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Wales Construction & Demolition Waste Generation Survey 2012 Technical Appendices

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Appendix 1 Detailed results

National waste generated

Table 1: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Business Size (employee numbers)

Sector	Employee Sizebands						Total
	1- 2	3- 9	10- 19	20- 49	50- 99	100+	
Demolition & Site Preparation	54.96	61.35	29.01			0.00	145.32
Development of building projects	15.91	18.34	19.52			0.00	53.78
Construction of commercial buildings	35.22	54.05	15.78	54.90	46.41	68.64	274.99
Construction of domestic buildings	471.81	158.97	43.52	27.81	130.72	99.08	931.91
Roofing activities & Scaffold Erection	50.49	2.58	1.20	0.47	1.04	0.00	55.78
Test Drilling & boring and other specialised construction activities	26.56	32.59	1.29	13.57	1.47		75.47
Construction of highways, roads, airfields, and sport facilities	8.20	29.76	24.56	44.63	44.63	120.84	272.63
Construction of civil engineering constructions	494.62	519.80	57.15	124.91	33.76	80.91	1311.14
Electrical installation	0.71	1.52	0.78	0.41	2.51	70.89	76.82
Plumbing	0.32	19.18	5.43	1.78	0.89	0.44	28.03
Other construction installation	4.34	7.75	1.41	2.21	3.39		19.10
Plastering	1.10	2.60	0.68		0.00	0.00	4.38
Joinery installation	20.35	19.10	1.34	1.68			42.47
Floor and wall covering	2.58	1.07	1.62	0.51	0.00	0.00	5.77
Painting & Glazing	7.23	3.41	5.41	0.04	4.23		20.32
Other building completion and finishing	15.03	8.06	8.09	1.33	0.00	9.06	41.57
Total	1209.42	940.12	191.04	293.22	271.09	454.61	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; cells have been merged as a data disclosive prevention measure; levels of precision vary within the table above.

Table 2: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (SOC Classification) and Business Size (employees)

Waste Type (SOC)	Employee Sizebands						Total
	1-2	3-9	10-19	20-49	50-99	100+	
Aggregate wastes	258.65	440.88	57.45	82.76	126.14	267.39	1233.27
Animal & vegetal wastes	0.00	0.67	1.35	3.90	0.47	0.73	7.12
Chemical wastes	2.46	0.32	0.11	0.03	0.32	0.01	3.24
Common sludges	0.00	0.00	0.00	0.05	0.00	0.26	0.32
Discarded equipment	0.05	2.01	0.09	0.14	0.86	0.60	3.75
Insulation & gypsum	12.59	9.86	1.29	1.23	1.52	2.98	29.48
Metallic wastes	4.10	14.42	4.71	6.96	8.07	3.68	41.92
Mixed wastes	79.25	91.48	32.22	57.60	31.68	31.74	323.96
Non-metallic wastes	41.28	82.87	15.29	9.89	8.76	14.11	172.19
Other Mineral wastes	0.13	0.69	0.83	0.74	0.61	2.37	5.38
Soil wastes	810.93	296.92	77.70	129.91	92.66	130.74	1538.86
Total	1209.42	940.12	191.04	293.22	271.09	454.61	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 3: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Management Method and Business Size (employees)

Waste Management Type	Employee Sizebands						Total
	1-2	3-9	10-19	20-49	50-99	100+	
Preparation for re-use on site	106.79	18.73	11.58	13.70	65.91	50.97	267.67
Preparation for re-use off site	482.14	219.61	49.16	145.58	100.95	205.18	1202.61
Preparation for other reuse	0.00	0.02	0.00	1.63	0.21	0.02	1.88
Recycling	139.67	594.68	61.57	75.16	47.62	132.28	1050.97
Composting	0.00	0.64	3.70	14.97	0.46	0.28	20.05
Land recovery	0.00	0.00	0.00	0.00	0.05	0.03	0.08
Incineration	3.27	1.30	0.32	2.49	0.93	0.00	8.32
Land disposal	437.14	70.93	20.80	37.37	16.42	56.74	639.39
Treatment	0.00	0.00	15.00	0.16	0.03	4.42	19.61
Transfer Station	0.01	0.23	0.00	1.10	0.41	0.23	1.97
Other	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Don't know	7.34	8.50	0.00	0.13	0.03	0.25	16.26
Backfilling	33.07	25.48	28.90	0.93	37.82	4.22	130.43
Total	1209.42	940.12	191.04	293.22	271.09	454.61	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 4: C&D waste generated in Wales 2012, in thousands of tonnes, Hazardous and Non Hazardous Waste by Sector

Sector Type	Sector	Hazardous	Non-hazardous	Grand Total
D	Demolition & Site Preparation	1.90	143.42	145.32
C	Development of building projects	0.05	53.72	53.78
C	Construction of commercial buildings	1.28	273.71	274.99
C	Construction of domestic buildings	0.66	931.24	931.91
C	Roofing activities & Scaffold Erection	2.51	53.28	55.78
C	Test Drilling & boring and other specialised construction activities	1.15	74.33	75.47
CE	Construction of highways, roads, airfields, and sport facilities	20.81	251.82	272.63
CE	Construction of civil engineering constructions	8.11	1303.03	1311.14
GB	Electrical installation	0.38	76.44	76.82
GB	Plumbing	0.02	28.01	28.03
GB	Other construction installation	0.14	18.96	19.10
GB	Plastering	0.00	4.38	4.38
GB	Joinery installation	0.05	42.42	42.47
GB	Floor and wall covering	0.01	5.76	5.77
GB	Painting & Glazing	0.34	19.99	20.32
GB	Other building completion and finishing	0.16	41.40	41.57
Total		37.58	3321.92	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above
D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 5: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (SOC) and Waste Management Method

Waste Type (SOC)	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Land disposal	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Grand Total
Aggregate wastes	243.42	348.81	1.20	520.32	0.00	0.00	0.00	0.00	29.51	0.00	0.00	0.00	7.91	82.10	1233.27
Animal & vegetal wastes	0.00	0.05	0.00	0.19	6.11	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.01	0.35	7.12
Chemical wastes	0.00	0.05	0.00	0.40	0.00	0.00	2.46	0.00	0.05	0.01	0.01	0.25	0.02	0.00	3.24
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.25	0.00	0.32
Discarded equipment	0.00	0.78	0.00	2.91	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.03	0.00	3.75
Insulation & gypsum	0.00	0.14	0.00	17.07	0.00	0.00	0.00	0.00	4.42	0.00	0.33	0.00	7.53	0.00	29.48
Metallic Wastes	0.00	6.95	0.00	34.91	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	41.92
Mixed wastes	0.00	2.33	0.00	125.54	13.93	0.08	1.39	0.03	173.81	4.52	1.03	0.00	0.51	0.80	323.96
Non-metallic Wastes	5.30	31.94	0.67	127.98	0.00	0.00	4.12	0.32	1.78	0.00	0.09	0.00	0.00	0.00	172.19
Other Mineral Wastes	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	4.80	0.00	0.51	0.00	0.01	0.00	5.38
Soil wastes	18.96	811.58	0.01	221.64	0.00	0.00	0.00	0.00	424.49	15.00	0.00	0.00	0.00	47.18	1538.86
Total	267.67	1202.61	1.88	1050.97	20.05	0.08	7.97	0.35	639.39	19.61	1.97	0.25	16.26	130.43	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 6: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Type (SOC Classification)

Waste type (SOC)	Demolition & Site Preparation	Development of building projects	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Total
Aggregate	92.42	19.58	80.08	331.77	26.34	36.20	166.18	373.64	70.43	13.69	5.00	0.51	5.03	0.10	2.95	9.37	1233.27
Animal & vegetal	0.09	0.50	0.85	1.34	0.00	0.05	3.78	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.12
Chemical	0.00	0.00	0.00	0.01	2.45	0.09	0.01	0.04	0.25	0.02	0.00	0.00	0.05	0.05	0.27	0.00	3.24
Common sludges	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
Discarded equipment	0.58	0.01	0.68	0.66	0.00	0.05	1.00	0.26	0.24	0.06	0.04	0.00	0.16	0.02	0.00	0.00	3.75
Insulation & gypsum	0.29	2.41	1.31	8.15	7.40	0.87	0.05	4.98	0.11	0.00	0.38	2.35	0.20	0.01	0.50	0.48	29.48
Metallic wastes	8.79	0.18	4.92	7.83	2.31	1.45	5.42	3.79	0.63	3.42	0.22	0.03	2.11	0.14	0.36	0.32	41.92
Mixed wastes	3.49	22.49	29.52	100.65	3.96	12.22	40.67	43.76	1.83	6.57	7.13	1.14	11.56	3.08	7.77	28.14	323.96
Non-metallic	5.15	0.90	24.40	44.28	13.27	3.64	6.91	25.15	3.32	4.27	5.75	0.33	23.37	2.37	8.42	0.64	172.19
Other Mineral	1.32	0.02	0.47	0.50	0.06	0.86	1.88	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.06	0.14	5.38
Soil wastes	33.18	7.70	132.51	436.72	0.00	20.06	46.74	858.88	0.00	0.00	0.58	0.00	0.00	0.00	0.00	2.48	1538.86
Total	145.32	53.78	274.99	931.91	55.78	75.47	272.63	1311.14	76.82	28.03	19.10	4.38	42.47	5.77	20.32	41.57	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 7: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Type (EWC Code- Chapter 15)

EWC Code	EWC Description	Demolition & Site Preparation	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Development of building projects	Grand Total
150101	paper and cardboard packaging	0.01	0.48	2.97	0.04	0.31	0.59	1.07	1.66	1.84	1.49	0.12	2.34	1.48	0.50	0.07	0.04	14.98
150102	plastic packaging	0.01	1.17	2.56	1.70	0.55	0.51	1.05	1.01	2.14	1.35	0.09	6.32	0.13	0.09	0.00	0.01	18.71
150103	wooden packaging	0.00	0.00	0.74	0.66	0.00	0.29	0.78	0.07	0.11	0.38	0.00	2.02	0.00	0.00	0.03	0.00	5.07
150104	metallic packaging	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.12
150106	mixed packaging	0.00	0.62	0.81	0.00	0.37	0.00	0.09	0.06	1.07	0.02	0.00	0.00	0.00	0.00	0.09	0.03	3.17
150109	textile packaging	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
150110	packaging containing residues of or contaminated by dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150111	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150202	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
150203	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.01	2.27	7.08	2.40	1.24	1.39	3.02	2.80	5.15	3.25	0.21	10.69	1.62	0.67	0.18	0.08	42.08

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 8: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Type (EWC Code- Chapter 16)

EWC Code	EWC Description	Demolition & Site Preparation	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Development of building projects	Total
160103	end-of-life tyres	0.98	0.00	0.01	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.05
160104	end-of-life vehicles	0.00	0.01	0.00	0.00	0.03	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.09
160106	end-of-life vehicles, containing neither liquids nor other hazardous components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
160107	oil filters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160199	wastes not otherwise specified	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
160210	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160211	discarded equipment containing chlorofluorocarbons, HCFC, HFC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160213	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
160214	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.32
160215	hazardous components removed from discarded equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160216	components removed from discarded equipment other than those mentioned in 16 02 15	0.00	0.00	0.61	0.00	0.00	0.51	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.18
160305	organic wastes containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160306	organic wastes other than those mentioned in 16 03 05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160504	gases in pressure containers (including halons) containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160505	gases in pressure containers other than those mentioned in 16 05 04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160507	discarded inorganic chemicals consisting of or containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160508	discarded organic chemicals consisting of or containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160509	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160601	lead batteries	0.55	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
160602	Ni-Cd batteries	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
160603	mercury-containing batteries	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
160604	alkaline batteries (except 16 06 03)	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
160605	other batteries and accumulators	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
160708	wastes containing oil	0.00	0.00	0.01	0.00	0.06	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
160799	wastes not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
160806	spent liquids used as catalysts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160904	oxidising substances, not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.24
161001	aqueous liquid wastes containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161002	aqueous liquid wastes other than those mentioned in 16 10 01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Total		1.53	0.27	0.63	0.00	0.32	0.89	0.17	0.48	0.15	0.00	0.00	0.15	0.03	0.24	0.00	0.00	4.86

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 9: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Type (EWC Code- Chapter 17)

EWC Code	EWC Description	Demolition & Site Preparation	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Development of building projects	Total
170101	concrete	3.93	1.24	8.52	0.00	3.65	3.25	8.47	0.00	0.00	0.54	0.00	0.00	0.05	0.00	1.02	0.00	30.67
170102	bricks	0.03	4.64	8.31	10.42	0.41	0.00	8.89	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	32.81
170103	tiles and ceramics	0.00	0.08	0.03	14.06	1.20	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	15.64
170106	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170107	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	88.46	73.35	312.42	1.86	27.96	117.82	334.04	70.43	13.69	4.35	0.51	5.03	0.05	2.95	8.35	19.55	1080.82
170201	wood	4.02	18.04	34.16	9.57	2.08	3.12	17.09	0.03	0.03	1.19	0.12	11.37	0.10	5.33	0.40	0.76	107.41
170202	glass	0.00	0.06	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.00	0.01	0.00	1.16	0.00	0.00	1.40
170203	plastic	0.14	4.49	3.42	0.02	0.48	1.24	5.04	0.17	0.04	1.14	0.00	1.20	0.08	1.28	0.02	0.00	18.76
170204	glass, plastic and wood containing or contaminated with dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
170301	bituminous mixtures containing coal tar	0.00	0.00	0.00	0.00	0.00	5.47	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.62
170302	bituminous mixtures other than those mentioned in 17 03 01	0.00	0.76	2.49	0.00	2.98	37.89	14.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.69
170303	coal tar and tarred products	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
170401	copper, bronze, brass	0.20	3.83	3.63	0.00	0.02	2.15	2.13	0.01	0.21	0.03	0.00	0.46	0.00	0.00	0.00	0.00	12.67
170402	aluminium	0.01	0.00	0.00	0.00	0.03	0.08	0.04	0.22	0.00	0.06	0.00	0.04	0.12	0.00	0.00	0.00	0.60
170403	lead	0.00	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.01	0.23
170405	iron and steel	8.08	0.27	0.23	1.08	1.13	1.41	0.51	0.14	0.59	0.01	0.00	0.04	0.01	0.13	0.02	0.03	13.68
170406	tin	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.03
170407	mixed metals	0.51	0.83	3.96	1.06	0.25	1.77	1.09	0.22	2.46	0.10	0.03	1.56	0.01	0.12	0.30	0.14	14.41
170411	cables other than those mentioned in 17 04 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
170503	soil and stones containing dangerous substances	0.00	0.00	0.00	0.00	0.00	15.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.44
170504	soil and stones other than those mentioned in 17 05 03	33.18	132.51	436.72	0.00	20.06	28.84	858.44	0.00	0.00	0.58	0.00	0.00	0.00	0.00	2.48	7.70	1520.51
170506	dredging spoil other than those mentioned in 17 05 05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
170508	track ballast other than those mentioned in 17 05 07	0.00	0.00	0.00	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
170601	insulation materials containing asbestos	0.78	0.00	0.03	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	1.02

EWC Code	EWC Description	Demolition & Site Preparation	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Development of building projects	Total
170603	other insulation materials consisting of or containing dangerous substances	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10
170604	insulation materials other than those mentioned in 17 06 01 and 17 06 03	0.02	0.22	1.38	7.40	0.00	0.00	3.63	0.11	0.00	0.18	0.26	0.15	0.01	0.00	0.00	0.00	13.36
170605	construction materials containing asbestos	0.54	0.47	0.45	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.00	0.02	2.39
170801	gypsum-based construction materials contaminated with dangerous substances	0.00	0.00	0.00	0.00	0.18	0.00	0.03	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.02	0.00	0.33
170802	gypsum-based construction materials other than those mentioned in 17 08 01	0.28	1.09	6.68	0.00	0.69	0.05	1.33	0.00	0.00	0.10	2.10	0.05	0.00	0.50	0.46	2.41	15.74
170901	construction and demolition wastes containing mercury	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
170903	other construction and demolition wastes (including mixed wastes) containing dangerous substances	0.00	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.21
170904	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	3.40	27.85	89.46	2.83	11.36	12.42	33.08	1.03	5.18	6.77	1.02	10.22	1.67	7.64	26.83	11.70	252.46
Total		143.58	269.85	912.17	48.53	73.34	232.26	1296.54	72.42	22.21	15.35	4.04	30.15	2.10	19.20	40.04	42.38	3224.16

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 10: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Type (EWC Code- Chapter 20)

