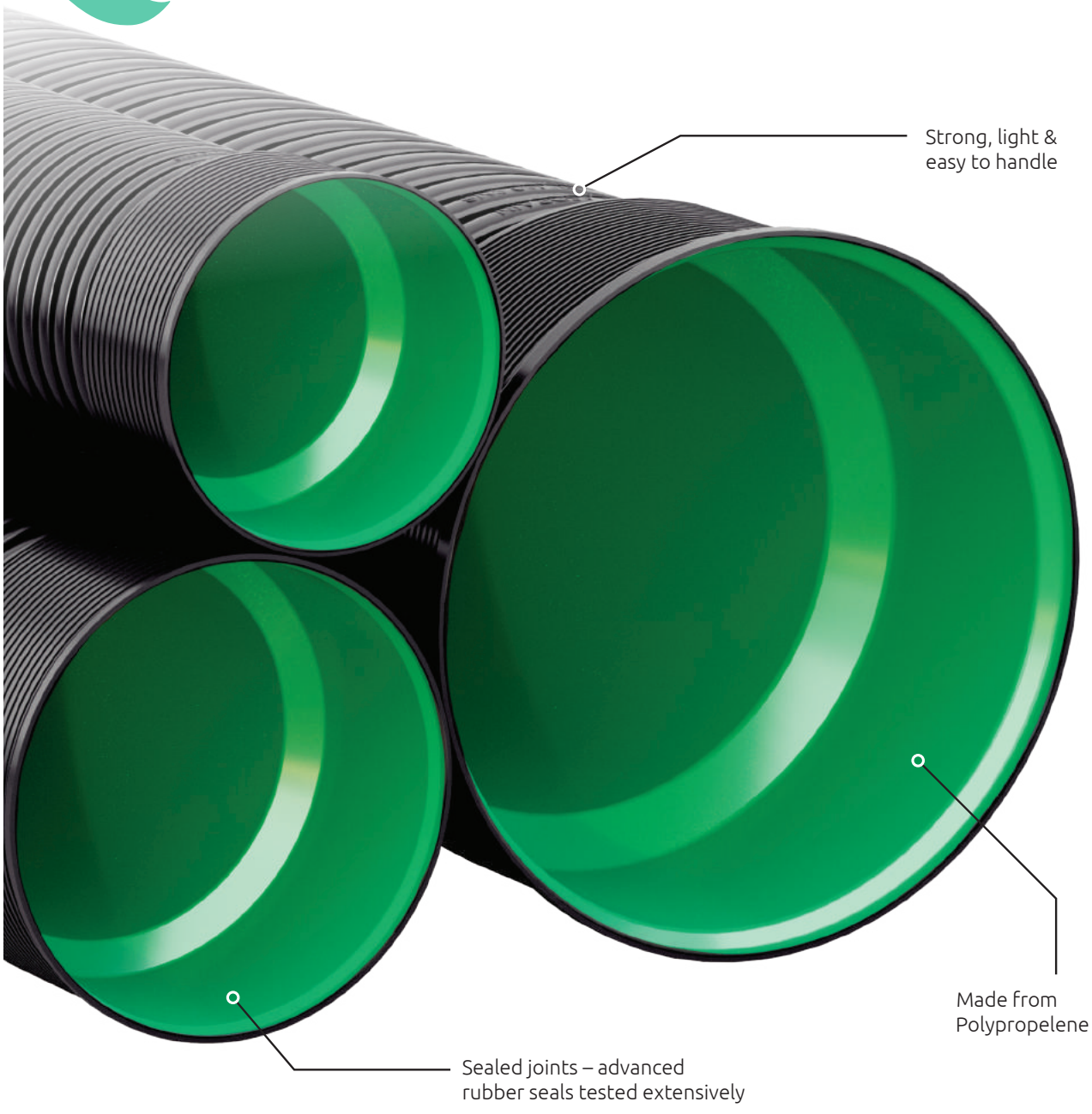
Introducing

# PLASDRAIN™




## Australian Made Stormwater Drainage Pipe

# PLASDRAIN™

## INTRODUCTION

### Plasdrain™ is a stormwatger drainage system for critical infrastructure projects.

Plasdrain™ pipes are dual-walled, corrugated polypropylene pipes in non-pressure applications, manufactured in accordance with AS/NZS 5065.

