H = cover depth (m).

Pressure from Surcharge (Traffic) Loading

This is derived from the Boussinesq equation. A range of values is given in the following table, taken from BS 9295:

	Surcharge Pressure From Vehicles Ps (kN/m2) *Note: axle loads and configurations are those in Figure 4 of BS 9295*		
Cover Depth H (m)	**Main Roads**	**Light Roads**	**Fields**
1	74	63.2	36.1
2	40.3	21.5	12.3
3	26.7	10.3	5.9
4	18.5	6	3.4
5	13.3	.9	2.2
6	9.9	2.7	1.6
7	7.6	2	1.1
8	6.0	1.5	0.8
9	4.9	1.2	0.7
10	4	1	0.6

Table A2-5 – Surcharge Pressure from Vehicles at Different Cover Depths

Pipe Diametral Stiffness

Pipe diameteral stiffness = EI/D^3.

Where:

E = Young's modulus (kN/m2)

$I = t^3/12$ (t = pipe wall thickness (m))

D = average pipe diameter (m)

Typical values of E are:

Pipe Material	**Young's Modulus E (kN/m2)**	
GRP	20,000,000	check with supplier
HDPE (PE100) Long term	160,000	check with supplier
uPVC	3,000,000	check with supplier

Note: GRP is a composite material whose properties cover a wide range.

Table A2-6 – Young's Moduli for Flexible Pipe Materials

Example values of pipe diametral stiffness are:

Pipe Material	**Pipe Diametral Stiffness (kN/m2) for all pipe sizes**	
GRP 5,000	5	
GRP 10,000	10	