EWC Code	EWC Description	Demolition & Site Preparation	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing	Other building completion and finishing	Development of building projects	Total
200101	paper and cardboard	0.00	0.12	0.23	1.28	0.07	0.56	0.10	0.37	0.12	0.09	0.00	0.03	0.47	0.06	0.10	0.09	3.69
200102	glass	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
200108	biodegradable kitchen and canteen waste	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
200111	textiles	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.13
200113	solvents	0.00	0.00	0.00	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	2.50
200121	fluorescent tubes and other mercury-containing waste	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.21
200123	discarded equipment containing chlorofluorocarbons	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
200125	edible oil and fat	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
200126	oil and fat other than those mentioned in 20 01 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200127	paint, inks, adhesives and resins containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03
200128	paint, inks, adhesives and resins other than those mentioned in 20 01 27	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.08
200134	batteries and accumulators other than those mentioned in 20 01 33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200135	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (6)	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.08
200136	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	0.00	0.00	0.05	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
200138	wood other than that mentioned in 20 01 37	0.00	0.00	0.00	0.00	0.06	0.31	0.01	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.46
200139	plastics	0.00	0.00	0.10	0.00	0.08	0.23	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.03	0.00	0.51
200140	metals	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
200199	other fractions not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200201	biodegradable waste	0.09	0.85	1.34	0.00	0.05	3.78	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	7.03
200202	soil and stones	0.00	0.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89
200203	other non-biodegradable wastes	0.00	0.00	0.00	0.00	0.00	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
200301	mixed municipal waste	0.09	0.92	9.84	1.08	0.30	1.28	2.45	0.74	0.22	0.30	0.13	1.34	1.41	0.13	0.00	10.62	30.85
200303	street-cleaning residues	0.00	0.00	0.00	0.00	0.00	26.96	8.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.03
200304	septic tank sludge	0.00	0.25	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
200307	bulky waste	0.00	0.00	0.11	0.04	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.32
200399	municipal wastes not otherwise specified	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	1.22	0.00	1.62
Total		0.21	2.60	12.05	4.85	0.60	38.07	11.42	1.13	0.50	0.52	0.13	1.48	2.03	0.22	1.35	11.33	88.48

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 11: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Management Method

Sector Type	Sector	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
D	Demolition & Site Preparation	11.47	105.11	0.01	24.61	0.09	0.00	0.01	0.00	3.96	0.00	0.05	0.00	0.00	0.00	145.32
C	Construction of commercial buildings	0.00	156.85	0.42	87.76	0.85	0.00	1.52	0.07	16.90	0.13	0.21	0.00	0.28	10.02	274.99
C	Construction of domestic buildings	162.08	465.06	0.01	186.22	0.95	0.00	1.06	0.00	67.25	0.01	0.25	0.00	0.56	48.46	931.91
C	Roofing activities & Scaffold Erection	0.01	1.01	0.00	42.79	0.00	0.00	2.84	0.01	1.78	0.00	0.00	0.00	7.34	0.00	55.78
C	Test Drilling & boring and other specialised construction activities	15.23	18.89	1.20	15.42	0.01	0.00	1.06	0.16	23.30	0.00	0.09	0.00	0.02	0.09	75.47
C	Development of building projects	0.61	7.67	0.00	15.42	0.50	0.00	0.10	0.00	17.32	0.00	0.00	0.00	0.00	12.16	53.78
CE	Construction of highways, roads, airfields, and sport facilities	50.99	74.70	0.09	43.70	17.55	0.00	0.20	0.01	25.70	19.40	0.00	0.00	0.00	40.28	272.63
CE	Construction of civil engineering constructions	22.03	294.02	0.00	539.06	0.10	0.00	0.05	0.00	436.37	0.07	0.00	0.00	0.04	19.41	1311.14
GB	Electrical installation	0.00	69.75	0.00	4.13	0.00	0.00	0.00	0.00	2.69	0.00	0.00	0.25	0.00	0.00	76.82
GB	Plumbing	0.03	0.16	0.00	16.79	0.00	0.08	0.00	0.01	3.03	0.00	0.00	0.00	7.92	0.00	28.03
GB	Other construction installation	0.00	0.38	0.14	12.70	0.00	0.00	0.24	0.06	5.41	0.00	0.08	0.00	0.10	0.00	19.10
GB	Plastering	0.00	0.11	0.00	1.88	0.00	0.00	0.00	0.00	2.37	0.00	0.01	0.00	0.00	0.00	4.38
GB	Joinery installation	5.15	4.57	0.00	26.39	0.00	0.00	0.69	0.00	4.87	0.00	0.80	0.00	0.01	0.00	42.47
GB	Floor and wall covering	0.07	0.12	0.00	2.51	0.00	0.00	0.00	0.02	3.05	0.00	0.01	0.00	0.00	0.00	5.77
GB	Painting & Glazing	0.00	0.17	0.00	16.71	0.00	0.00	0.13	0.00	3.30	0.00	0.01	0.00	0.00	0.00	20.32
GB	Other building completion and finishing	0.00	4.04	0.01	14.89	0.00	0.00	0.07	0.00	22.08	0.00	0.48	0.00	0.00	0.00	41.57
Total		267.67	1202.61	1.88	1050.97	20.05	0.08	7.97	0.35	639.39	19.61	1.97	0.25	16.26	130.43	3359.50

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above; D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 12: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (EWC Code- Chapter 15) and Waste Management Method

EWC Code	EWC Description	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
150101	paper and cardboard packaging	0.00	0.03	0.00	14.95	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	14.98
150102	plastic packaging	0.00	0.00	0.00	18.37	0.00	0.00	0.00	0.00	0.32	0.00	0.02	0.00	0.00	0.00	18.71
150103	wooden packaging	0.01	1.45	0.14	3.39	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.07
150104	metallic packaging	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
150106	mixed packaging	0.00	0.00	0.00	2.69	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	3.17
150109	textile packaging	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
150110	packaging containing residues of or contaminated by dangerous substances	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
150111	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150202	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
150203	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.01	1.48	0.14	39.55	0.00	0.00	0.09	0.01	0.79	0.00	0.02	0.00	0.00	0.00	42.08

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 13: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (EWC Code- Chapter 16) and Waste Management Method

EWC Code	EWC Description	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
160103	end-of-life tyres	0.00	0.01	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.04
160104	end-of-life vehicles	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.08
160106	end-of-life vehicles, containing neither liquids nor other hazardous components	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
160107	oil filters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160199	wastes not otherwise specified	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.20
160210	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160211	discarded equipment containing chlorofluorocarbons, HCFC, HFC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160213	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
160214	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	0.00	0.05	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
160215	hazardous components removed from discarded equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160216	components removed from discarded equipment other than those mentioned in 16 02 15	0.00	0.01	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
160305	organic wastes containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160306	organic wastes other than those mentioned in 16 03 05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160504	gases in pressure containers (including halons) containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160505	gases in pressure containers other than those mentioned in 16 05 04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160507	discarded inorganic chemicals consisting of or containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160508	discarded organic chemicals consisting of or containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160509	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160601	lead batteries	0.00	0.26	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
160602	Ni-Cd batteries	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
160603	mercury-containing batteries	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
160604	alkaline batteries (except 16 06 03)	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
160605	other batteries and accumulators	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
160708	wastes containing oil	0.00	0.00	0.00	0.06	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.11
160799	wastes not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
160806	spent liquids used as catalysts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160904	oxidising substances, not otherwise specified	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
161001	aqueous liquid wastes containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161002	aqueous liquid wastes other than those mentioned in 16 10 01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.25
Total		0.00	0.54	0.00	3.85	0.00	0.08	0.01	0.01	0.04	0.00	0.01	0.25	0.03	0.00	4.81

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 14: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (EWC Code- Chapter 17) and Waste Management Method

EWC Code	EWC Description	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
170101	concrete	10.60	8.69	0.00	10.21	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00	0.00	0.00	30.68
170102	bricks	5.62	8.64	0.00	18.42	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	32.81
170103	tiles and ceramics	0.00	0.06	1.20	14.15	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	15.64
170106	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170107	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	225.82	297.90	0.00	447.00	0.00	0.00	0.00	0.00	20.15	0.00	0.00	0.00	7.90	82.04	1080.81
170201	wood	5.29	28.86	0.54	67.58	0.00	0.00	3.82	0.15	1.15	0.00	0.00	0.00	0.00	0.00	107.39
170202	glass	0.00	0.17	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	1.40
170203	plastic	0.00	1.26	0.00	17.21	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	18.77
170204	glass, plastic and wood containing or contaminated with dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02
170301	bituminous mixtures containing coal tar	0.00	7.15	0.00	5.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.62
170302	bituminous mixtures other than those mentioned in 17 03 01	1.38	24.61	0.00	25.09	0.00	0.00	0.00	0.00	7.55	0.00	0.00	0.00	0.00	0.06	58.69
170303	coal tar and tarred products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.27
170401	copper, bronze, brass	0.00	5.78	0.00	6.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.67
170402	aluminium	0.00	0.10	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
170403	lead	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
170405	iron and steel	0.00	0.19	0.00	13.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.67
170406	tin	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
170407	mixed metals	0.00	0.88	0.00	13.46	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	14.41
170411	cables other than those mentioned in 17 04 10	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
170503	soil and stones containing dangerous substances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	15.00	0.00	0.00	0.00	0.00	15.44
170504	soil and stones other than those mentioned in 17 05 03	18.96	810.78	0.01	221.64	0.00	0.00	0.00	0.00	424.05	0.00	0.00	0.00	0.00	45.08	1520.53
170506	dredging spoil other than those mentioned in 17 05 05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05
170508	track ballast other than those mentioned in 17 05 07	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
170601	insulation materials containing asbestos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.14	0.00	0.00	0.00	1.02
170603	other insulation materials consisting of or containing dangerous substances	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.10
170604	insulation materials other than those mentioned in 17 06 01 and 17 06 03	0.00	0.11	0.00	5.43	0.00	0.00	0.00	0.00	0.41	0.00	0.05	0.00	7.34	0.00	13.33
170605	construction materials containing asbestos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.37	0.00	0.01	0.00	2.39
170801	gypsum-based construction materials contaminated with dangerous substances	0.00	0.03	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.33
170802	gypsum-based construction materials other than those mentioned in 17 08 01	0.00	0.00	0.00	11.37	0.00	0.00	0.00	0.00	3.98	0.00	0.28	0.00	0.09	0.00	15.72
170901	construction and demolition wastes containing mercury	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.04
170903	other construction and demolition wastes (including mixed wastes) containing dangerous substances	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.03	0.12	0.00	0.00	0.00	0.00	0.22
170904	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	0.00	2.07	0.00	107.31	0.00	0.00	1.38	0.00	139.38	0.00	1.03	0.00	0.51	0.79	252.46
Total		267.67	1199.03	1.75	987.00	0.00	0.00	5.20	0.15	602.32	15.12	1.93	0.00	15.95	127.97	3224.12

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 15: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (EWC Code- Chapter 20) and Waste Management Method

EWC Code	EWC Description	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
200101	paper and cardboard	0.00	0.00	0.00	3.61	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	3.69
200102	glass	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
200108	biodegradable kitchen and canteen waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.08
200111	textiles	0.00	0.07	0.00	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
200113	solvents	0.00	0.05	0.00	0.00	0.00	0.00	2.45	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.50
200121	fluorescent tubes and other mercury-containing waste	0.00	0.01	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
200123	discarded equipment containing chlorofluorocarbons	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
200125	edible oil and fat	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
200126	oil and fat other than those mentioned in 20 01 25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200127	paint, inks, adhesives and resins containing dangerous substances	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
200128	paint, inks, adhesives and resins other than those mentioned in 20 01 27	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.08
200134	batteries and accumulators other than those mentioned in 20 01 33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200135	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
200136	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	0.00	0.03	0.00	0.09	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.13
200138	wood other than that mentioned in 20 01 37	0.00	0.10	0.00	0.17	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
200139	plastics	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.51
200140	metals	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
200199	other fractions not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200201	biodegradable waste	0.00	0.05	0.00	0.18	6.11	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.35	7.03
200202	soil and stones	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	2.89
200203	other non-biodegradable wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.00	0.00	0.00	0.00	0.00	1.88
200301	mixed municipal waste	0.00	0.00	0.00	14.27	0.00	0.00	0.01	0.02	16.54	0.00	0.00	0.00	0.00	0.00	30.85
200303	street-cleaning residues	0.00	0.00	0.00	1.06	13.93	0.00	0.00	0.00	15.64	4.40	0.00	0.00	0.00	0.00	35.03
200304	septic tank sludge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.25	0.00	0.32
200307	bulky waste	0.00	0.06	0.00	0.11	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.32
200399	municipal wastes not otherwise specified	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	1.58	0.00	0.00	0.00	0.00	0.00	1.62
Total		0.00	1.56	0.00	20.57	20.05	0.00	2.67	0.18	36.24	4.47	0.01	0.00	0.27	2.45	88.48

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 16: C&D hazardous waste generated in Wales 2012, in thousands of tonnes, Hazardous Waste Type (SOC Classification) and Waste Management Method

Waste Type (SOC)	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Separation	Mechanical Biological Treatment	Alternative Treatment Technologies	Mechanical Heat Treatment	Rendering	Transfer station	Other	Don't Know	Total
Aggregate wastes	0.00	7.15	0.00	5.46	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.89
Chemical wastes	0.00	0.05	0.00	0.35	2.46	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.25	0.00	3.15
Discarded equipment	0.00	0.69	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.94
Insulation & gypsum	0.00	0.03	0.00	0.27	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.43
Mixed wastes	0.00	0.00	0.00	0.06	0.00	0.00	0.04	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.23
Non-metallic wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Mineral wastes	0.00	0.00	0.00	0.01	0.00	0.00	2.96	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.01	3.50
Soil wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	15.44
Total	0.00	7.92	0.00	7.37	2.46	0.00	3.78	0.01	15.00	0.12	0.00	0.00	0.52	0.25	0.14	37.58

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Regional waste generated

Table 17: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Region

Type	Sector	North	South-East	South-West	Total
D	Demolition & Site Preparation	35.48	47.20	62.64	145.32
C	Construction of commercial buildings	64.60	105.39	105.00	274.99
C	Construction of domestic buildings	202.74	567.40	161.77	931.91
C	Development of building projects	0.32	25.16	28.29	53.78
C	Roofing activities & Scaffold Erection	50.93	4.37	0.49	55.78
C	Test Drilling & boring and other specialised construction activities	16.23	22.98	36.27	75.47
CE	Construction of civil engineering constructions	219.41	455.09	636.64	1311.14
CE	Construction of highways, roads, airfields, and sport facilities	101.11	87.66	83.85	272.63
GB	Electrical installation	3.02	72.27	1.53	76.82
GB	Floor and wall covering	0.62	4.57	0.58	5.77
GB	Joinery installation	28.72	6.33	7.43	42.47
GB	Other building completion and finishing	0.59	11.32	29.66	41.57
GB	Other construction installation	5.69	5.96	7.46	19.10
GB	Painting & Glazing	0.00	8.26	12.06	20.32
GB	Plastering	2.55	0.78	1.06	4.38
GB	Plumbing	12.82	12.61	2.61	28.03
Total		744.82	1437.35	1177.33	3359.50

Note: column and row totals may not exactly match owing to rounding of figures
levels of precision vary within the table above

D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 18: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Management Method and region

Waste Management Method	North	South-East	South-West	Total
Preparation for re-use on site	10.03	174.82	82.82	267.67
Preparation for re-use off site	330.95	659.91	211.75	1202.61
Preparation for other reuse	0.00	1.88	0.00	1.88
Recycling	257.35	430.44	363.18	1050.97
Composting	14.13	5.44	0.47	20.04
Land recovery	0.08	0.00	0.00	0.08
Incineration with energy recovery	3.84	3.26	0.87	7.97
Incineration without energy recovery	0.00	0.20	0.15	0.35
Land disposal	45.03	131.11	463.25	639.39
Treatment	0.05	19.54	0.01	19.61
Transfer Station	0.03	1.10	0.84	1.97
Other	0.25	0.00	0.00	0.25
Don't Know	7.94	8.22	0.10	16.26
Backfilling	75.12	1.44	53.86	130.43
Total	744.82	1437.35	1177.33	3359.50

Note: column and row totals may not exactly match owing to rounding of figures levels of precision vary within the table above

Table 19: C&D waste generated in Wales 2012, in thousands of tonnes, by SOC Waste Type per region

Waste Type (SOC)	North	South-East	South-West	Total
Aggregate wastes	291.13	669.94	272.19	1233.27
Animal & vegetal wastes	5.35	0.94	0.83	7.12
Chemical wastes	2.81	0.31	0.12	3.24
Common sludges	0.06	0.25	0.01	0.32
Discarded equipment	3.12	0.44	0.19	3.75
Insulation & gypsum	16.54	8.08	4.86	29.48
Metallic wastes	18.38	18.18	5.36	41.92
Mixed wastes	75.55	142.17	106.25	323.96
Non-metallic wastes	121.89	33.10	17.20	172.19
Other Mineral wastes	0.98	2.06	2.35	5.38
Soil wastes	209.01	561.89	767.96	1538.86
Total	744.82	1437.35	1177.33	3359.50