The unique extrustion process offers the ability to utilise recycled material of varying sources and quantities.

Utilising the latest co-extrusion techniques, Plasdrain™ is manufactured with a smooth bore for the hightest hydraulic performance and a corrugated outside wall for the highest stiffness to weight ratio.

The in-line bell and spigot joint, paired with light weight design provides for quick installation.

Polypropylene ensures high strength to weight ratio, high stiffness and toughness.

Plasdrain™ can be installed in trafficable areas including under road pavements and non-trafficable areas. Plasdrain™ is sensitive to the environment, for firstly utilising recycled polypropylene raw material and secondly through efficient design by using less material than comparable drainage pipes, long life cycle and light weight reducing the $CO^2$ emissions from plant and heavy vehicles to transport and install.

Plasdrain™ is less likely to crack than rigid pipe, resulting in less leakage and consequential environmental issues. Rigid pipes that do crack require plastic lining to reseal.

## KEY ADVANTAGES:

- Smooth inner skin for optimum hydraulic performance
- Surface is resistant to build up
- Pipes are easy to cut and simple to join
- Very high stiffness
- Can be used in aggressive or saline soils, sensitive to the environment
- Light internal colour to facilitate CCTV video inspection

## Why Choose Plasdrain™ Corrugated Polypropylene Pipes?

- Australian made and owned
- Recycled plastic
- Light Weight - Easy to handle
- Strong - due to corrugations
- Long lengths
- Simple to install - Easy to join and cut
- Fast installation
- Sealed joints - Advanced rubber seals tested extensively
- Excellent abrasion and chemical resistance

# PRODUCT RANGE

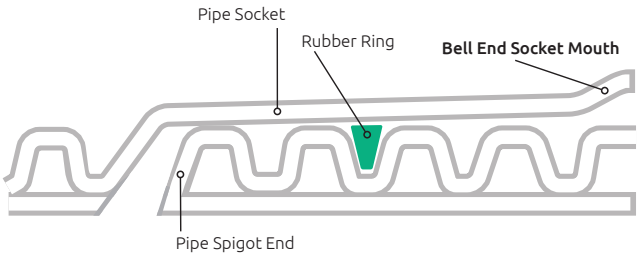
Plasdrain™ pipes are designed for stormwater drainage applications. Plasdrain™ pipes have a black coloured corrugated outer surface with a smooth green interior. Each length of pipe has a nominal length of 6m, has a spigot end and a socket end for simple joining. Each pipe is supplied with rubber rings required to seal joins.

| Nominal Diameter DN (mm) | Mean Pipe Outside Diameter Do (mm) | Mean Pipe Internal Diameter Di (mm) | Maximum Overall Socket Diameter DEC (mm) | Socket Insert Length Si (mm) | Profile Pitch Pp (mm) | Effective Length (6m nominal length) (mm) | Approx. Pipe Mass (kg/m) |
|---|---|---|---|---|---|---|---|
| 225 | 258 | 225 | 265 | 120 | 26.5 | 5880 | 4 |
| 300 | 343 | 300 | 355 | 150 | 31.3 | 5850 | 5 |
| 375 | 431 | 375 | 343 | 180 | 43.0 | 5820 | 9 |
| 450 | 515 | 450 | 536 | 210 | 57.3 | 5790 | 12 |
| 525 | 604 | 525 | 625 | 241 | 57.3 | 5780 | 17 |
| 600 | 686 | 600 | 714 | 276 | 68.8 | 5690 | 22 |
| 750 | 852 | 750 | 890 | 345 | 86.0 | 5560 | 32 |

## CROSS SECTION OF WALL PROFILE:

The image below details the cross section of the wall profile showing a spigot and socket connection.

