

Scottish Aggregates Survey 2012

(published 2015)

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Introduction

1. Minerals are needed for the construction of transport and renewable energy infrastructure, housing and other buildings that are a vital part of the Scottish Government's infrastructure investment plans for the future. Scottish Planning Policy (SPP) sets out planning policies that are intended to ensure that a steady supply of material is maintained to meet the needs of society and the economy in an acceptable and sustainable manner. The most important sources for aggregates in Scotland are crushed rock (from igneous rock, sandstone and limestone) and sand and gravel. The British Geological Survey (BGS)'s Mineral Planning Factsheet: Construction Aggregates¹ provides further information on the supply and demand of aggregates in the UK.

Demand

2. The demand for aggregates in each geographical part of Scotland varies considerably and is likely to be influenced by demand in areas with high population density where access to suitable local resources is often restricted. Market areas are generally set in relation to the economic viability of transporting the resource. This effectively means that in certain areas, particularly in the Scottish midlands, market areas will extend beyond local authority boundaries whilst in some rural areas local resources will be used in the main to satisfy local needs. The exception to this rule is the coastal quarry at Glensanda in Highland which primarily supplies markets outwith both Scotland and the United Kingdom.

Landbanks

3. SPP (para 238) promotes a landbank approach to planning for the supply of construction aggregates. This approach is intended to ensure that a stock of reserves, with planning permission, is maintained to ensure adequate supplies of construction aggregates over a minimum 10 year period based on current production levels. The 10 year period recognises the likely timescale between an operator deciding that there is a need for a new site, securing planning permission and bringing the site into full production.

4. For planning purposes SPP (para 236-238) confirms The Scottish Government's view that strategic development plans for the four main city regions should ensure that adequate supplies of construction aggregates can be made available. Local development plans should support the maintenance of a landbank of permitted reserves equivalent to a minimum 10 years extraction at all times for all market areas.

¹ <https://www.bgs.ac.uk/mineralsuk/planning/mineralPlanningFactsheets.html>

The Scottish Aggregate Survey

5. The last update of the Scottish Aggregates Survey was completed in 2005. A copy of the Survey form for 2012, which was prepared in consultation with the Mineral Products Association (Scotland) and the British Aggregates Association, is included at Annex A. New geographical areas for collating returns have been put in place. These areas aim to support strategic development planning policy while recognising the difficulties of defining market areas in a country like Scotland with considerable variation in population density and geology. The intention is to provide the volume statistics necessary to inform the planning process without breaching commercial confidentiality.

7. The Survey gathers together information on the production, distribution and reserves of material produced and available from Scottish quarries as at 2012. The information gathered on production echoes that provided separately to the Office of National Statistics (ONS) for its Mineral Extraction in Great Britain (Business Monitor PA1007)² although 2013 UK data has now also been published. Whilst the Survey is designed to be factual, it is recognised that on reserves and distribution the figures are best available estimates as there can be no absolute precision in these fields.

Response

8. Survey forms were sent out to all operators whose address appeared in the 2011/2012 Directory of Quarries & Quarrying Equipment (33rd edition). This information was supplemented by that gathered by the BGS through its annual updating exercise to gather information for ONS for Business Monitor. This produced 114 responses, of which 99 were useable. Information is limited to the returns received on the survey forms. The geographical spread of the active and new sites are shown in Table 1:

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/285128/Mineral_extraction_in_Great_Britain_2012_-_Business_Monitor_PA1007.pdf
<https://www.gov.uk/government/statistics/mineral-extraction-in-great-britain-2013>

TABLE 1: GEOGRAPHICAL SPREAD

Regions	Hard Rock	Sand & Gravel
Argyll & Bute	*	*
Forth Valley ³	0	*
Highland & Moray	8	11
North East Scotland	9	6
Orkney & Shetland Islands	3	0
SESPlan	5	4
TAYplan	6	6
West Central Scotland A (GCV)	10	7
West Central Scotland B and Dumfries & Galloway	*	*
Western Isles	6	7
TOTAL	52	47

* concealed to preserve confidentiality

9. The total amount of production in 2012 recorded by SAS was 14 million tonnes (mt) of crushed rock and 4.5 mt of sand and gravel. The equivalent figures in ONS's 2012 Business Monitor PA1007 was 20 mt for crushed rock and 5.7 mt for sand and gravel. This represents a return rate, based on output, of 70% and 77% for the Scottish Survey. The discrepancies between the two Surveys and the level of non-responses in particular areas will be a significant limiting factor in drawing useful conclusions from the data.