Note: column and row totals may not exactly match owing to rounding of figures levels of precision vary within the table above

Table 20: C&D hazardous Waste generated in Wales 2012, in thousands of tonnes, by SOC Waste Type per region

Waste Type (SOC)	North	South-East	South-West	Total
Aggregate wastes	0.00	12.62	0.27	12.89
Animal & vegetal wastes	0.00	0.00	0.00	0.00
Chemical wastes	2.75	0.31	0.10	3.15
Common sludges	0.00	0.00	0.00	0.00
Discarded equipment	1.62	0.19	0.13	1.94
Insulation & gypsum	0.10	0.02	0.30	0.43
Metallic wastes	0.00	0.00	0.00	0.00
Mixed wastes	0.00	0.22	0.02	0.23
Non-metallic wastes	0.00	0.00	0.00	0.00
Other Mineral wastes	0.98	2.06	0.46	3.50
Soil wastes	0.00	15.33	0.11	15.44
Total	5.45	30.74	1.39	37.58

Note: column and row totals may not exactly match owing to rounding of figures levels of precision vary within the table above

Table 21: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (SOC) and Construction and Demolition Sector in North Wales

Waste Type (SOC)	Demolition	Construction				Civil Engineering		General Building								Total	
	Demolition & Site Preparation	Development of building projects	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing		Other building completion and finishing
Aggregate wastes	22.51	0.16	14.33	90.06	26.34	5.10	55.23	67.50	0.12	4.88	0.38	0.02	4.51	0.00	0.00	0.00	291.13
Animal & vegetal wastes	0.00	0.00	0.85	0.37	0.00	0.00	3.73	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35
Chemical wastes	0.00	0.00	0.00	0.00	2.45	0.00	0.00	0.00	0.25	0.02	0.00	0.00	0.05	0.05	0.00	0.00	2.81
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
Discarded equipment	0.55	0.00	0.67	0.61	0.00	0.03	0.98	0.06	0.16	0.05	0.00	0.00	0.00	0.01	0.00	0.00	3.12
Insulation & gypsum	0.00	0.00	0.35	2.28	7.40	0.36	0.00	3.76	0.11	0.00	0.01	2.13	0.15	0.00	0.00	0.00	16.54
Metallic wastes	0.13	0.03	3.87	3.80	0.96	0.87	3.35	2.33	0.15	0.66	0.01	0.03	1.85	0.12	0.00	0.23	18.38
Mixed wastes	0.39	0.03	6.57	29.65	1.02	1.92	24.39	5.40	0.28	3.78	0.32	0.12	1.39	0.00	0.00	0.31	75.55
Non-metallic wastes	4.09	0.11	16.92	27.66	12.77	0.70	5.32	22.44	1.96	3.43	4.98	0.25	20.77	0.44	0.00	0.05	121.89
Other Mineral wastes	0.84	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Soil wastes	6.96	0.00	20.90	48.32	0.00	7.24	8.12	117.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209.01
Total	35.48	0.32	64.60	202.74	50.93	16.23	101.11	219.41	3.02	12.82	5.69	2.55	28.72	0.62	0.00	0.59	744.82

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 22: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (SOC) and Construction and Demolition Sector in South East Wales

Waste Type (SOC)	Demolition	Construction				Civil Engineering		General Building								Total	
	Demolition & Site Preparation	Development of building projects	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing		Other building completion and finishing
Aggregate wastes	34.26	4.04	14.09	187.93	0.00	13.75	44.35	287.90	70.31	7.90	0.00	0.00	0.00	0.10	0.91	4.40	669.94
Animal & vegetal wastes	0.09	0.31	0.00	0.45	0.00	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Chemical wastes	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.31
Common sludges	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Discarded equipment	0.04	0.01	0.01	0.05	0.00	0.01	0.01	0.06	0.08	0.01	0.00	0.00	0.16	0.01	0.00	0.00	0.44
Insulation & gypsum	0.19	2.25	0.86	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.15	0.00	0.01	0.17	0.34	8.08
Metallic wastes	7.18	0.01	0.77	3.13	1.24	0.37	1.76	0.64	0.29	2.38	0.08	0.00	0.02	0.02	0.26	0.02	18.18
Mixed wastes	2.41	18.14	17.50	47.58	2.66	6.16	12.42	9.46	0.77	1.80	4.67	0.62	5.36	2.66	3.72	6.27	142.17
Non-metallic wastes	0.81	0.42	5.86	13.74	0.47	1.89	1.07	1.33	0.82	0.51	0.62	0.00	0.79	1.77	2.87	0.12	33.10
Other Mineral wastes	0.42	0.00	0.26	0.42	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.14	2.06
Soil wastes	1.81	0.00	65.80	310.26	0.00	0.01	27.99	155.67	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.03	561.89
Total	47.20	25.16	105.39	567.40	4.37	22.98	87.66	455.09	72.27	12.61	5.96	0.78	6.33	4.57	8.26	11.32	1437.35

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 23: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste Type (SOC) and Construction and Demolition Sector in South West Wales

Waste Type (SOC)	Demolition	Construction				Civil Engineering		General Building								Total	
	Demolition & Site Preparation	Development of building projects	Construction of commercial buildings	Construction of domestic buildings	Roofing activities & Scaffold Erection	Test Drilling & boring and other specialised construction activities	Construction of highways, roads, airfields, and sport facilities	Construction of civil engineering constructions	Electrical installation	Plumbing	Other construction installation	Plastering	Joinery installation	Floor and wall covering	Painting & Glazing		Other building completion and finishing
Aggregate wastes	35.64	15.38	51.66	53.79	0.00	17.35	66.60	18.24	0.00	0.91	4.62	0.49	0.51	0.00	2.04	4.97	272.19
Animal & vegetal wastes	0.00	0.19	0.00	0.52	0.00	0.04	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Chemical wastes	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.12
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Discarded equipment	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.13	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.19
Insulation & gypsum	0.10	0.16	0.10	2.03	0.00	0.50	0.05	1.22	0.00	0.00	0.10	0.08	0.05	0.00	0.32	0.14	4.86
Metallic wastes	1.48	0.14	0.28	0.90	0.11	0.21	0.31	0.82	0.19	0.37	0.13	0.00	0.24	0.00	0.10	0.07	5.36
Mixed wastes	0.69	4.32	5.45	23.42	0.28	4.15	3.87	28.90	0.78	0.99	2.14	0.41	4.81	0.42	4.05	21.56	106.25
Non-metallic wastes	0.26	0.38	1.62	2.88	0.03	1.06	0.52	1.38	0.54	0.33	0.16	0.08	1.81	0.16	5.54	0.46	17.20
Other Mineral wastes	0.06	0.02	0.08	0.08	0.06	0.09	1.88	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.35
Soil wastes	24.41	7.70	45.81	78.14	0.00	12.80	10.63	585.75	0.00	0.00	0.27	0.00	0.00	0.00	0.00	2.45	767.96
Total	62.64	28.29	105.00	161.77	0.49	36.27	83.85	636.64	1.53	2.61	7.46	1.06	7.43	0.58	12.06	29.66	1177.33

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Table 24: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Management Method in North Wales

Sector Type	Sector	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
D	Demolition & Site Preparation	0.00	29.22	0.00	4.79	0.00	0.00	0.01	0.00	1.46	0.00	0.01	0.00	0.00	0.00	35.48
C	Construction of commercial buildings	0.00	29.32	0.00	16.79	0.85	0.00	0.02	0.00	7.57	0.00	0.03	0.00	0.00	10.02	64.60
C	Construction of domestic buildings	4.71	81.97	0.00	91.19	0.33	0.00	0.77	0.00	9.25	0.00	0.00	0.00	0.56	13.96	202.74
C	Development of building projects	0.00	0.11	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.32
C	Roofing activities & Scaffold Erection	0.00	0.76	0.00	39.07	0.00	0.00	2.68	0.00	1.08	0.00	0.00	0.00	7.34	0.00	50.93
C	Test Drilling & boring and other specialised construction activities	0.01	5.12	0.00	3.20	0.00	0.00	0.01	0.00	7.86	0.00	0.00	0.00	0.02	0.00	16.23
CE	Construction of civil engineering constructions	0.09	152.11	0.00	51.17	0.00	0.00	0.00	0.00	5.27	0.05	0.00	0.00	0.01	10.71	219.41
CE	Construction of highways, roads, airfields, and sport facilities	0.00	27.13	0.00	12.31	12.95	0.00	0.15	0.00	8.30	0.00	0.00	0.00	0.00	40.28	101.11
GB	Electrical installation	0.00	0.23	0.00	2.42	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.25	0.00	0.00	3.02
GB	Floor and wall covering	0.07	0.08	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
GB	Joinery installation	5.15	4.56	0.00	17.62	0.00	0.00	0.00	0.00	1.39	0.00	0.00	0.00	0.00	0.00	28.72
GB	Other building completion and finishing	0.00	0.00	0.00	0.46	0.00	0.00	0.03	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.59
GB	Other construction installation	0.00	0.11	0.00	5.11	0.00	0.00	0.18	0.00	0.29	0.00	0.00	0.00	0.00	0.00	5.69
GB	Painting & Glazing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GB	Plastering	0.00	0.11	0.00	0.46	0.00	0.00	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	2.55
GB	Plumbing	0.00	0.14	0.00	12.23	0.00	0.08	0.00	0.00	0.35	0.00	0.00	0.00	0.02	0.00	12.82
Total		10.03	330.95	0.00	257.35	14.13	0.08	3.84	0.00	45.03	0.06	0.03	0.25	7.94	75.12	744.82

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above
D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 25: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Management Method in South East Wales

Sector Type	Sector	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
D	Demolition & Site Preparation	0.97	34.41	0.01	11.10	0.09	0.00	0.00	0.00	0.58	0.00	0.04	0.00	0.00	0.00	47.20
C	Construction of commercial buildings	0.00	78.60	0.42	20.44	0.00	0.00	1.50	0.07	3.80	0.12	0.17	0.00	0.28	0.00	105.39
C	Construction of domestic buildings	157.20	297.25	0.01	76.90	0.42	0.00	0.17	0.00	33.77	0.00	0.25	0.00	0.00	1.43	567.40
C	Development of building projects	0.00	0.10	0.00	11.68	0.31	0.00	0.10	0.00	12.98	0.00	0.00	0.00	0.00	0.00	25.16
C	Roofing activities & Scaffold Erection	0.00	0.24	0.00	3.42	0.00	0.00	0.16	0.01	0.54	0.00	0.00	0.00	0.00	0.00	4.37
C	Test Drilling & boring and other specialised construction activities	7.15	0.81	1.20	8.19	0.01	0.00	0.75	0.01	4.76	0.00	0.09	0.00	0.00	0.00	22.98
CE	Construction of civil engineering constructions	7.97	130.03	0.00	261.57	0.02	0.00	0.00	0.00	55.47	0.00	0.00	0.00	0.03	0.00	455.09
CE	Construction of highways, roads, airfields, and sport facilities	1.49	47.17	0.09	7.69	4.60	0.00	0.05	0.01	7.14	19.40	0.00	0.00	0.00	0.00	87.66
GB	Electrical installation	0.00	69.52	0.00	0.97	0.00	0.00	0.00	0.00	1.78	0.00	0.00	0.00	0.00	0.00	72.27
GB	Floor and wall covering	0.00	0.05	0.00	1.87	0.00	0.00	0.00	0.02	2.63	0.00	0.01	0.00	0.00	0.00	4.57
GB	Joinery installation	0.00	0.02	0.00	4.91	0.00	0.00	0.41	0.00	0.99	0.00	0.00	0.00	0.00	0.00	6.33
GB	Other building completion and finishing	0.00	1.70	0.01	7.91	0.00	0.00	0.05	0.00	1.19	0.00	0.47	0.00	0.00	0.00	11.32
GB	Other construction installation	0.00	0.00	0.14	2.49	0.00	0.00	0.06	0.06	3.14	0.00	0.08	0.00	0.00	0.00	5.96
GB	Painting & Glazing	0.00	0.00	0.00	7.09	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00	8.26
GB	Plastering	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.78
GB	Plumbing	0.03	0.02	0.00	3.46	0.00	0.00	0.00	0.01	1.17	0.00	0.00	0.00	7.90	0.00	12.61
Total		174.82	659.91	1.88	430.44	5.44	0.00	3.26	0.20	131.11	19.54	1.10	0.00	8.22	1.44	1437.35

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 26: C&D waste generated in Wales 2012, in thousands of tonnes, by Sector and Waste Management Method in South West Wales

Sector Type	Sector	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
D	Demolition & Site Preparation	10.50	41.49	0.00	8.72	0.00	0.00	0.00	0.00	1.93	0.00	0.01	0.00	0.00	0.00	62.64
C	Construction of commercial buildings	0.00	48.93	0.00	50.53	0.00	0.00	0.00	0.00	5.52	0.00	0.01	0.00	0.00	0.00	105.00
C	Construction of domestic buildings	0.17	85.84	0.00	18.13	0.21	0.00	0.12	0.00	24.24	0.00	0.00	0.00	0.00	33.07	161.77
C	Development of building projects	0.61	7.46	0.00	3.69	0.19	0.00	0.00	0.00	4.34	0.00	0.00	0.00	0.00	12.00	28.29
C	Roofing activities & Scaffold Erection	0.01	0.01	0.00	0.31	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.49
C	Test Drilling & boring and other specialised construction activities	8.06	12.97	0.00	4.02	0.00	0.00	0.30	0.15	10.67	0.00	0.00	0.00	0.00	0.09	36.27
CE	Construction of civil engineering constructions	13.97	11.88	0.00	226.33	0.08	0.00	0.05	0.00	375.63	0.01	0.00	0.00	0.00	8.70	636.64
CE	Construction of highways, roads, airfields, and sport facilities	49.50	0.40	0.00	23.70	0.00	0.00	0.00	0.00	10.26	0.00	0.00	0.00	0.00	0.00	83.85
GB	Electrical installation	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00	1.53
GB	Floor and wall covering	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.58
GB	Joinery installation	0.00	0.00	0.00	3.86	0.00	0.00	0.28	0.00	2.49	0.00	0.80	0.00	0.01	0.00	7.43
GB	Other building completion and finishing	0.00	2.34	0.00	6.52	0.00	0.00	0.00	0.00	20.79	0.00	0.01	0.00	0.00	0.00	29.66
GB	Other construction installation	0.00	0.27	0.00	5.11	0.00	0.00	0.00	0.00	1.99	0.00	0.00	0.00	0.10	0.00	7.46
GB	Painting & Glazing	0.00	0.17	0.00	9.61	0.00	0.00	0.13	0.00	2.14	0.00	0.01	0.00	0.00	0.00	12.06
GB	Plastering	0.00	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.39	0.00	0.01	0.00	0.00	0.00	1.06
GB	Plumbing	0.00	0.00	0.00	1.09	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.00	0.00	2.61
Total		82.82	211.75	0.00	363.18	0.48	0.00	0.87	0.15	463.25	0.01	0.84	0.00	0.10	53.86	1177.33

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above
D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 27: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste type (SOC) and Waste management method in North Wales

Waste Type (SOC)	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
Aggregate wastes	4.71	140.31	0.00	107.99	0.00	0.00	0.00	0.00	2.59	0.00	0.00	0.00	0.00	35.53	291.13
Animal & vegetal wastes	0.00	0.04	0.00	0.17	4.74	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.32	5.35
Chemical wastes	0.00	0.05	0.00	0.06	0.00	0.00	2.45	0.00	0.00	0.00	0.00	0.25	0.02	0.00	2.81
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.06
Discarded equipment	0.00	0.74	0.00	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12
Insulation & gypsum	0.00	0.14	0.00	7.05	0.00	0.00	0.00	0.00	1.92	0.00	0.03	0.00	7.41	0.00	16.54
Metallic wastes	0.00	6.85	0.00	11.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.38
Mixed wastes	0.00	0.27	0.00	35.75	9.39	0.08	0.02	0.00	28.75	0.00	0.00	0.00	0.51	0.79	75.55
Non-metallic wastes	5.23	30.03	0.00	85.24	0.00	0.00	1.38	0.00	0.02	0.00	0.00	0.00	0.00	0.00	121.89
Other Mineral wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.01	0.00	0.00	0.00	0.98
Soil wastes	0.09	152.53	0.00	7.20	0.00	0.00	0.00	0.00	10.71	0.00	0.00	0.00	0.00	38.48	209.01
Total	10.03	330.95	0.00	257.35	14.13	0.08	3.84	0.00	45.03	0.06	0.03	0.25	7.94	75.12	744.82

