



# Type Approval Certificate

NIFO-1310.2 | Revision 5

<b>Title:</b> (Detail of the Item or System)	HDPE StormPRO SN8 Stormwater Pipe	<b>TA Level.:</b>	Preliminary <input type="checkbox"/>
			Provisional <input type="checkbox"/>
			Full <input checked="" type="checkbox"/>
		<b>TA No.:</b>	VLP334
<b>Supplier:</b>	Vinidex Pty Ltd	<b>Date:</b>	31/05/2023
<b>Suppliers Address:</b>	Level 4, 26 College St Darlinghurst, NSW 2010	<b>Supplier Phone:</b>	131169
		<b>Supplier Email:</b>	<a href="mailto:ipaterson@vinidex.com.au">ipaterson@vinidex.com.au</a>
<b>Manufacturer:</b>		<b>Model No.:</b>	29479, 29456, 29458, 29460, 29471, 29473, 29475, 29418, 29419

(Use in conjunction with NIPR-1310-Type Approval – V/Line Asset Management).

## 1 Executive Summary

### 1.1 Background

The current Djilang Alliance design details significant reinforced concrete drainage pipe. Due to long lead-in times of 30+ weeks to manufacture pre-cast concrete product the project is now seeking alternative solutions which will improve construction procurement & overall project program delivery. The proposed StormPRO drainage system have been requested for type approval as an alternative option.

### 1.2 Precedents

The StormPRO pipe was approved by the local metropolitan railway operator Metro Trains Melbourne (MTM) recently (September 2022). SAI Global was granted to Vinidex Pty Ltd certification that the Polypropylene pipes (Corrugated Type B- ID series) and fittings are manufactured to AS/NZS 5065:2005. In addition to complying with Australian Standards, StormPRO has been tested to and meet or exceed the relevant US AASHTO Standards for corrugated polypropylene pipe.

### 1.3 Benefits to V/Line

The product provides an alternative to non-recycled plastics, steel and concrete pipes for stormwater drainage in non-critical areas by utilising plastic waste material recycled into pipes. StormPro products provide improved structural integrity and easier jointing performance than previous V/Line Type Approved recycled plastic products. The pipes not only provide a use for recycled Polypropylene plastic that are of growing concern for waste management, but also help Vline meet obligations to Victoria's recycled first policy.

### 1.4 Supporting Documentation

The following supporting documentation has been considered in the review of this application and electronic copies are stored on the V/Line intranet version of the Type Approval register.

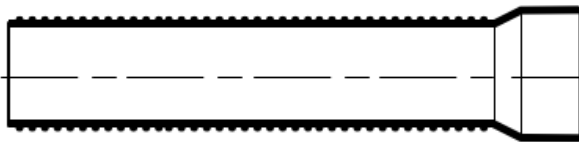
- Structural Design of StormPRO Applications
- Standardsmark Compliance Licence by SAI Global
- Quality Accreditation for compliance to ISO 9001:2015
- Conformance Certificate to AS/NZS 5065:2005 (R2017) and ISO 9001:2015
- Full Type Approval Certificate (#TA00847) by Metro Trains Melbourne (MTM)
- AASHTO Testing reports
- StormPRO Technical Datasheets
- StormPRO comparison datasheets with Steel Reinforced Concrete Pipes
- StormPRO Product Catalogues and Installation Guides
- StormPRO and StormFLO Presentation July 2022



## 2 Full Item Description

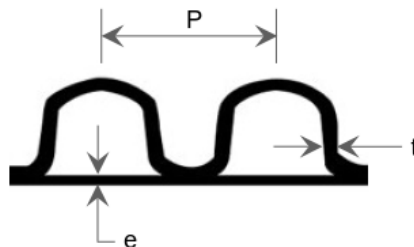
StormPRO SN8 Polypropylene Pipes are supplied in nominal 6-meter lengths with diameters as tabulated below.

Vinidex Code	Nominal Diameter (mm)	Product Description	Comments
29479	150	150 StormPRO2 SN8 PP 6.02m	
29456	225	225 StormPRO2 SN8 PP 5.99m	
29458	300	300 StormPRO2 SN8 PP 5.94m	
29460	375	375 StormPRO2 SN8 PP 5.93m	
29471	450	450 StormPRO2 SN8 PP 5.95m	
29473	525	525 StormPRO2 SN8 PP 5.89m	
29475	600	600 StormPRO2 SN8 PP 5.85m	
29418	750	750 StormPRO2 SN8 PP 5.92m	Reduced Spigot
29419	900	900 StormPRO2 SN8 PP 5.91m	Reduced Spigot



The dimension details of the products are as presented in table below.

