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# WATER INDUSTRY SPECIFICATION

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**WIS 4-08-02**  
February 1994: Issue 1  
(Amendment November 2008)  
(Page 1 of 4)

UK Water Industry

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## Amendment to: SPECIFICATION FOR BEDDING AND SIDEFILL MATERIALS FOR BURIED PIPELINES

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This amendment forms an integral part of the Specification and replaces elements of the original as indicated below.		2.2	Delete paragraph. Insert: "Processed granular material shall be granular material as sized in Tables A.1 and A.2 and processed to meet the requirements of the relevant provisions of BS EN 13242:2002 as detailed in Tables A.4 and A.5."
Title	Delete: "Specification for bedding and sidefill materials for buried pipelines". Insert: "Specification for bedding and sidefill materials including recycled aggregates for buried pipelines".	2.3	Delete: "larger than 75mm"
Foreword	2 <sup>nd</sup> paragraph. Delete paragraph. Insert: "This specification has been updated by the Amendment dated November 2008 and has been issued in conjunction with Information and Guidance Note No. 4-08-01, Issue 4, and No. 4-08-01 Amendment (Nov 2008), to satisfy the immediate needs of both users and suppliers of bedding and sidefill materials."	3.	Insert: "BS EN 1295-1:1998 Structural design of buried pipelines under various conditions of loading. General requirements."  Delete: "BS 882 Specification for aggregates from natural sources for concrete."  Insert: "BS EN 13242:2002 Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction."  Delete: "BS 1047 Specification for air-cooled blast furnace slag aggregate for use in construction."  Delete: "BS 3797 Specification for lightweight aggregates for masonry units and structural concrete."  Delete: "BS 8005 Part1: Guide to new sewerage construction."  Delete: "IGN No. 4-11-02 Revised bedding factors for vitrified clay drains and sewers."
1.	1 <sup>st</sup> paragraph. After 1 <sup>st</sup> sentence, insert: "These materials are aggregates obtained by processing natural or manufactured or recycled materials. The following are examples of recycled materials that may be used: recycled aggregate (RA), recycled concrete aggregate (RCA), recycled glass, blastfurnace slag and pulverized-fuel ash. Recycled aggregates may be used alone or in combination with natural and manufactured aggregates."  After "Information and Guidance Note No. 4-08-01, Issue 4", insert: "and No. 4-08-01 Amendment (Nov 2008)".		

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Insert: "IGN No. 4-08-01  
Amendment. Bedding and sidefill  
materials for buried pipelines."

Table A.1 Delete title: "Table A.1 – Processed granular".  
Insert title: "Table A.1 – Processed and as-dug granular".

Delete Table A.1.  
Insert:

Pipe nominal size (DN)	Nominal maximum particle size (mm) See note (c)	Class of bedding See note (d)	Suitable Materials	
			Either: Maximum CF value for acceptability See note (b)	Or: Materials specified in British Standards See note (a)
100	10	S B F	0.15 0.30 0.15	10mm nominal single-size
		N	0.30	Fine aggregate
Over 100 to 150	16	S B F	0.15 0.30 0.15	10 or 14mm nominal single-size or 14mm to 5mm graded
		N	0.30	Fine aggregate
Over 150 to 300	20	S B F	0.15 0.30 0.15	10, 14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
		N	0.30	All-in aggregate or fine aggregate
Over 300 to 550	20	S B F	0.15 0.30 0.15	14 or 20mm nominal single-size or 14 to 5mm graded or 20 to 5mm graded
		N	0.30	All-in aggregate or fine aggregate
Over 550	40	S B F	0.15 0.30 0.15	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded
		N	0.30	All-in aggregate or fine aggregate

Note (a) Delete: "Processed granular materials to include aggregates to BS 882, air-cooled blastfurnace slag to BS 1047 and lightweight aggregates to BS 3797."  
Insert: "Processed granular materials to include aggregates to BS EN 13242."

Note (c) After "see Section 4 of IGN No.4-08-01", insert: ", Issue 4 and No. 4-08-01 Amendment (Nov (2008))."

Note (d) Delete: "BS 8005: Part 1" and "IGN No. 4-11-02".  
Insert: "BS EN 1295-1:1998 Structural design of buried pipelines under various conditions of loading."

Table A.2 Delete Table A.2.  
Insert:

Pipe nominal bore (mm) See note (d)	Nominal maximum particle size (mm)	Suitable Materials		
		Either: Maximum CF value for acceptability See note (b)		Or: Materials specified in British Standards See note (a)
		Non-pressure pipe	Pressure pipe	
100	10	0.15	0.30	10mm nominal single-size
Over 100 to 150	16	0.15	0.30	10 or 14mm nominal single-size or 14mm to 5mm graded
Over 150 to 300	20	0.15	0.30	10, 14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
Over 300 to 550	20	0.15	0.30	14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
Over 550	40	0.15	0.30	14, 20 or 40mm single-size or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded

Note (a) Delete: "Processed granular materials to include aggregates to BS 882, air-cooled blastfurnace slag to BS 1047 and lightweight aggregates to BS 3797."  
Insert: "Processed granular materials to include aggregates to BS EN 13242."

Appendix A At the end of Appendix A, insert:

**Table A.4 – Specification for processed granular material**

Property	BS EN 13242 category
Fines content	In accordance with the grading requirements of the end-use material as specified in the SHW
Resistance to fragmentation (flakiness)	LA <sub>50</sub>
Acid-soluble sulphate content: <ul style="list-style-type: none"> <li>aggregates other than air-cooled blast-furnace slag</li> <li>air-cooled blast-furnace slag</li> </ul>	AS <sub>0.2</sub> AS <sub>1.0</sub>
Total sulphur: <ul style="list-style-type: none"> <li>aggregates other than air-cooled blast-furnace slag</li> <li>air-cooled blast-furnace slag</li> </ul>	≤1% by mass ≤2% by mass
Volume stability of blast-furnace and steel slags: <ul style="list-style-type: none"> <li>air-cooled blast-furnace slag</li> <li>steel slag</li> </ul>	Free from dicalcium silicate and iron disintegration in accordance with BS EN 13242:2002, 6.4.2.2 Site specific <sup>a</sup>
<sup>a</sup> Insert appropriate category from BS EN 13242:2002, Table 14 following discussion with the producer (see 3.4.3)	

**Table A.5 – Fines Content**

Type of aggregate	Gravel		Crushed rock, recycled aggregate	
	Maximum fines category	Mass fraction of passing 0.063mm sieve	Maximum fines category - f	Mass fraction of passing 0.063mm sieve
Coarse	f <sub>2</sub>	≤ 2	f <sub>4</sub>	≤ 4
Fine and all-in	f <sub>3</sub>	≤ 3	f <sub>12</sub>	≤ 12