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 28: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste type (SOC) and Waste management method in South East Wales

Waste Type (SOC)	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
Aggregate wastes	164.91	165.17	1.20	311.18	0.00	0.00	0.00	0.00	18.14	0.00	0.00	0.00	7.91	1.44	669.94
Animal & vegetal wastes	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.94
Chemical wastes	0.00	0.00	0.00	0.28	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.31
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Discarded equipment	0.00	0.04	0.00	0.35	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.03	0.00	0.44
Insulation & gypsum	0.00	0.00	0.00	5.52	0.00	0.00	0.00	0.00	2.26	0.00	0.27	0.00	0.02	0.00	8.08
Metallic wastes	0.00	0.10	0.00	18.02	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	18.18
Mixed wastes	0.00	2.05	0.00	61.80	4.55	0.00	1.38	0.03	67.61	4.52	0.24	0.00	0.00	0.00	142.17
Non-metallic wastes	0.06	1.69	0.67	26.83	0.00	0.00	1.87	0.17	1.72	0.00	0.09	0.00	0.00	0.00	33.10
Other Mineral wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.00	0.50	0.00	0.01	0.00	2.06
Soil wastes	9.85	490.86	0.01	6.45	0.00	0.00	0.00	0.00	39.71	15.00	0.00	0.00	0.00	0.00	561.89
Total	174.82	659.91	1.88	430.44	5.44	0.00	3.26	0.20	131.11	19.54	1.10	0.00	8.22	1.44	1437.35

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above
D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 29: C&D waste generated in Wales 2012, in thousands of tonnes, by Waste type (SOC) and Waste management method in South West Wales

Waste Type (SOC)	Preparation for re-use on site	Preparation for re-use off site	Preparation for other reuse	Recycling	Composting	Land recovery	Incineration with Energy Recovery	Incineration without Energy Recovery	Landfill	Treatment plant	Transfer station	Other	Don't Know	Backfilling	Total
Aggregate wastes	73.79	43.33	0.00	101.15	0.00	0.00	0.00	0.00	8.78	0.00	0.00	0.00	0.00	45.13	272.19
Animal & vegetal wastes	0.00	0.01	0.00	0.02	0.48	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.04	0.83
Chemical wastes	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.12
Common sludges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Discarded equipment	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
Insulation & gypsum	0.00	0.00	0.00	4.49	0.00	0.00	0.00	0.00	0.24	0.00	0.03	0.00	0.10	0.00	4.86
Metallic wastes	0.00	0.00	0.00	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36
Mixed wastes	0.00	0.00	0.00	27.99	0.00	0.00	0.00	0.00	77.45	0.00	0.80	0.00	0.00	0.00	106.25
Non-metallic wastes	0.01	0.22	0.00	15.91	0.00	0.00	0.87	0.15	0.04	0.00	0.00	0.00	0.00	0.00	17.20
Other Mineral wastes	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	2.32	0.00	0.01	0.00	0.01	0.00	2.35
Soil wastes	9.02	168.19	0.00	208.00	0.00	0.00	0.00	0.00	374.06	0.00	0.00	0.00	0.00	8.70	767.96
Total	82.82	211.75	0.00	363.18	0.48	0.00	0.87	0.15	463.25	0.01	0.84	0.00	0.10	53.86	1177.33

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above
D - Demolition, C - Construction, CE - Civil Engineering, GB - General Building

Table 30: C&D hazardous waste generated in Wales 2012, in tonnes, by waste type (EWC code) and region

EWC Code	EWC Description	North	South-East	South-West	Total
150110	packaging containing residues of or contaminated by dangerous substances	0.00	0.00	0.00	0.01
150202	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	0.00	0.00	0.01	0.02
160104	end-of-life vehicles	0.03	0.05	0.00	0.08
160213	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	0.04	0.00	0.03	0.07
160601	lead batteries	0.80	0.00	0.00	0.80
160602	Ni-Cd batteries	0.19	0.07	0.00	0.25
160603	mercury-containing batteries	0.00	0.00	0.01	0.01
160605	other batteries and accumulators	0.00	0.01	0.00	0.01
160708	wastes containing oil	0.00	0.03	0.08	0.11
160904	oxidising substances, not otherwise specified	0.00	0.24	0.00	0.24
161002	aqueous liquid wastes other than those mentioned in 16 10 01	0.25	0.00	0.00	0.25
170204	glass, plastic and wood containing or contaminated with dangerous substances	0.00	0.00	0.02	0.02
170301	bituminous mixtures containing coal tar	0.00	12.62	0.00	12.62
170303	coal tar and tarred products	0.00	0.00	0.27	0.27
170503	soil and stones containing dangerous substances	0.00	15.33	0.11	15.44
170506	dredging spoil other than those mentioned in 17 05 05	0.00	0.00	0.05	0.05
170601	insulation materials containing asbestos	0.79	0.16	0.07	1.02
170603	other insulation materials consisting of or containing dangerous substances	0.07	0.00	0.03	0.10
170605	construction materials containing asbestos	0.19	1.87	0.33	2.39
170801	gypsum-based construction materials contaminated with dangerous substances	0.03	0.02	0.27	0.33
170901	construction and demolition wastes containing mercury	0.00	0.02	0.01	0.04
170903	other construction and demolition wastes (including mixed wastes) containing dangerous substances	0.00	0.21	0.00	0.22
200113	solvents	2.49	0.00	0.01	2.50
200121	fluorescent tubes and other mercury-containing waste	0.14	0.02	0.05	0.21
200123	discarded equipment containing chlorofluorocarbons	0.42	0.00	0.00	0.42
200127	paint, inks, adhesives and resins containing dangerous substances	0.00	0.03	0.00	0.03
200135	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (6)	0.00	0.04	0.04	0.08
Total		5.45	30.74	1.39	37.58

Note: column and row totals may not exactly match owing to rounding of figures; levels of precision vary within the table above

Appendix 2 Sample frame design and development detail

Sample frame design

The 2012 survey adopted a two-dimensional sample frame based upon business sector and size band, taking the 2005/06 C&D survey as the starting point for the design of the sample frame.

The 2012 survey covered the whole of SIC2007 codes 41, 42 and 43, whereas the 2005/06 C&D survey defined sectors using SIC2003 codes. Information from the Companies House website was used to convert the SIC2003 sectors to SIC2007 codes. Some of the SIC2003 codes map directly across to the SIC2007 codes but others do not. Table 31 shows that the five-digit SIC2007 codes tend to be more numerous, and therefore provide more detailed sectoral resolution, than the SIC2003 codes but that many contain too few local units to warrant their own sector in the sample frame. Some of the SIC2007 codes were therefore amalgamated to yield 16 sectors that map closely to the original SIC2003 codes.

Notably, the 2012 survey includes four groups of businesses that were not included in the 2005/06 survey:

- 45120 – *Test drilling and boring;*
- 45240 – *Construction of water projects*
- 45500 – *Rent construction equipment with operator; and,*
- 7011 – *Development & sell real estate.*

The first two (45120 and 45240) have clear SIC2007 equivalents and contain very small numbers of business units. The third (45500) was omitted from the 2005/06 survey due to it containing a very small number of business units and no longer has its own code under SIC2007; it is instead encompassed within a more general group (2007 SIC code 43999). The fourth sector (7011) maps most closely to SIC2007 code 41100 (Development of building projects), which contains 966 business units. This code is unusual, however, because it was not included in the 2005/06 C&D survey and also omitted from the 2007 I&C survey because by that time the code had changed from a SIC real estate code (7011) to a SIC construction code (41100).

Table 31: Sectors used to stratify the C&D sample frame

Category	2005/06 survey			2012 survey			
	SIC2003 description	SIC2003 Code	No. of business units	SIC2007 description	SIC2007 Code	No. of business units	Sector No.
Demolition	Demolition and wrecking of buildings; earth moving	45110	111	Demolition	43110	26	1
				Site preparation	43120	102	
Construction	Construction of commercial buildings	45211	1020	Construction of commercial buildings	41201	652	2
	Construction of domestic buildings	45212	1056	Construction of domestic buildings	41202	1525	3
	Erection of roof covering and frames	45220	296	Roofing activities	43910	273	4
				Scaffold erection	43991	286	
	Other construction work involving special trades	45250	815	Other specialised construction activities n.e.c.	43999	753	5
	Rent construction equipment with operator	45500	Not included				
	Test drilling and boring	45120	Not included	Test drilling and boring	43130	17	
Development & sell real estate	7011	Not included	Development of building projects	41100	966	16	
Civil Engineering	Construction of civil engineering constructions	45213	1747	Construction of other civil engineering projects n.e.c.	42990	995	6
				Construction of utility projects for fluids	42210	16	
				Construction of utility projects for electricity and telecommunications	42220	15	
	Construction of water projects	45240	Not included	Construction of water projects	42910	9	
	Construction of highways, roads,	45230	156	Construction of roads and motorways	42110	143	7

Category	2005/06 survey			2012 survey			
	SIC2003 description	SIC2003 Code	No. of business units	SIC2007 description	SIC2007 Code	No. of business units	Sector No.
	airfields, and sport facilities			Construction of railways and underground railways	42120	15	
				Construction of bridges and tunnels	42130	2	
General building	Installation of electrical wiring and fittings	45310	1146	Electrical installation	43210	1592	8
	Other building installation	45340	432				
	Plumbing	45330	1105	Plumbing	43220	1236	9
	Plastering	45410	151	Plastering	43310	168	10
	Joinery installation	45420	728	Joinery installation	43320	828	11
	Floor and wall covering	45430	224	Floor and wall covering	43330	250	12
	Painting and glazing	45440	534	Painting	43341	419	13
				Glazing	43342	84	
	Other building completion	45450	405	Other building completion and finishing	43390	656	14
Insulation work activities	45320	53	Other construction installation	43290	319	15	
	Total		9,979		Total	11,347	

Businesses were also stratified into six size bands based upon number of employees (Table 32). The two largest size bands (100-249 and 250+ employees) used in the 2005/06 survey were merged because they contained very few business units; analysis showed that merging these size bands had a negligible effect on the predicted precision of the survey.

Unlike the I&C survey, there was no clear basis at the start of the C&D survey for identifying any 'special' businesses with atypically high waste arisings. Constructing Excellence in Wales provided a list of the top construction contractors in Wales, but these were measured in terms of project value for the 2012-13 financial year, which does not necessarily equate to waste arisings. The 2005/06 survey database was interrogated to identify surveyed businesses with high waste arisings, but it was not possible to confirm whether or not they were representative of other, unsurveyed businesses in the same brick. As a result, a seventh 'special' size band was not included in the sample frame.

Survey population

The total population of business sites (local units) in each brick (N) was obtained from the ONS Inter-Departmental Business Register (IDBR) database, which lists business units in Wales based on VAT and PAYE information (Table 32). The total population of business units increased from 9,979 in 2005/06 to 11,535 in 2012, an increase of 14%. This is believed to be mainly due to the inclusion of additional SIC codes in the 2012 survey, in particular SIC2007 code 41100 (Development of building projects) which contains around 975 business units.

Table 32: ONS population of business units (March 2012 figures)

SIC2007 Sector	Size Band (Number of employees)						Total
	1-2	3-9	10-19	20-49	50-99	100+	
43110 & 43120	80	35	10	5	5	0	135
41201	390	220	30	15	5	5	665
41202	795	540	100	60	25	20	1540
43910 & 43991	285	220	45	15	5	0	570
43999 & 43130	440	265	40	25	5	5	780
41100	760	185	25	5	0	0	975
42110 & 42120 & 42130	65	55	15	20	10	15	180
42990 & 42210 & 42220 & 42910	510	400	50	50	15	15	1040
43210	890	545	90	55	20	5	1605
43220	755	390	65	20	10	5	1245
43290	190	90	20	20	5	5	330
43310	115	50	5	5	0	0	175
43320	550	245	30	10	5	5	845
43330	165	70	20	10	0	0	265
43341 & 43342	285	185	20	10	5	5	510
43390	455	185	20	5	5	5	675
Total	6705	3645	555	295	95	60	11535

Note: Cell, row and column totals have been rounded up to the nearest 5 to prevent disclosure.

Sample frame optimisation

The survey adopted a stratified sampling scheme based on the 16 SIC sectors and 6 size bands described above. For a given total sample size, the number of business units to be surveyed in each brick (cell) of the sample frame was optimised to give the best possible precision for the estimated total national waste arisings. This was done by taking into account (i) the total number of businesses in each brick (taken from Table 32) and (ii) the expected variation in waste arisings among businesses in each brick (explained below).

Data from the 2005/06 survey was used to estimate the mean waste arisings per business unit and the between-business variance in each of the $16 \times 6 = 96$ bricks. Regression models were used to estimate means and variances for those bricks where less than two businesses units were surveyed in 2007.

- *To estimate mean waste arisings per business unit, a linear regression model was built, which modelled the \log_e mean as a function of sector and size band using tonnage data from the remaining bricks which had valid mean estimates. This model was used to estimate the mean for bricks with missing data.*
- *The variance was then predicted from a second linear regression model which modelled the \log_e variance as a function of the \log_e mean using tonnage data for all bricks which had valid mean and variance estimates. This model was used to estimate the variance for bricks where less than one business unit was surveyed in 2005/06.*

Means and variances were calculated using data for all waste streams, including non-wastes (e.g. naturally occurring soil and mineral materials re-used on site). For comparison, we also calculated means and variances excluding non-wastes. This was difficult because the 2005/06 C&D survey database did not explicitly identify non-waste streams but by using the relevant EWC codes (17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 03 02 and 17 05 04) as well as other indicator fields and commentary recorded in the database, we were able to identify 25 non-waste streams. Excluding these non-wastes had a negligible effect on the sample frame, however, so the final sample frame included these waste streams in the sample size calculations.

SIC2007 code 41100 (Development of building projects) had no direct equivalent in the 2005/06 survey, so the mean and variance of these bricks were assumed to be a weighted average of those in the other two '41' codes (41201 - Construction of commercial buildings, and 41202 - Construction of domestic buildings).

Following Neyman optimal sampling theory, the sample size in each brick was set to be proportional to the product of the population size and the standard deviation ($N \cdot \sqrt{\text{Variance}}$). Sample sizes were rounded to the nearest integer. The optimising algorithm was constrained to require a minimum of three business units to be surveyed in every brick (providing that there are at least three units in the population); three is regarded as the minimum sample size required to provide a meaningful estimate of the mean waste arisings in a given brick.

Sample size calculations

Sample size calculations were run using a range of total sample sizes, ranging from 100 to 1500 business units. For each sample size, precision was calculated for the total national grossed-up weight, sectors totals and size band totals using a finite population correction factor where appropriate.

Based upon these results, the total sample size was set at 500 business units as this was predicted to provide a good level of precision for the national total (ca. $\pm 3.1\%$ at 90% confidence) and sampling more than 500 business units gives only a small improvement in precision. The final sample frame is shown in Table 33 as the percentage of business units to be surveyed in each brick. Further analysis showed, however, that the level of precision was very sensitive to the level of participation in a small number of critical bricks, and that precision would worsen to around $\pm 36\%$ if the survey was able to recruit no more than 50% of the population in each brick.

Details of all 11,355 business units were requested from ONS. For each brick, local business units were selected at random from the ONS list until the required sample size had been reached.

Table 33: C&D sample frame: percentage of business units to be sampled in each brick

SIC2007 Sector	Size Band (Number of employees)						Total
	1-2	3-9	10-19	20-49	50-99	100+	
43110 & 43120	24.1%	85.3%	33.3%	75.0%	100.0%		43.8%
41201	0.8%	3.7%	11.1%	27.3%	60.0%	100.0%	3.4%
41202	1.3%	3.2%	3.0%	23.7%	72.7%	100.0%	5.0%
43910 & 43991	1.1%	1.4%	7.3%	23.1%	60.0%		2.7%
43999 & 43130	0.7%	13.0%	7.5%	13.0%	75.0%	100.0%	6.4%
41100	1.1%	3.3%	12.5%	100.0%			1.9%
42110 & 42120 & 42130	4.8%	11.8%	90.9%	29.4%	100.0%	100.0%	26.3%
42990 & 42210 & 42220 & 42910	2.0%	1.3%	22.0%	88.0%	100.0%	100.0%	9.4%
43210	0.3%	0.6%	3.4%	5.7%	15.8%	100.0%	1.1%
43220	0.4%	0.8%	4.8%	15.8%	50.0%	75.0%	1.5%
43290	1.6%	3.5%	15.0%	16.7%	75.0%	100.0%	5.0%
43310	2.6%	6.3%	75.0%	100.0%			6.0%
43320	0.5%	1.2%	11.1%	33.3%	100.0%	100.0%	1.7%
43330	1.9%	4.5%	18.8%	50.0%			4.8%
43341 & 43342	1.1%	1.6%	15.8%	37.5%	75.0%	100.0%	3.4%
43390	0.7%	5.4%	18.8%	100.0%	100.0%	100.0%	3.0%
Total	1.2%	3.8%	11.4%	32.8%	66.3%	98.2%	4.4%

Sample frame revision

The sample frame was revised in November 2013, mid-way through the survey. For each brick, an estimate was made of the number of businesses expected to be surveyed, based upon the number of successful surveys to date, the number of booked appointments and the overall response rate. The expected sample size was less than the target sample size in a total of 23 bricks. Sticking with the original sample frame would have meant that only 406 out of 500 business units would have been surveyed, so the 'spare' surveys were re-allocated to bricks where the target sample size was expected to be met but there were more businesses in the population to be surveyed. Again, the sample frame was optimised to give the best possible precision. As a result of the changes, the precision of the total national grossed-up weight was then predicted to be ca. $\pm 35\%$ at 90% confidence.