NOMINAL DIAMETER DN	MEAN OUTSIDE DIAMETER (mm)	MEAN INSIDE DIAMETER (mm)	PROFILE PITCH P (mm)	MINIMUM PROFILE THICKNESS t (mm)	INNER WALL THICKNESS e (mm)
150	169	148	17.5	1.1	1.2
225	259	226	26.2	1.5	1.6
300	343	300	34.9	1.85	2.0
375	428	374	44.9	2.3	2.4
450	514	448	52.8	2.8	3.1
525	600	523	66.0	3.2	3.5
600	682	596	75.4	3.7	3.9
750	835	731	88.0	4.6	5.0
900	999	873	105.6	5.2	5.7



The complete StormPRO product range is as presented in table below.



Vinidex Code	Nominal Size (mm)	Effective Length (m)	Approx. Weight (kg/length)	Crate Quantity	Semi Truck Load	B-Double Truck Load
29485	225	2.92	10.0	12	288	432
29406	300	2.88	15.5	6	144	216
29407	375	2.87	24.0	4 or 6	120	180
29482	450	2.86	36.9	2	80	120
29453	525	2.80	46.2	2	64	96
29484	600	2.76	59.7	3	36	54
29454	750	2.82	92.8	2	24	36
29405	900	2.81	135.7	2	16	24
29479	150	6.02	8.8	30	360	540
29456	225	5.99	18.9	12	144	216
29458	300	5.94	31.2	6	72	108
29460	375	5.93	48.0	4 or 6	60	90
29471	450	5.95	72.1	2	40	60
29473	525	5.89	93.5	2	32	48
29475	600	5.85	120.5	3	18	27
29418	750	5.92	187.5	2	12	18
29419	900	5.91	256.7	2	8	12

Further details are provided by StormPRO Pipes in the referenced supporting documents.

### 3 Scope of this Approval

This approval covers the use of StormPRO pipe, compliant with the terms and conditions of the Regional Infrastructure Lease and requirements of the V/Line Safety Management System for operation on the V/Line network in accordance with the scope and application set of in this certificate.

### 4 Qualifications and Conditions

This full Type Approval is granted on conditions of:

1. Use as stormwater or wastewater pipes for low pressure water and effluent
2. The pipes must not be used under locations that are subject to dynamic railway surcharge loads. For avoidance of doubt, the pipes may be used:
  - At any depth provided that no part of the pipe is closer than 2.6 m horizontally from the centerline of the closest railway line.
  - At any location closer to 2.6 m from the track centerline provided that no part of the pipe lays within a loading zone defined by the ratio of 1H:2V (H=Horizontal, V=Vertical) extending from the bottom of the adjacent track sleeper.
3. The pipes must not be used under surcharge loading from roads, buildings, structures or facilities unless a comprehensive review or design ascertains the suitability for such use in accordance with the requirements of V/Line procedure NIPR-2695 "Design management".
4. The pipes must not be used in locations or with liquids subject to temperatures greater than 80°C.
5. The pipes must not be used in conditions where there is a risk of exposure to chemical oxidants (including in aqueous solution) or hydrocarbons.
6. Where the pipes are proposed for use with effluent or there is a potential for chemicals to be present in diluted (aqueous) form, the exposure to chemicals and the impact of the chemicals to the design life of the pipes must be assessed, and the use of the pipe approved by the V/line Chief Engineer.
7. Adherence to StormPRO pipes prescribed installation methodology described in the StormPRO Pipes supporting documents (refer to Section 1.4 of the Type Approval Certificate), with emphasis on:
  - Compaction
  - Backfill, and
  - Haunch support



8. The StormPRO Pipes are to be installed, commissioned, and used in order of precedence, in accordance with the V/Line Safety Management System (Including Standards, procedures, and guidelines), followed thereafter by the designer’s and manufacturer’s documentation
9. Locations where StormPRO Pipes are utilized shall be assessed for future potential for railway, roadway or facilities expansion and the resulting impacts associated with compliance with conditions 2 and 3 above.
10. This approval is for the pipes only. Special fittings and fixtures associated with the StormPRO system are not included in this Type Approval.

**5 Certification**

**5.1 Authorization**

Recommended			
Type Approval Facilitator	Deepti Wagle <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>

Endorsed			
Systems and Safe Working Manager	 <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>
Relevant Discipline Engineer Manager	 <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>
Chief Engineer	 <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>

Approved			
Executive Director NDAM	 <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>

**5.2 Applicant’s Acknowledgement**

(Applicant is to sign and return to the designated V/Line Type Approval Facilitator).

Applicant’s Agent or Representative	 <small>(Print Name)</small>	 <small>(Signature)</small>	 <small>(Date)</small>
	 <small>(Print Position Title)</small>		
	 <small>(Print Business Name)</small>		