To seal a join, a rubber ring is inserted in the second valley in from the spigot end for optimum sealing performance.




## CHEMICAL RESISTANCE

Plasdrain™ polypropylene pipes are resistant to corrosion by aggressive soils and substances that can wash through the stormwateer drainage system. Polypropylene resins are highly resistant to solvents and chemicals. They are resistant to weak inorganic acides, organic acids such as fuming nitric acid at room temperature and 98% sulfuric acid at 600°C, both of which are highly unlikely to pass through the stormwater system. Chemical resistance is affected by concentration, temperature, period of contact and stress.

## TEMPERATURE

Plasdrain™ pipes have a high range of thermal resistance due to the inherent durability of polypropylene material ranging from -20°C to 90°C for short term exposure.

## DURABILITY

Polypropylene is an extremely tough material that can withstand construction impacts and loading during installation. Key benefits of Polypropylene and it's suitability for stormwater drainage pipes are:

- wider thermal resistance; stable from -20°C to 90°C
- high chemical resistance; pH 2-pH 12 (acidic-alkali) stable against biogenic sulphuric acid corrosion
- high abrasion resistance, which ensures durability and operational reliability
- excellent impace resistance and durability
- does not tend to crack and spread cracks
- robust under mechanical stress (eg: high-pressure flushing)
- smooth surfaces, optimum hydraulics
- no incrustation, deposits cannot build up
- self-cleaning, requires less maintenance

## WEATHER RESISTANCE

Base polypropylene raw materials lacks additives to resistant weathering. Dependent on the source of raw material, some additives may be present. To ensure weathering resistance, Plasdrain™ pipes are manufactured with additives to improve performance and ensure resistance to ultraviolet light and weathering during handling and storage.

## MANUFACTURE

Plasdrain™ pipes incorporate the latest manufacturing technology using continuous polypropylene dual extrusion combined with a vacuum controlled corrugating process. The dual wall structure consists of simultaneously extruded smooth inner and corrugated outer wall. Even though the corrugations are hollow, at the valley of each corrugation, all layers are fused together for the full circumference of the pipe to create one continuous pipe post production.

## VICROADS APPROVAL

VicRoads has moved from a product specific specification to performance specification whereby they no longer grant approval for specific products nor manufacturers and instead require products to meet the necessary Australian Standards. When it comes to stormwater drainage pipes, AS/NZS 5065 is the appropriate standard, Plasdrain™ pipes conform to this standard thereby, excluding any other project specific requirements, can be permitted for use on VicRoads projects.

## STANDARDS

Plasdrain™ pipes are manufactured to AS/NZS 5065: "Polyethylene and Polypropylene pipes and fittings for drainabe and sewerage applications" and achieves the properties as set out below as required by AS/NZS 5065.

## TYPICAL PROPERTIES OF PLASDRAIN™

| PROPERTY | VALUE | STANDARD |
|---|---|---|
| Polypropylene pipe compound | Block copolymer | |
| Mass of carbon black | 2 – 2.5% by mass | ISO 964 |
| Particle size of carbon black | 20 -25 nm | ASTM D3849 |
| Toluene extract of carbon black | <0.1% | AS/NZS 4131 Appendix B |
| Melt mass-flow rate | 1.4g/10min @ 230°C and 5kg | ISO 1133 Condition 12 |
| Tensile properties | | AS 1145.2 |
| Internal pressure resistance of PP | >140hours at 80C and 4.2MPa Hoop Stress | ISO 8773 |
| Thermal stability of pipes and fittings | >40minutes OIT | ISO/TR 10837 |
| Stiffness of pipes | >8,000N/m.m | AS/NZS 1462.22 |
| Ring flexibility of pipes | no cracking at 30% deflection | AS/NZS1462.23 |
| Hydrostatic pressure resistance of elastomeric seal joints | no leakage | AS/NZS 1462.8 |
| Liquid infiltration of elastomeric seal joints | no leakage | AS 1462.8 |
| Contact width and pressure of elastomeric seals | >0.47MPa | AS/NZS 1462.13 (Int) |

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