Appendix 3 Survey delivery and quality assurance detail

1. Data Sample Preparation

Business contact data were secured from Inter-Departmental Business Register (IDBR) provided by the Office of National Statistics (ONS). Those who carried out the collection and analysis of the ONS data bear no responsibility for the further analysis and interpretation of the data used for the purposes of this survey.

Company selection for the telephone recruitment process was based upon a random selection of businesses in proportion to their relevance in the sample matrix. Unfortunately, the ONS data, which are based on VAT and PAYE records, contained only a small number of telephone numbers, a number of duplicate records, and also some records of businesses were subsequently found to be no longer trading. Therefore, a significant amount of data clean-up was required before the ONS dataset could be used.

Of the data received:

- Data were received from ONS for 10,869 business sites (all those in the relevant C&D sectors in Wales);
- Cleaning and research identified 14 duplicate records or no longer trading (0.1%) which were removed;
- Original records with telephone numbers 940 (8.6%);
- Telephone numbers added by research 2,231

2. Data Security

Urban Mines is registered under the Data Protection Act to handle personal data. From the initial outset of the project systems were established to ensure the integrity and confidentiality of the business and personal details contained within the ONS dataset. Both the tele-bookers and the surveyors accessed the business contact data they needed by logging onto a secure internet site. Neither of these groups had access to the ONS dataset, and only one copy of the ONS dataset was retained on the Urban Mines server which was accessible only to the Urban Mines data manager.

Each business in the dataset was assigned a unique code which allowed identification of waste stream records and their positioning in the sample matrix for grossing up. Only Urban Mines held a copy of the unique code/business name relationship table for data checking purposes and this, along with the original ONS dataset, was deleted on completion of the project. This method of data management met the requirements of ONS.

3. Tele-booking Process

Tele-bookers from Ainsworth & Parkinson (A&P) were trained on the use of a conversational call script for this survey. Appointment booking began by focussing on the areas of highest business concentration, attempting to emulate the 30%:70% split of businesses in the North:South of Wales. Later in the survey process, the geographical focus was broadened to deliver a cross section of surveys in Mid Wales and South West Wales.

A bespoke web-enabled software system was developed for the project in order to support the tele-bookers' recruitment of businesses. This system was securely hosted on A&P's server. The software presented the tele-operators with business contact details, business address, and a calendar of the availability and location of each of the surveyors involved in delivery of the surveys. It presented the tele-bookers with a company selected at random, cycling through the sample matrix 'bricks'. Bricks, and all the remaining company details contained therein, were closed off once the brick target for number of bookings required had been achieved, and these details were subsequently no longer presented to the tele-bookers.

Once a business had agreed to participate in the survey, the tele-booker made an appointment. To identify an appropriate appointment time, the software offered the tele-booker a selection of dates and time slots (4 per working day), and displayed the estimated travel time for each surveyor based on the surveyor's location or the location of their previously booked appointments. This latter facility allowed the clustering of visits. Clustering visits geographically in this way allowed the booking process to maximise the number of visits per day for each individual surveyor, whilst keeping the travel distances to a practicable minimum.

Each business being surveyed received a confirmation email (if an email address was available) on the day the booking was made. The surveyors retrieved their booked appointments diary by securely logging onto a website which accessed the software on A&P's server.

Response rates from the tele-booking process were:

- a total of 9283 calls were made, including calls which resulted in there being wrong numbers, no answer, the contact was busy, a refusal to participate, a call-back being required, or an appointment being secured;
- a total of 6066 calls were answered by companies;
- this resulted in 626 appointments being made, and;
- the final outcome was 457 completed surveys.

4. Checking Business Data

To make sure that the information held in the ONS database was correct, as each booking was made, operators checked SIC (business type) code and number of employees, and business address details. Previous surveys reported problems with ONS data in this respect. For this survey a total of 123 businesses (i.e. around ¼ of those surveyed) needed some form of brick change.

5. Survey Visit

Each surveyor visited in person the businesses with whom they had an appointment booked. The survey visit consisted of an initial discussion to explain the reason for the survey again, but also to 'break the ice'. Following this, the survey was completed using Urban Mines' own proprietary survey software on the surveyor's laptop.

Data was collected for each project managed by the site being visited in 2012. Therefore in some cases that waste may have been generated on the site visited, in others on remote construction sites. Surveyors tried to collect as much data as possible from written records, such as waste transfer notes, disposal invoices, or electronic records. If necessary, the surveyor would prompt the business contact by suggesting the types of records which might be available.

To complete the visit, the surveyor thanked the business representative for their contribution, and provided literature containing details of relevant support programmes with whom the business could take their discussions of waste further. The businesses were also given a leaflet which provided them with information regarding the 'Edoc' system, the launch of which was imminent at the time the surveys were being conducted. This not only added value to the visit but also, it was hoped, would generate some leads for the relevant business support organisations in Wales.

6. Data Collation

After a series of visits had been completed, the surveyors used the export function in the survey software to export completed datasets to Urban Mines. On arrival the data were checked and appended to the main survey database. To ensure data security, the only business specific identification data exported and associated with the individual waste stream data was the unique code. This proved to be an effective and reliable process.

7. Surveyor Training

In order to ensure the smooth delivery of the surveys and the collection of consistent and accurate data, each surveyor received specific training for the project. The training addressed the purpose of the survey, its key requirements, the surveying strategy and the structure of the questionnaire including waste categories to be used, waste management options, the use of the survey software including the inbuilt waste quantity calculators. Health & Safety training was also included. A detailed technical guidance manual, designed for use when surveyors were out visiting sites, was also supplied so that surveyors always had a reference document to consult. Urban Mines also operated a Help Line to support the surveyors should they have any specific issues which they required assistance with during the delivery of their surveys.

8. Monitoring Performance

Throughout the survey, the project and data managers at Urban Mines monitored booking statistics, brick completion and surveyor utilisation rates. As the surveyors picked up details of future bookings from their online diaries, they also registered the outcome for previous survey visits.

As well as handling booking and business data, the project software produced a number of performance indicators allowing project managers to monitor:

- calls made by each tele-booker;
- number of refusals, wrong numbers and no answers;
- appointments booked to date, in total and by allocation to each surveyor;
- number of completed surveys;
- number of cancellations and re-bookings required, and;
- percentage completion of each brick in the sample matrix.

At periods throughout the survey, both the tele-bookers and the surveyors were directly monitored to check performance and correct any problems. For the tele-bookers, adherence to script was checked by listening into calls, and changes made if appropriate.

For survey visits, Urban Mines made joint visits with the Groundwork surveyors both to check that the surveying methodology was being adhered to and delivered consistently across the surveyor group, and to identify problems, if any, with the data logging software.

Concurrently, Urban Mines also carried out a telephone 'mini-survey' of businesses which had been visited by the surveyors, as a further check of performance and to ascertain what the business representative thought of the experience of the project, from initial booking call through to the delivery of the survey. A number of businesses were called at random

covering each surveyor. This survey of responses was another check that the surveys were progressing satisfactorily and that the businesses involved were happy with how they were treated.

Of those contacted, 96% agreed that they were happy with the appointment booking process: 100% responded “Yes” to the question “Did the Surveyor record a fair and accurate representation of site's waste production?”, and; 100% responded “Yes” to the question “If contacted, would you be happy to take part in another similar survey in the future?”

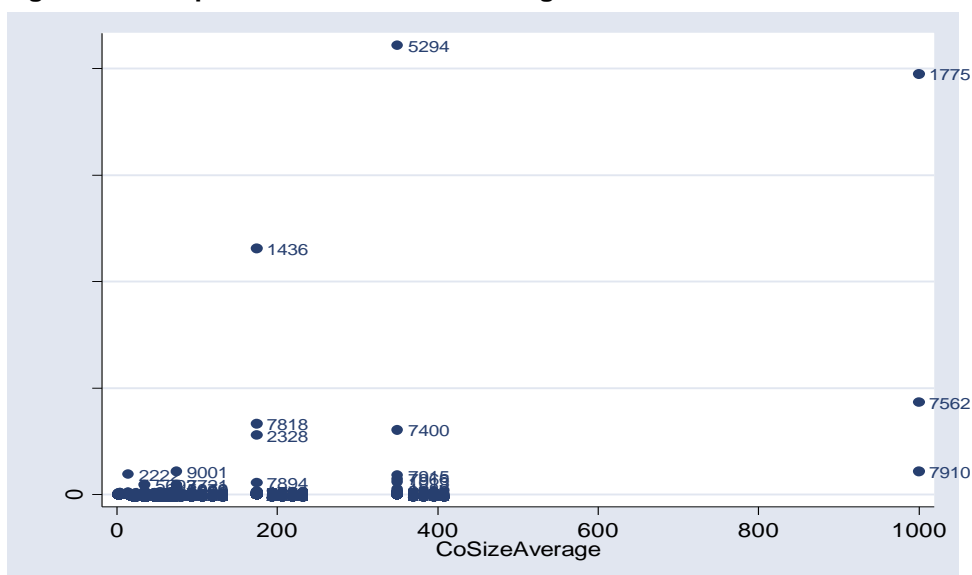
9. Checking for Outliers

All data received were reviewed electronically to identify outliers, i.e. those data points that lay outside the expected range. Once identified, these outliers were further checked, re-confirmed and changed, if necessary, by the surveyor. These checks identified errors in data entry or calculation as well as incorrect classifications.

STATA, a statistical software package, was used to check for and identify outliers. Outliers were considered as any points with values that lay more than three (± 3) standard deviations away from the mean, using the r (mean) scalar. The analysis was run several times, each time dropping those points identified as outliers to ensure that all such points were identified and re-checked. Below is an example of the results.

From the example in Figure 1, points 2328, 7818, 1436, 7400, 5294, 7562, 1775 and 7910 are considered as possible outliers in these data.

Figure 1: Example of an outlier check using STATA



Appendix 4 Survey questionnaires

Waste Produced on Site - Record per Waste Stream

B1. Waste Descriptions as EWC (chapter 15, 16, 17, 20) 6 figure code of waste stream

- Wastes recorded PER PROJECT, recording project name, location and all contractors (principal, sub-contractor & hazardous waste contractor) used (name, occupation/role, address) also per project.
 - Wastes recorded for all PROJECTS – per local authority in Wales and also those outside of Wales; need to record if project was inside/outside Wales and keep the data separate
 - Record all wastes produced on site ie. outgoing wastes and waste re-used on site (waste re-used on site is NOT a waste and to be kept separate from arisings)
 - Do not record incoming wastes
 - Record composition of mixed wastes
 - Record is same waste disposed of in a number of different ways
 - Non-wastes – recorded where data available but indicated as non-wastes
-

B2. Form of Waste

- Solid
 - Liquid
 - Gas
-

B3. Nature of waste:

- Hazardous
 - Non-hazardous
-

B4. Annual tonnage (and container and conversion factor equivalents)

B5. Source of tonnage data:

- Written – weighbridge
- Written – Invoice
- Written – WT note (where WT = Waste Transfer)
- Written - Other
- Company estimate
- Surveyor estimate

B6. Waste Management

- Landfill

- Thermal Treatment with Energy Recovery
- Land recovery
- Thermal Treatment without Energy Recovery
- Transfer station
- Treatment plant
- Recycling
- Composting
- Reuse
- Backfilling
- Don't know

B7. Where is final waste management destination?

- Wales North (*1)
- Wales South East (*2)
- Wales South West (*3)
- Scotland
- Northern Ireland
- Eire / Republic of Ireland
- England South West
- England South East
- England West Midlands
- England East Midlands
- England, East of
- England, Yorkshire & Humber
- England North West
- England North East
- European Union
- Out of European Union
- Don't know

B8. Who collects your waste?

- Local authority (e.g. Blaenau Gwent, Bridgend etc)
- Waste management contractor (e.g. Biffa, Veolia, Shanks etc)
- Charity (e.g. community scheme, Oxfam etc)
- Employees (staff take home etc)
- Civic Amenity site or bring site
- Scrap yard/Reprocessor
- Other (e.g. supplier take-back, other company collects to re-use)

Appendix 5 Sectors surveyed

Survey Group No	Description	
1: Demolition & Site Preparation	<p>43110 Demolition Building demolition and wrecking Demolition contracting Demolition or wrecking of buildings and other structures</p> <p>43120 Site preparation Agricultural land drainage Blasting and associated rock removal work Blasting of construction sites Building site drainage Building sites clearance Development and preparation of mineral properties and sites Drainage of agricultural or forestry land Earth moving excavation Earthmoving contractor</p>	<p>Excavation Forestry land drainage Land drainage contractor Land reclamation work Landfill for construction Levelling and grading of construction sites Mining site preparation and overburden removal Overburden removal and other development of mineral properties and sites Rock removal Site preparation Top soil stripping work Trench digging</p>
2: Construction of commercial buildings	<p>41201 Construction of commercial buildings Arts, cultural or leisure facilities buildings construction Assembly and erection of prefabricated non- residential constructions on the site Assembly and installation of self- manufactured commercial buildings of metal on site Assembly and installation of self- manufactured commercial buildings of plastic on site Assembly and installation of self- manufactured commercial buildings of wood on site Builder and contractor for commercial buildings Building maintenance and restoration commercial buildings Car park construction Churches and other ecclesiastical buildings construction Commercial buildings construction Construction factories Construction of airport buildings Construction of arts, cultural or leisure facilities buildings</p>	<p>Construction of assembly plants Construction of commercial buildings Construction of hospitals Construction of indoor sports facilities Construction of office buildings Construction of parking garages Construction of primary, secondary and other schools Construction of religious buildings Construction of warehouses Construction of workshops Flatwork for sport and recreational installations (commercial buildings) Office and shop construction Prefabricated constructions (commercial) assembly and erection Primary, secondary and other schools construction Swimming pools construction</p>
3: Construction of domestic buildings	<p>41202 Construction of domestic buildings Assembly and installation of self- manufactured domestic buildings of metal on site</p>	<p>Construction of single- family houses House building and repairing Housing association (building work) Local authority house building and maintenance</p>

Survey Group No	Description	
	<p>Assembly and installation of self- manufactured domestic buildings of plastic on site</p> <p>Assembly and installation of self- manufactured domestic buildings of wood on site</p> <p>Builder and contractor for domestic buildings</p> <p>Building maintenance and restoration domestic buildings</p> <p>Construction of domestic buildings</p> <p>Construction of housing association and local authority housing</p> <p>Construction of multi- family buildings, including high- rise buildings</p> <p>Construction of residential buildings:</p>	<p>Local authority or new town direct labour department (domestic dwellings)</p> <p>Prefabricated constructions (domestic) assembly and erection</p> <p>Remodelling or renovating existing residential structures</p>
<p>4: Roofing activities & Scaffold Erection</p>	<p>43910 Roofing activities</p> <p>Building and roofing contractor</p> <p>Erection of roofs</p> <p>Installation of builders carpentry and joinery (roofing materials)</p> <p>Roof covering</p> <p>Roof covering erection</p> <p>Roofing contractor</p> <p>Thatching</p>	<p>43991 Scaffold erection</p> <p>Renting of scaffolds and work platforms with erection and dismantling</p> <p>Scaffolding hiring and erecting</p> <p>Scaffolds and work platform erecting and dismantling</p>
<p>5: Test Drilling & boring & other specialised construction activities</p>	<p>43999 Specialised construction activities (other than scaffold erection) n.e.c.</p> <p>Aerial mast (self supporting) erection</p> <p>Boring (civil engineering)</p> <p>Brick furnace construction</p> <p>Brick kiln construction</p> <p>Bricklaying</p> <p>Carpenter on building site</p> <p>Carpentry (structural)</p> <p>Chimney construction</p> <p>Claddings (external)</p> <p>Concrete work (building)</p> <p>Construction machinery and equipment rental with operator</p> <p>Construction of outdoor swimming pools</p> <p>Damp proofing of buildings</p> <p>De- humidification of buildings</p> <p>Demolition equipment rental with operator</p> <p>Diamond drilling of concrete and asphalt</p> <p>Drying out of buildings (incl. Water damage)</p> <p>Earth moving equipment rental with operator</p> <p>Ferro concrete bar bending and fixing</p>	<p>Reinforced concrete engineer (civil engineering)</p> <p>Renting of cranes with operator</p> <p>Renting of other building equipment with operator</p> <p>Retort setting</p> <p>Sand blasting for building exteriors</p> <p>Screed laying</p> <p>Shaft drilling (civil engineering)</p> <p>Shaft sinking</p> <p>Steam cleaning for building exteriors</p> <p>Steel bending</p> <p>Steel elements (not self- manufactured) erection</p> <p>Steelwork erection (building)</p> <p>Steelwork erection (civil engineering)</p> <p>Steeplejacking</p> <p>Stone carving</p> <p>Stone setting</p> <p>Stone walling</p> <p>Stonemasonry (building)</p> <p>Structural steelwork erection (building)</p> <p>Structural steelwork erection (civil engineering)</p> <p>Subsurface work</p> <p>Waterproofing of buildings</p>

