYSIS\\_OF\\_THE\\_CARBON\\_FOOTPRINT\\_OF\\_LARGE\\_DIAMETER\\_CONCRETE\\_AND\\_HDPE\\_PIPES](https://www.researchgate.net/publication/315575892_A_COMPARATIVE_ANALYSIS_OF_THE_CARBON_FOOTPRINT_OF_LARGE_DIAMETER_CONCRETE_AND_HDPE_PIPES))