Survey Group No	Description	
	contractor Flare stack and flareboom erection work Floor screeding Formwork (civil engineering) Foundations construction Grouting contractor (building) Grouting contractor (civil engineering) Helideck erection work Hydraulic construction (subsurface work) Industrial ovens erection Mason (building) Mine sinking Oil production platform (fixed concrete or composite steel/concrete) construction Outdoor private swimming pools Pile driving Piling (building) Piling contractor (civil engineering) Plant hire for construction rental with operator Pylon erection	Well sinking (except gas or oil) Work with specialist access requirements necessitating climbing skills and related equipment 43130 Test drilling and boring Borehole drilling Core sampling for construction Geological test drilling, test boring and core sampling Geophysical test drilling, test boring and core sampling Test boring for construction Test drilling for construction
6: Construction of civil engineering constructions	42990 Construction of other civil engineering projects n.e.c. Civil engineering construction Civil engineering contractor Construction of chemical plants (except buildings) Construction of industrial facilities (except buildings) Construction of outdoor sports facilities (except buildings) Construction of refineries (except buildings) Constructional engineering Foot and cycle path construction Golf course construction Government department (building and civil engineering works division) Land subdivision with land improvement (e.g. adding of roads etc.) Local authority civil engineering department Local authority engineer's department Prefabricated constructions (civil engineering) assembly and erection Public works contractor Sport facilities construction Sports and recreation grounds, laying out Stadium construction Tennis courts construction	42210 Construction of utility projects for fluids Artesian well contractor Construction of civil engineering constructions for long- distance and urban pipelines Construction of irrigation systems (canals) Construction of pumping stations Construction of sewage disposal plants Construction of sewer systems Gas offshore pipeline laying Installation of offshore pipelines from oil or gas wells Irrigation system construction Offshore oil pipeline laying Pipeline construction Pipeline contracting Repair of sewer systems Reservoir construction Sewerage construction Urban pipelines construction Water main and line construction Water treatment plant construction Water well drilling

Survey Group No	Description	
7: Construction of civil engineering constructions	42220 Construction of utility projects for electricity and telecommunications Cable laying Civil engineering constructions for long- distance communication Civil engineering constructions for power lines Civil engineering constructions for power plants Civil engineering constructions for urban communication Communication lines construction Construction of utility projects for electricity Construction of utility projects for telecommunications Overhead line construction Power line construction Repair and maintenance of above- ground telecommunication lines Repair and maintenance of underground communication lines Urban communication and powerlines construction	42910 Construction of water projects Aqueduct construction Coastal defence construction Dam construction Dredging contractor Dredging for water projects Dredging of waterways Dry dock construction Dyke construction Dykes and static barrages construction Floodgates, movable barrages and hydro- mechanical structures construction Harbour construction Lock construction Marina construction Pleasure port construction River work construction Water project construction Waterway construction
8: Construction of highways, roads, airfields, and sport facilities	42110 Construction of roads and motorways Airfield runway construction Airport runway construction Asphalt paving of roads Asphaltting contractor (civil engineering) Construction of other vehicular and pedestrian ways Erection of roadway barriers Ground work contracting Highway construction Installation of crash barriers Installation of non- illuminated road signs, bollards etc. Local authority highways construction and maintenance Local authority road construction and major repairs Motorway and other dual carriageway construction Parking lot markings painting Paving contractor Pedestrian ways construction Road construction and repair Road surface markings painting Street construction Surface work on elevated highways, bridges and in tunnels Surface work on streets, roads, highways,	42120 Construction of railways and underground railways Cable supported transport systems construction Construction of underground railways 45230 Railway construction Railway tunnel construction Railway tunnelling contractor Subway construction Supply line (third rail) for railway construction Tramways construction Transmission line construction 42130 Construction of bridges and tunnels Bridge construction Construction of tunnels Elevated highways construction Viaduct construction

Survey Group No	Description	
	bridges or tunnels Tar spraying contractor (civil engineering) Tarmacadam laying contracting	
9: Electrical installation	43210 Electrical installation Aerial erection (domestic) Connecting of electric appliances and household equipment, including baseboard heating Electrical contractor (construction) Electrical wiring of buildings Installation of aerials and residential antennas Installation of airport runway lighting Installation of burglar alarm systems Installation of cables Installation of computer network cabling and other telecommunications system cables Installation of electrical systems in cable television wiring, including fibre optic Installation of electrical systems in computer network, including fibre optic Installation of electrical wiring and fittings Installation of fire alarms Installation of illuminated road signs and street furniture Installation of illumination and signalling systems for roads, railways, airports and harbours	Installation of telecommunications wiring Installation of lighting systems Installation of office switchboards and telephone lines Installation of outdoor transformer and other outdoor electrical distribution apparatus Installation of roadway traffic monitoring and guidance equipment Installation of satellite dishes Installation of security alarms Installation of street lighting and electrical signals Installation of telecommunications wiring systems Installation of telephone lines Local authority street lighting Sign (electric) erection and maintenance
10: Plumbing	43220 Plumbing, heat and air- conditioning installation Air conditioning contracting Heat and air- conditioning installation Heating and plumbing contracting Heating engineering (buildings) Heating service contracting Hot water engineer Installation of air conditioning equipment and ducts Installation of air conditioning plant Installation of coldrooms Installation of cooling towers Installation of duct work Installation of electric solar energy collectors Installation of electrical heating systems (except baseboard heating) Installation of fire sprinkler systems Installation of furnaces	Installation of gas fittings Installation of gas heating systems Installation of gas meters Installation of heating and ventilation apparatus Installation of lawn sprinkler systems Installation of non- electric solar energy collectors Installation of oil heating systems Installation of plumbing Installation of refrigeration Installation of sanitary equipment Installation of sprinkler systems Installation of steam piping Installation of ventilation Plumbing contractor Repair and maintenance of domestic air conditioning Repair and maintenance of domestic boilers Repair and maintenance of office, shop and computer centre air conditioning Sanitary engineering for buildings

Survey Group No	Description	
11: Plastering	<p>43310 Plastering Exterior plaster application in buildings or other constructions incl. related lathing materials Exterior stucco application in buildings or other constructions incl. related lathing materials</p>	<p>Interior plaster application in buildings or other constructions incl. related lathing materials Interior stucco application in buildings or other constructions incl. related lathing materials Plastering contractor Stucco application in buildings</p>
12: Joiners Installation	<p>43320 Joinery installation Builder and joiner Carpenter n.e.c. Carpentry (not structural) Completion of ceilings Installation (erection) work of self- manufactured builders' ware of metal Installation (erection) work of self- manufactured builders' ware of plastic Installation (erection) work of self- manufactured builders' ware of wood Installation of built- in furniture Installation of ceilings Installation of doors Installation of furniture</p>	<p>Installation of joinery Installation of metal grilles and gates Installation of metal partitioning Installation of metal shutters Installation of movable wooden partitions Installation of suspended ceilings Installation of windows made of any material Installation of wooden door- frames Installation of wooden fitted kitchens Installation of wooden shop fittings Installation of wooden staircases Installation of wooden wall coverings Metal window fixing Shop fitter</p>
13: Floor and wall covering	<p>43330 Floor and wall covering Carpet fitter Ceramic stove fitting Claddings (internal) Floor covering laying Flooring contractor Hanging or fitting wooden wall coverings Installation of false floors and computer floors Laying or fitting carpets and linoleum floor coverings including of rubber or plastic Laying or fitting other wooden floor coverings Laying tiling or fitting marble, granite or slate floor coverings Laying tiling or fitting terrazzo, marble, granite or slate wall coverings</p>	<p>Laying, tiling, hanging or fitting ceramic wall or floor tiles Laying, tiling, hanging or fitting concrete stone wall or floor tiles Laying, tiling, hanging or fitting cut stone wall or floor tiles Laying, tiling, hanging or fitting floor and wall Covering Linoleum laying Paperhanging Parquet floor laying (not by manufacturer) Terrazzo work (building) Tiles laying or fitting Tiling contractor (floors and walls) Wall covering Wallpaper hanging</p>
14: Painting & Glazing	<p>43341 Painting Anti- corrosive coatings application work Builder and decorator (own account) Buildings painting Civil engineering structure painting Decorating of buildings Exterior painting of buildings Interior painting of buildings Non- specialised painting of metal structures</p>	<p>43342 Glazing Glazing Glazing contractor Installation of glass Installation of mirrors</p>

Survey Group No	Description
	(including ships) Painting contractor Protective coatings application work
15: Other building completion and finishing	43390 Other building completion and finishing Building completion work Ornamentation fitting work Sandblasting of buildings Shotblasting of buildings Steam cleaning of buildings Stonework cleaning and renovation
16: Other construction installation	43290 Other construction installation Acoustical engineering Cavity wall insulation Fencing contractor (not agricultural) Fireproofing work Installation in buildings of fittings and fixtures n.e.c. Installation of automated and revolving doors Installation of blinds and awnings Installation of elevators Installation of escalators Installation of lifts Installation of lightning conductors Installation of outdoor pumping or filtration equipment Installation of sound insulation Installation of thermal insulation Installation of vacuum cleaning systems Installation of vibration insulation Insulating contractor (buildings) Insulating work activities Repair and maintenance of elevators and escalators Repair of automated and revolving doors in buildings and civil engineering works (manufacture) Roof insulation contractor
17: Development of building projects	41100 Development of building projects Developing building projects for commercial buildings hotels, stores, shopping malls, restaurants Development of building projects for residential buildings Housing association (building houses for later sale) Land and building company Land investment company Property developer Property investment company Real estate project development

Appendix 6 Waste descriptions

Eurostat Level1 Name	Eurostat Level 2 Name	EWC Code	EWC Description
Animal and vegetable wastes	Animal and mixed food waste	200108	biodegradable kitchen and canteen waste
	Vegetable wastes	200201	biodegradable waste
Chemical compound wastes	Spent chemical catalysts	160806	spent liquids used as catalysts
	Spent solvents	200113	solvents
	Used oils	200126	oil and fat other than those mentioned in 20 01 25
Chemical preparation wastes	Mixed chemical wastes	150110	packaging containing residues of or contaminated by dangerous substances
		160507	discarded inorganic chemicals consisting of or containing dangerous substances
		160508	discarded organic chemicals consisting of or containing dangerous substances
		160509	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08
	Off-specification chemical wastes	160504	gases in pressure containers (including halons) containing dangerous substances
		160505	gases in pressure containers other than those mentioned in 16 05 04
		160904	oxidising substances, not otherwise specified
		200127	paint, inks, adhesives and resins containing dangerous substances
	200128	paint, inks, adhesives and resins other than those mentioned in 20 01 27	
Common sludges	Cesspit contents	200304	septic tank sludge

Eurostat Level1 Name	Eurostat Level 2 Name	EWC Code	EWC Description
Discarded equipment	Discarded electrical and electronic equipment	160211	discarded equipment containing chlorofluorocarbons, HCFC, HFC
		160213	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
		160214	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
		200123	discarded equipment containing chlorofluorocarbons
		200135	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (6)
		200136	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
	Discarded machines and equipment components	160107	oil filters
		160215	hazardous components removed from discarded equipment
		160216	components removed from discarded equipment other than those mentioned in 16 02 15
		160601	lead batteries
		160602	Ni-Cd batteries
		160603	mercury-containing batteries
		160604	alkaline batteries (except 16 06 03)
		160605	other batteries and accumulators
		200121	fluorescent tubes and other mercury-containing waste
	200134	batteries and accumulators other than those mentioned in 20 01 33	
	Discarded vehicles	160104	end-of-life vehicles

Eurostat Level1 Name	Eurostat Level 2 Name	EWC Code	EWC Description	
Metallic Wastes	Metal wastes, ferrous	170405	iron and steel	
		150104	metallic packaging	
	Metal wastes, mixed ferrous and non-ferrous	170407	mixed metals	
		200140	metals	
		Metal wastes, non-ferrous	170401	copper, bronze, brass
			170402	aluminium
			170403	lead
			170406	tin
			170411	cables other than those mentioned in 17 04 10
			Mixed wastes	Household and similar wastes
200303	street-cleaning residues			
200307	bulky waste			
200399	municipal wastes not otherwise specified			
Mixed and undifferentiated materials	150106	mixed packaging		
	160199	wastes not otherwise specified		
	160305	organic wastes containing dangerous substances		
	160799	wastes not otherwise specified		
	200199	other fractions not otherwise specified		

Eurostat Level1 Name	Eurostat Level 2 Name	EWC Code	EWC Description
Mineral wastes	Asbestos wastes	150111	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers
		170601	insulation materials containing asbestos
		170605	construction materials containing asbestos
	Construction and demolition wastes	170101	concrete
		170102	bricks
		170103	tiles and ceramics
		170106	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances
		170107	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
		170301	bituminous mixtures containing coal tar
		170302	bituminous mixtures other than those mentioned in 17 03 01
		170303	coal tar and tarred products
		170508	track ballast other than those mentioned in 17 05 07
		170603	other insulation materials consisting of or containing dangerous substances
		170604	insulation materials other than those mentioned in 17 06 01 and 17 06 03
		170801	gypsum-based construction materials contaminated with dangerous substances
		170802	gypsum-based construction materials other than those mentioned in 17 08 01
		170901	construction and demolition wastes containing mercury
		170903	other construction and demolition wastes (including mixed wastes) containing dangerous substances
		170904	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
	Dredging spoil	170506	dredging spoil other than those mentioned in 17 05 05
	Soils	170503	soil and stones containing dangerous substances
		170504	soil and stones other than those mentioned in 17 05 03
		200202	soil and stones
Waste of naturally occurring minerals	200203	other non-biodegradable wastes	

Eurostat Level1 Name	Eurostat Level 2 Name	EWC Code	EWC Description
Non-metallic wastes	Glass wastes	170202	glass
		200102	glass
	Paper and cardboard wastes	150101	paper and cardboard packaging
		200101	paper and cardboard
	Plastic wastes	150102	plastic packaging
		170203	plastic
		200139	plastics
	Rubber wastes	160103	end-of-life tyres
	Textile wastes	150109	textile packaging
		200111	textiles
	Waste containing PCBs	160210	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09
	Wood wastes	150103	wooden packaging
		170201	wood
200138		wood other than that mentioned in 20 01 37	
Other chemical wastes	Chemical deposits and residues	150202	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
		150203	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
	Industrial effluent sludges	160708	wastes containing oil
		161001	aqueous liquid wastes containing dangerous substances
		161002	aqueous liquid wastes other than those mentioned in 16 10 01

Appendix 7 Waste management methods

Prime Waste Management method	Waste Management Description – sub category
Land disposal	Landfill
	Soakaway
	Lagoon disposal
	Deep injection (borehole)
	Other land disposal
Land recovery	Landsread
	Injection
	Other land recovery
Incineration with Energy Recovery	Incineration with energy recovery
	Pyrolysis
	Gasification
	waste derived fuel
	Other thermal treatment with energy recovery
Incineration without Energy Recovery	Incineration without Energy Recovery
	Pyrolysis (without Energy Recovery)
	Gasification (without Energy Recovery)
	Crematorium
	Other TT without Energy Recovery
Transfer Station	transfer (as much effort as possible should be made to identify the final)
Treatment	Treated - physico/chemical
	Treated – biological
	Separation
	Mechanical Biological Treatment (MBT)
	Autoclave
	Rendering e.g. food waste into pet food manufacture
	mechanical heat treatment
	alternative treatment technologies
Recycling	source separated - collected by a waste contractor or sent direct to a reprocessor
	mixed/co-mingled sent to MRF/transfer station
	waste recycling centre/Civic Amenity site
Composting	windrow composting
	In-Vessel Composting (IVC)
	Anaerobic Digestion (AD)
	Other
Reuse	Preparation (*) for Re-use on site
	Preparation for Re-use off site
	Direct Re-use on site
	Other reuse
'other'	"other Recovery" i.e. other specialised recovery operations not specified above e.g. recovery of components from catalysts, recovery of components used for pollution abatement.
	Maceration (food waste)
	Backfilling

Appendix 8 Standard container types

No	Container Group	Container Name	Container Volume
1	Front- end loader	6 yd ³ Front- loader	4.6
2	Front- end loader	8 yd ³ Front- loader	6.1
3	Front- end loader	10 yd ³ Front- loader	7.6
4	Rear- end loader	8 yd ³ rear- loader	6.1
5	Rear- end loader	10 yd ³ rear- loader	7.6
6	Rear- end loader	12 yd ³ rear- loader	9.2
7	Rear- end loader	14 yd ³ rear- loader	10.7
8	Rear- end loader	16 yd ³ rear- loader	12.2
9	Large container - RoRo	15 yd ³ RoRo	11.5
10	Large container – RoRo	18 yd ³ RoRo	13.8
11	Large container – RoRo	20 yd ³ RoRo	15.3
12	Large container – RoRo	25 yd ³ RoRo	19.1
13	Large container – RoRo	30 yd ³ RoRo	23
14	Large container – RoRo	35 yd ³ RoRo	26.8
15	Large container – RoRo	40 yd ³ RoRo	30.6
16	Wheeled Bin	1100 litre bin	1.1
17	Wheeled Bin	660 litre bin	0.66
18	Wheeled Bin	240 litre bin	0.24
19	Wheeled Bin	120 litre bin	0.12
20	Paladin	Paladin 850	0.85
21	Paladin	Paladin 560	0.56
22	Chamberlain	Chamberlain 940	0.94
23	Chamberlain	Chamberlain 720	0.72
24	IBC	1200 litre IBC	1.2
25	IBC	1100 litre IBC	1.1
26	Drum/ barrel	200 litre drum	0.2
27	Drum/ barrel	120 litre drum	0.12
28	Drum/ barrel	30 litre drum	0.03
29	Refuse sack	Standard refuse sack	0.08
30	Cages	Cages (for cardboard) 825 litres	0.825

Appendix 9 Conversion factors

EWC Code	Description	Density Factor (tonnes per m3)	Source
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED		
<i>15 01</i>	<i>packaging (including separately collected municipal packaging waste)</i>		
15 01 01	paper and cardboard packaging	0.20	EA
15 01 02	plastic packaging	0.22	EA
15 01 03	wooden packaging	0.23	CFP51
15 01 04	metallic packaging	0.22	EA
15 01 05	composite packaging	0.20	EA
15 01 06	mixed packaging	0.21	Group 51
15 01 07	glass packaging	0.33	EA
15 01 09	textile packaging	0.18	EA
15 01 10*	packaging containing residues of or contaminated by dangerous substances	0.21	EA
15 01 11*	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	0.17	EA
<i>15 02</i>	<i>absorbents, filter materials, wiping cloths and protective clothing</i>		
15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	0.42	EA
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	0.07	EA
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST		
<i>16 01</i>	<i>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</i>		
16 01 03	end-of-life tyres	0.47	EA
16 01 04*	end-of-life vehicles	0.4597	EA 2006
16 01 06	end-of-life vehicles, containing neither liquids nor other hazardous components	0.4597	EA 2006
16 01 07*	oil filters	0.19	EA
16 01 08*	components containing mercury	0.2131	EA 2006
16 01 09*	components containing PCBs	0.3037	EA 2006
16 01 10*	explosive components (for example air bags)	0.2131	EA 2006
16 01 11*	brake pads containing asbestos	0.4369	EA 2006
16 01 12	brake pads other than those mentioned in 16 01 11	0.4369	EA 2006
16 01 13*	brake fluids	0.72	EA 2006
16 01 14*	antifreeze fluids containing dangerous substances	0.9	EA 2006
16 01 15	antifreeze fluids other than those mentioned in 16 01 14	0.90	EA
16 01 16	tanks for liquefied gas	0.2267	EA 2006
16 01 17	ferrous metal	0.30	EA

EWC Code	Description	Density Factor (tonnes per m3)	Source
16 01 18	non-ferrous metal	0.9	EA 2006
16 01 19	plastic	0.36	EA 2006
16 01 20	glass	0.85	EA 2006
16 01 21*	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14	0.4597	EA 2006
16 01 22	components not otherwise specified	0.3037	EA 2006
16 01 99	wastes not otherwise specified	0.1852	EA 2006
<i>16 02</i>	<i>wastes from electrical and electronic equipment</i>		
16 02 09*	transformers and capacitors containing PCBs	0.4597	EA 2006
16 02 10*	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	0.3037	EA 2006
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC	0.3037	EA 2006
16 02 12*	discarded equipment containing free asbestos	0.3037	EA 2006
16 02 13*	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	0.26	EA
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	0.26	EA
16 02 15*	hazardous components removed from discarded equipment	0.4597	EA 2006
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15	0.30	EA
<i>16 03</i>	<i>off-specification batches and unused products</i>		
16 03 03*	inorganic wastes containing dangerous substances	0.9	EA 2006
16 03 04	inorganic wastes other than those mentioned in 16 03 03	0.9	EA 2006
16 03 05*	organic wastes containing dangerous substances	0.81	EA 2006
16 03 06	organic wastes other than those mentioned in 16 03 05	0.81	EA 2006
<i>16 04</i>	<i>waste explosives</i>		
16 04 01*	waste ammunition	0.18	EA 2006
16 04 02*	fireworks wastes		
16 04 03*	other waste explosives	0.18	EA 2006
<i>16 05</i>	<i>gases in pressure containers and discarded chemicals</i>		
16 05 04*	gases in pressure containers (including halons) containing dangerous substances	0.3037	EA 2006
16 05 05	gases in pressure containers other than those mentioned in 16 05 04	0.30	EA
16 05 06*	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals	0.9	EA 2006
16 05 07*	discarded inorganic chemicals consisting of or containing dangerous substances	0.9	EA 2006
16 05 08*	discarded organic chemicals consisting of or containing dangerous substances	0.81	EA 2006
16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	0.9	EA 2006
<i>16 06</i>	<i>batteries and accumulators</i>		
16 06 01*	lead batteries	1.35	EA

EWC Code	Description	Density Factor (tonnes per m3)	Source
16 06 02*	Ni-Cd batteries	1.35	EA 2006
16 06 03*	mercury-containing batteries	1.35	EA 2006
16 06 04	alkaline batteries (except 16 06 03)	1.35	EA 2006
16 06 05	other batteries and accumulators	1.35	EA 2006
16 06 06*	separately collected electrolyte from batteries and accumulators	1.35	EA 2006
<i>16 07</i>	<i>wastes from transport tank, storage tank and barrel cleaning (except 05 and 13)</i>		
16 07 08*	wastes containing oil	0.19	EA
16 07 09*	wastes containing other dangerous substances	0.9	EA 2006
16 07 99	wastes not otherwise specified	0.1852	EA 2006
<i>16 08</i>	<i>spent catalysts</i>		
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)	0.9	EA 2006
16 08 02*	spent catalysts containing dangerous transition metals or dangerous transition metal compounds	0.9	EA 2006
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified	0.9	EA 2006
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)	0.9	EA 2006
16 08 05*	spent catalysts containing phosphoric acid	0.9	EA 2006
16 08 06*	spent liquids used as catalysts	0.9	EA 2006
16 08 07*	spent catalysts contaminated with dangerous substances	0.9	EA 2006
<i>16 09</i>	<i>oxidising substances</i>		
16 09 01*	permanganates, for example potassium permanganate	0.9	EA 2006
16 09 02*	chromates, for example potassium chromate, potassium or sodium dichromate	0.9	EA 2006
16 09 03*	peroxides, for example hydrogen peroxide	0.9	EA 2006
16 09 04*	oxidising substances, not otherwise specified	0.9	EA 2006
<i>16 10</i>	<i>aqueous liquid wastes destined for off-site treatment</i>		
16 10 01*	aqueous liquid wastes containing dangerous substances	0.90	EA
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01	0.9	EA 2006
16 10 03*	aqueous concentrates containing dangerous substances	0.9	EA 2006
16 10 04	aqueous concentrates other than those mentioned in 16 10 03	0.9	EA 2006
<i>16 11</i>	<i>waste linings and refractories</i>		
16 11 01*	carbon-based linings and refractories from metallurgical processes containing dangerous substances	0.29	EA 2006
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01	0.29	EA 2006
16 11 03*	other linings and refractories from metallurgical processes containing dangerous substances	1.17	EA 2006
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03	1.17	EA 2006
16 11 05*	linings and refractories from non-metallurgical processes containing dangerous substances	1.17	EA 2006

EWK Code	Description	Density Factor (tonnes per m3)	Source
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05	1.17	EA 2006
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)		
<i>17 01</i>	<i>concrete, bricks, tiles and ceramics</i>		
17 01 01	concrete	1.27	CFP
17 01 02	bricks	1.20	CFP
17 01 03	tiles and ceramics	0.59	EA
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	1.17	CFP
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	1.24	Group
<i>17 02</i>	<i>wood, glass and plastic</i>		
17 02 01	wood	0.34	Group
17 02 02	glass	0.61	Group
17 02 03	plastic	0.23	Group
17 02 04*	glass, plastic and wood containing or contaminated with dangerous substances	0.29	EA
<i>17 03</i>	<i>bituminous mixtures, coal tar and tarred products</i>		
17 03 01*	bituminous mixtures containing coal tar	0.90	EA
17 03 02	bituminous mixtures other than those mentioned in 17 03 01	0.82	Group
17 03 03*	coal tar and tarred products	1.95	EA
<i>17 04</i>	<i>metals (including their alloys)</i>		
17 04 01	copper, bronze, brass	0.90	EA
17 04 02	aluminium	0.20	CFP
17 04 03	lead	0.91	CFP
17 04 04	zinc	0.43	EA
17 04 05	iron and steel	0.41	CFP
17 04 06	tin	0.90	EA
17 04 07	mixed metals	0.42	Group
17 04 09*	metal waste contaminated with dangerous substances	0.46	EA
17 04 10*	cables containing oil, coal tar and other dangerous substances	0.25	CFP
17 04 11	cables other than those mentioned in 17 04 10	0.25	CFP
<i>17 05</i>	<i>soil (including excavated soil from contaminated sites), stones and dredging spoil</i>		
17 05 03*	soil and stones containing dangerous substances	1.25	CFP
17 05 04	soil and stones other than those mentioned in 17 05 03	1.25	CFP
17 05 05*	dredging spoil containing dangerous substances	0.51	EA
17 05 06	dredging spoil other than those mentioned in 17 05 05	0.51	EA
17 05 07*	track ballast containing dangerous substances	1.09	EA
17 05 08	track ballast other than those mentioned in 17 05 07	1.09	EA

EWC Code	Description	Density Factor (tonnes per m3)	Source
17 06	<i>insulation materials and asbestos-containing construction materials</i>		
17 06 01*	insulation materials containing asbestos	0.28	EA
17 06 03*	other insulation materials consisting of or containing dangerous substances	0.20	EA
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03	0.25	EA
17 06 05 *	construction materials containing asbestos	0.31	EA
17 08	<i>gypsum-based construction material</i>		
17 08 01*	gypsum-based construction materials contaminated with dangerous substances	0.33	CFP
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01	0.33	CFP
17 09	<i>other construction and demolition wastes</i>		
17 09 01*	construction and demolition wastes containing mercury	0.87	CFP
17 09 02*	construction and demolition wastes containing PCB (for example PCB-containing sealants, PCB-containing resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors)	0.87	CFP
17 09 03*	other construction and demolition wastes (including mixed wastes) containing dangerous substances	0.87	CFP
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	0.87	CFP
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS		
20 01	<i>separately collected fractions (except 15 01)</i>		
20 01 01	paper and cardboard	0.21	EA
20 01 02	glass	0.3332	EA 2006
20 01 08	biodegradable kitchen and canteen waste	0.20	EA
20 01 10	clothes	0.20	EA
20 01 11	textiles	0.27	CFP
20 01 13*	solvents	0.81	EA
20 01 14*	acids	0.9	EA 2006
20 01 15*	alkalines	0.9	EA 2006
20 01 17*	photochemicals	0.9	EA 2006
20 01 19*	pesticides	0.90	EA
20 01 21*	fluorescent tubes and other mercury-containing waste	0.19	EA
20 01 23*	discarded equipment containing chlorofluorocarbons	0.30	EA
20 01 25	edible oil and fat	0.6109	EA 2006
20 01 26*	oil and fat other than those mentioned in 20 01 25	0.57	EA
20 01 27*	paint, inks, adhesives and resins containing dangerous substances	0.57	EA
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27	0.57	EA

EWC Code	Description	Density Factor (tonnes per m3)	Source
20 01 29*	detergents containing dangerous substances	0.9	EA 2006
20 01 30	detergents other than those mentioned in 20 01 29	0.90	EA
20 01 31*	cytotoxic and cytostatic medicines	0.9	EA 2006
20 01 32	medicines other than those mentioned in 20 01 31	0.9	EA 2006
20 01 33*	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries	1.35	EA
20 01 34	batteries and accumulators other than those mentioned in 20 01 33	1.35	EA
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (6)	0.2131	EA 2006
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	0.25	Group
20 01 37*	wood containing dangerous substances	0.2341	EA 2006
20 01 38	wood other than that mentioned in 20 01 37	0.1855	EA 2006
20 01 39	plastics	0.23	Group
20 01 40	metals	0.42	Group
20 01 41	wastes from chimney sweeping	0.738	EA 2006
20 01 99	other fractions not otherwise specified	0.27	EA 2006
<i>20 02</i>	<i>garden and park wastes (including cemetery waste)</i>		
20 02 01	biodegradable waste	0.38	EA
20 02 02	soil and stones	0.86	EA 2006
20 02 03	other non-biodegradable wastes	0.2182	EA 2006
<i>20 03</i>	<i>other municipal wastes</i>		
20 03 01	mixed municipal waste	0.21	Group
20 03 02	waste from markets	0.14	EA 2006
20 03 03	street-cleaning residues	0.47	EA
20 03 04	septic tank sludge	0.92	EA
20 03 06	waste from sewage cleaning	0.92	EA
20 03 07	bulky waste	0.18	EA
20 03 99	municipal wastes not otherwise specified	0.56	EA 2006

Appendix 10 Standard items

SOC Group	SOC Sub Group	Item	Item Weight (kg)
Metallic Wastes	Metallic wastes	Drums, steel, empty 200l	18
Non- metallic wastes	Rubber	Tyre- car	10
Non- metallic wastes	Rubber	Tyre- commercial vehicle	30
Non- metallic wastes	Plastic	Drums, plastic, empty ca 200l	10
Non- metallic wastes	Plastic	IBC, empty ca 1,000l	70
Non- metallic wastes	wood	Pallet	20
Discarded equipment	Batteries	Battery- car	18
Discarded equipment	Batteries	Battery – commercial vehicle	25
Discarded equipment	Other discarded equipment	Mattress	40
Discarded equipment	Other discarded equipment	Furniture – office	25
Discarded equipment	Other discarded equipment	Chairs - office	12
Discarded equipment	WEEE (other requirement)	Fluorescent tube	1
Discarded equipment	WEEE (other requirement)	Computer - full	28
Discarded equipment	WEEE (other requirement)	Dishwasher	50
Discarded equipment	WEEE (other requirement)	Washing machine	75
Discarded equipment	WEEE (other requirement)	Freezer	45
Discarded equipment	WEEE (other requirement)	Fridge	45
Discarded equipment	WEEE (other requirement)	Microwave cooker	17
Discarded equipment	WEEE (other requirement)	Photocopier	50
Discarded equipment	WEEE (other requirement)	Printer- for computer	6
Discarded equipment	WEEE (other requirement)	Television set	20
Discarded equipment	WEEE (other requirement)	Video recorder	11
Discarded equipment	WEEE (other requirement)	Cooker	52.5

Appendix 11 Lessons learned

Lessons Learned

The survey was planned and issues considered following previous surveys. The following issues were identified during this survey and should be considered in future surveys:

Availability of Data

Whereas the survey of industrial and commercial waste generation conducted at the same time recorded waste generated on the site being visited, the construction and demolition survey in most cases collected data on wastes produced away from the site visited, at temporary construction or demolition sites for instance. The survey therefore relied on waste data being held in the central office for the business, with some central project offices being responsible for multiple construction sites each generating waste. However, it was found that some businesses kept waste data and records at the site where construction work had been undertaken, and therefore was not easily accessed by the surveyor. Organisations also did not necessarily hold data on a project by project basis, hampering the identification of double counting.

Surveying 0-4 Employee Sizeband

Arranging survey visits for micro organisations, such as jobbing builders, tradesmen etc, was difficult because during the daytime when calls were ordinarily made to discuss the visit, the employees were out on site working. Some calls had to be made in the evening and interviews conducted over the phone to enable the survey to be convenient to these businesses.

Sampling Methodology

Through surveying business locations identified from the ONS Inter-Departmental Business Register (IDBR), businesses were sampled to be surveyed by employee sizeband based on a central project office rather than the construction site itself. Consequently, the amount of waste per visited location varied considerably. For example, a large construction company may have been responsible for multiple large scale projects around Wales, but the visited project office may have only employed a small number of people directly.

Timescales for Quality Assurance of Data

Checks on the waste data collected during the waste survey visits was ongoing throughout the survey. This was planned for at the start of the survey. To ensure accuracy of data following grossing up extensive quality assurance checks had to be undertaken. This took longer than anticipated and more time should be allowed for this in future surveys.

Appendix 12 Data grossing methodology

Data Grossing Methodology (C&D)

The process of extrapolating the waste generation of surveyed businesses to estimate total waste arisings at a national or regional level is termed ‘grossing up’. The survey followed a sample frame structured by sector (s) and size band (b). Each combination of sector and size band (sb) is defined as a ‘brick’.

National methodology

For each brick, the average sample weight per business \bar{w}_{sb} was calculated by dividing the total sample weight w_{sb} by the number of sampled businesses n_{sb} :

$$\bar{w}_{sb} = \frac{w_{sb}}{n_{sb}}$$

The grossed up weight for each brick W_{sb} was then calculated by multiplying the population N_{sb} by the average sample weight per business \bar{w}_{sb} :

$$W_{sb} = N_{sb} \times \bar{w}_{sb} = \frac{N_{sb} \times w_{sb}}{n_{sb}}$$

The grossed up weights for each brick W_{sb} were then added together to give the grand total grossed up weight W :

$$W = \sum_{s,b} W_{sb}$$

The same approach was used for grossing up a particular category of waste (e.g. a particular waste type); the only difference being that w_{sb} represents the total sample weight *for that category*.

Regional methodology

Calculating waste arisings for the three regions (North, South-East and South-West) was complicated by the fact that some businesses produce waste in regions other than where the local unit is based. For example, a house builder with an office in South-East Wales may produce waste at a construction site in South-West Wales. In practice, it was not possible to positively identify the region where every waste stream arose; for example, businesses sometimes reported the total quantity of waste produced from all their projects without reference to location. In this situation, the waste was assumed to have arisen where the local unit was based.

Excluding waste arising outside Wales, 12.8% of businesses produced some or all of their waste in a different region to where they were based and 6.9% of surveyed waste streams were identified as having arisen in a region other than where the local unit was based. Together, these waste streams accounted for 9.9% of total grossed up waste arisings. There was no clear tendency for larger businesses to produce a greater proportion of their

waste in a different region, and the data did not support the assumption that small businesses always operate within their own region.

Based upon this analysis of the data, it was decided to make Region a property of the waste stream rather than the business, and unsurveyed businesses were assumed to generate waste in the same regions as surveyed businesses in the same brick. In practice, this meant that the methodology described above for estimating national waste arisings was also used to estimate regional waste arisings; the only difference being that w_{sb} now represents the total sample weight *for a given region*.

Estimating N

The total population of businesses in each brick and region N_{sbr} was supplied by ONS. Of the 460 businesses surveyed, 123 (27%) were found to be in the wrong sector or size band and the ONS population figures were adjusted accordingly. For example, if $N_{sbr} = 100$, and 4 out of 10 businesses surveyed were mis-classified, then N_{sbr} was re-estimated as: $100 - 4 = 96$. This correction was necessary to avoid numerous instances where there were more businesses surveyed than listed on the ONS database.

Consideration was given to adjusting the ONS population figures in proportion to the misclassifications in the survey dataset; for example, if $N_{sbr} = 100$, and 4 out of 10 businesses surveyed were mis-classified, then N_{sbr} would be re-estimated as: $100 * (10 - 4) / 10 = 60$. This correction was not implemented, however, as it was felt that the small sample sizes in each brick gave an unreliable estimate of the proportion of businesses that were mis-classified, which could lead to even less reliable population figures.

Unsurveyed bricks

Nine bricks were empty (i.e. the ONS population was zero). Due to difficulties in recruiting businesses, a further six bricks had no businesses surveyed (Table 34). The average weight of waste per business in these bricks was estimated from a neighbouring brick (usually the next smallest size band in the same sector). No adjustments were made to the figures to account for differences among size bands because the number of businesses and the tonnages involved were small.

Table 34: Bricks where no businesses could be surveyed

Brick No.	No. of businesses in population	Sector	Size band	Size band from which substitute data taken
5	2	Demolition & Site Preparation	50-99	20-49
30	2	Test Drilling & boring and other specialised construction activities	100+	50-99
54	4	Plumbing	100+	50-99
65	1	Joinery installation	50-99	20-49
95	1	Joinery installation	100+	20-49
90	1	Other construction installation	100+	50-99

Quality assurance checks

In addition to screening the data for outliers, a range of additional checks were carried out on the grossed up results to flag up inconsistencies and individual waste streams that needed checking. In response to these checks, a number of surveyed businesses were contacted by phone by Urban Mines to check and confirm or change key data.

Specifically, the following checks were undertaken.

(1) Sensitivity analysis

A sensitivity analysis was undertaken using the grossed up data to identify the waste streams that had the greatest influence on national and sectoral waste totals. The accuracy of the information for these waste streams was checked with the businesses surveyed (i.e. correct size band, reported tonnages, waste types and management methods).

(2) 'Special' business checks

Checks were undertaken to identify and investigate any businesses that had unusually high waste arisings compared with others in the same brick to see whether they were unique and could be treated as 'special' businesses and grossed up separately. Although some businesses had unusually high waste arisings, they were not necessary unrepresentative of their brick and so were grossed up in the usual way.

(3) Comparison of 2012 results with 2005/6 C&D survey results

Our ability to compare the 2005/6 and 2012 results was constrained by the precision achieved by the two surveys. Both surveys have a certain margin of error, so differences between them will sometimes be due to sampling error rather than a genuine change in waste arisings. When checking the results, we therefore calculated the precision and

focused on any discrepancies between 2005/06 and 2012 that were unlikely to be due to sampling error.

It was noted that a significant proportion of the arisings surveyed in 2005/06 were produced by just 5 businesses surveyed, with individual waste streams accounting for up to 1.1 million tonnes, and individual companies up to 1.5 million tonnes, far in excess of any waste streams or company totals recorded in 2012. Where possible figures were discussed with the businesses concerned and unique projects in 2005/06 identified which explained the large volumes recorded.

(4) Comparison with other Natural Resources Wales Datasets

Natural Resources Wales (NRW) compared the grossed up survey data against permitted site returns for landfills and data from the Hazardous Waste Interrogator. The inferred construction & demolition proportion from NRW landfill site 2012 returns was estimated to be 646 thousand tonnes, which is very similar to the survey result of 639 thousand tonnes landfilled (1% discrepancy). NRW hazardous waste data estimated that 275 thousand tonnes of hazardous waste was generated in Wales in 2012. Combining the hazardous waste generated construction & demolition survey estimation of 38 thousand tonnes to the industrial & commercial survey estimation of 239 thousand tonnes (separately reported) produced an estimated total of 276 thousand tonnes from both surveys. This is less than a 1% discrepancy with the NRW hazardous waste dataset and therefore further supports the survey results.

If follow-up enquiries revealed the data to be accurate, or if the data could not be verified but had a limited impact on the overall results, then it was grossed up in the usual way, even if this occasionally yielded results with poor precision.

Assessment of uncertainty

For the national estimates, the variance in the grossed up weight for each brick $Var(W_{sb})$ was estimated by:

$$Var(W_{sb}) = \frac{Var(w_{sbi})}{n_{sb}} \times \left(\frac{N_{sb} - n_{sb}}{N_{sb} - 1} \right) \times N_{sb}^2$$

where $Var(w_{sbi})$ is the variance in the weight of waste among the n_{sb} businesses in that brick and $\left(\frac{N_{sb} - n_{sb}}{N_{sb} - 1} \right)$ is a finite population correction factor that ensures that the variance is zero when all the businesses in a brick have been surveyed (i.e. $n_{sb} = N_{sb}$).

It was not possible to calculate a variance for the 5 bricks where just one business was surveyed. In these bricks, the variance was instead estimated from the average tonnage using the formula:

$$Var(W_{sb}) = (1.03 \times \bar{w}_{sb})^2$$

where 1.03 is the average coefficient of variation across all bricks with at least two sampled businesses and \bar{w}_{sb} is the average sample weight per business in that brick (i.e. the tonnage for the one surveyed businesses).

The variance in the grand total grossed up weight $Var(W)$ was then estimated by summing the variances for all bricks:

$$Var(W) = \sum_{s,b} Var(W_{sb})$$

This variance was then converted to a measure of precision (ρ_w , %):

$$\rho_w = 100 \times 1.65 \times \frac{\sqrt{Var(W)}}{W}$$

where 1.65 is a multiplier to give the precision at 90% confidence (i.e. we can be 90% confident that the true value of W lies within $\pm \rho_w$ %).

A similar set of calculations were done for the regional estimates, the only difference being that $Var(w_{sbi})$ was calculated for the waste arising in each specified region in turn.

Note that these precision calculations take into account only the uncertainty arising from random sampling error; it was assumed that all surveyed weights and the ONS population figures were correct. It was also assumed that all surveyed weights are normally distributed and independent.

Appendix 13 Glossary and abbreviations

Statistical Terminology

Brick (cell)	A cell in the sample matrix, referring to a particular combination of size band and Standard Industrial Classification (SIC).
Confidence	Quoted in conjunction with a measure of precision, confidence is a measure of how confident one is in the reliability of an estimated quantity. For example, if total waste arisings were estimated with a precision of +/- 4.7% at 90% confidence, then we can be 90% confident that the true (unknown) total waste arisings are within +/- 4.7% of the estimated value.
Grossing (data)	In the context of this survey, data grossing means extrapolating the survey data to estimate the total waste produced by a national or regional population.
GUW	Grossed Up Weight
Mean	This is a measure of the central tendency or location of the population or sample data. It is the sum of the data values divided by the number of observations. If the data set is from a sample, then it is a sample mean and if it is from a population, it is a population mean.
Outlier	This is an observation in a set of data that is far removed in value from the others in the same data set. It is an unusually large or small value compared to others.
Population	A complete set of all units (i.e. people, places, objects or many other things) being studied and from which data is collected, described and conclusions drawn. In this report, the population is the collection of all businesses in Wales included in the scope of the survey.
Sample Matrix/ Sample Frame	A table that indicates how many businesses are to be sampled from the population. The sample matrix is divided into a number of bricks.
Size Band	A classification of business size based upon the actual number of employees employed by the business on site.
Standard Deviation	Standard deviation measures the spread of the data set about the mean value. It is used to summarise how much variability there is in a sample or population.

Waste Management Terminology

Anaerobic Digestion	The turning of organic waste into soil conditioner using the process of biodegradation without oxygen. This composting method also produces methane.
Animal by Products (ABP) Regulations	Animal carcasses, parts of carcasses or products of animal origin that are not intended for human consumption. The regulations govern the processing of the wastes from animal sources to prevent cross contamination.
Biodegradable	Materials that break down through natural processes.
Commercial Waste	Waste generated from premises that are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding household and industrial waste (as defined in the Environmental Protection Act 1990).
Composting	The controlled biological decomposition and stabilisation of biodegradable materials (such as organic garden and kitchen wastes) under predominantly aerobic conditions to produce humus (organic) rich, sanitised and stabilised product that can be beneficial to soil.
Construction or demolition waste	Generated from the construction, repair, maintenance and demolition of buildings. It mainly includes bricks, concrete, sub soil and top soil but may also include wood, metal and plastics.
Energy from Waste (EfW)	This is the production of energy from waste. This can be in the form of burning solid waste in an incinerator or collecting gases such as methane from landfill sites. The heat produced is used to make electricity.
European Waste Catalogue (EWC) Code	A substance and activity oriented classification of waste in 20 Chapters.
European Waste Catalogue for Statistics (EWC STAT)	A (mainly) substance oriented statistical classification (SOC) of waste used for reporting waste statistics to the European Union.
Exempt Waste	Waste handled by activities that are exempt from environmental permitting.
Fly tipping	Waste which is dumped illegally by householders or businesses. This can be anything from old furniture to bags of waste or cars. Fly tipping is

illegal and can carry a fine, or in some cases a more serious punishment.

Gasification	Thermal treatment that involves heating waste in the presence of oxygen to recover energy in the form of gas.
Generated	The amount of waste produced by the activity of a sector over a set period of time.
Hazardous waste	Waste that is hazardous or contains hazardous substances, these are listed in the EU hazardous waste directory. This is waste that is reactive, toxic, corrosive or otherwise dangerous to living things and/ or the environment.
Household waste	This includes waste thrown in bins at home and collected by the local council. Also, litter collection and street sweepings, garden waste, waste from civic amenity sites and waste collected for recycling or composting from domestic properties.
Industrial waste	Waste from a factory (within the meaning of the Factories Act 1961) or from any premises used for, or in connection with <ul style="list-style-type: none"> • Provision of public transport • Public supply of gas, water, electricity or sewerage services • Provision to the public of postal or communication services
Inert Waste	Chemically inert, non-combustible, non-biodegradable and non-polluting waste defined in the EU Directive on the Landfill of Waste. For example bricks.
Landfilling	The final disposal of solid waste by placing it in a controlled fashion in a place intended to be permanent.
Non- wastes	Natural Resources Wales, Environment Agency and WRAP (Waste Resources Action Programme) have reviewed and amended the legal classification of a number of materials including blast furnace slag and virgin timber, from waste to by-product, with clarification from the EU, and through consultation with industry, as part of the “Waste Protocols Project”. A quality protocol gives guidance on how to recover waste, remove it from the regulatory regime and unnecessary regulations. In the context of this report, such wastes are described as “non- wastes”.

Preparation for re-use	Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.
Producer responsibility	This is a type of law that makes the people who produce items e.g. manufacturers, responsible the disposal/recycling of the item when it is no longer of use. The packaging waste regulations are an example of producer responsibility law. Many supermarkets are now realising their responsibility and recycling plastic bags for example.
Putrescible	Liable to rot or decompose, the best example being food waste.
Pyrolysis	Pyrolysis, often incorporating gasification, is a thermal process where organic materials in the waste are broken down under pressure and in the absence of oxygen. The process works best when the input waste is carbon-rich, preferably sorted or pre-sorted. The Pyrolysis process produces a liquid residue and gaseous output which may be combusted to generate electricity.
Recovery	‘Other recovery’ is any operation meeting the definition for ‘recovery’ under the Waste Framework Directive but failing to comply with the specific requirements for preparation for re-use or for recycling e.g. land recovery and incineration with energy recovery.
Recyclables	Materials that still have useful physical or chemical properties after serving their original purpose and that can, therefore, be re-used or remanufactured into additional products.
Recycle	Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations
Re-use	The act of using an item more than once. For example, many supermarkets now have carrier bags which you can use over and over again, and some businesses deliver goods in reusable plastic crates. The key difference between ‘re-use’ and ‘preparing for re-use’ is that in the former case the material or object has not become a waste, whereas in

the case of 'preparing for re-use', the material in question has become waste in the meaning of the waste definition

Thermal treatment	A broad generic term covering processes that involve the use of heat to treat waste. Incineration is the most common thermal treatment process. Pyrolysis and gasification are other high temperature processes used, for example, in technologies producing refuse derived fuel.
Transfer Station	A site to which waste is delivered for sorting and compacting prior to transfer to another place for recycling, treatment or disposal.
Waste	Any substance or object in the categories set out in Annex 1 of the Waste Framework Directive (91/156/EEC), which the holder discards or intends or is required to discard.
Wastes	In the context of this report, wastes which are controlled under the EU Waste Framework Directive i.e. not including "non- wastes".
Waste minimisation	The process of reducing the amount of waste that is disposed of whether by businesses or households.
Waste Statistics Regulations	EU regulations that require Member States to report data on waste generation and treatment to the European Commission every two years.
WEEE	Waste Electronic & Electrical Equipment
WRAP	Waste Resources Action Programme.
UK Standard Industrial Classification (SIC) Code	UK Classification system for economic activities



**Cyfoeth
Naturiol**
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Resources**
Wales