Aggregate production

10. Aggregate production recorded by SAS by region for 2012 is shown in Table 2. Also shown, is the proportion of total Scottish aggregates produced in 2012 relative to the percentage of Scotland's population in each region. This shows that production levels and population levels are least matched in the Highland and SESplan areas. Glensanda will significantly influence the figures in Highland, whilst the position in SESplan is indicative of a densely populated region where there is significant demand for aggregates but restricted access to resources.

³ Stirling, Falkirk and Clackmannanshire areas

TABLE 2: AGGREGATE PRODUCTION

Regions	Hard Rock	Sand & Gravel	Total	% of total production	% of Scotland population
Argyll & Bute	*	*	*	*	2%
Forth Valley	0	*	*	*	6%
Highland & Moray	6,040	521	6,561	35%	6%
North East Scotland	1,042	259	1,301	7%	9%
Orkney & Shetland Islands	142	0	*	*	1%
SESplan	1,489	520	2,008	11%	23%
TAYplan	848	827	1,675	9%	9%
West Central Scotland A	3,327	1,505	4,832	26%	34%
West Central Scotland B and Dumfries & Galloway	*	*	*	*	10%
Western Isles	267	6	273	1%	1%
TOTAL	14,063	4,468	18,531	100%	100%
Total from ONS Survey⁴	20,068	5,772	25,840	N/A	N/A

Distribution

12. Table 3 primarily shows that, with the exception of Highland, around 85-90% of crushed rock is retained in the area where it was produced, with the North East of Scotland and Western Isles retaining between 99-100% of the material they produce. Again, the Highland figures will be strongly influenced by Glensanda. The SESplan area, North East Scotland, TAYplan area and West Central Scotland A all imported crushed rock with the SESplan area needing to import 17% to meet demand.

13. Distribution of sand and gravel shows a slightly smaller proportion of product generally retained in the region. The SESplan area was a significant importer of material with, overall, a significant proportion of material being supplied from sites outwith the region. Overall, exports to England from Scottish quarries was nearly 5 mt. These exports will be predominately from Glensanda with smaller contributions from other sites.

⁴ <https://www.gov.uk/government/statistics/mineral-extraction-in-great-britain-2012>

TABLE 3: DISTRIBUTION

Hard Rock (thousand tonnes)	Production	Retained in Region	Imports to Region	Retained + Imports	England	Outside UK	% retained in region	% imported
Argyll & Bute	*	*	150	*	0	0	*	*
Forth Valley	0	0	154	154	0	0	-	-
Highland & Moray	6,040	341	28	369	5,573	0	6%	0%
North East Scotland	1,042	1,034	106	1,140	0	0	99%	10%
Orkney & Shetland	142	142	0	142	0	0	*	*
SESPlan	1,489	1,165	250	1,415	5	0	78%	17%
TAYplan	848	731	35	766	0	0	86%	4%
West Central Scotland A	3,327	2,938	90	3,028	0	0	88%	3%
West Central Scotland B and Dumfries & Galloway	*	*	106	*	0	0	*	*
Western Isles	267	267	0	267	0	0	100%	0%
Total	14,063⁵	7,526	919	8,445	5,578	0	54%	7%
Sand and Gravel (thousand tonnes)	Production	Retained in Region	Imports to Region	Retained + Imports	England	Outside UK	% retained in region	% imported
Argyll & Bute	*	*	134	*	0	0	*	*
Forth Valley	*	*	72	*	0	0	*	*
Highland & Moray	521	502	0	502	12	0	96%	0%
North East Scotland	259	204	5	209	0	0	79%	2%
Orkney & Shetland Islands	0	0	0	0	0	0	-	-
SESPlan	520	179	212	391	1	0	34%	41%
TAYPlan	827	618	68	686	0	0	75%	8%
West Central Scotland A	1,505	1,162	448	1,609	0	0	77%	30%
West Central Scotland B and Dumfries & Galloway	*	*	293	*	0	0	*	*
Western Isles	6	6	0	6	0	0	100%	0%
Total	4,468⁶	3,220	1,232	4,452	13	0	72%	28%

⁵ Note there is a mismatch of 40 in figures due to information provided on returned response forms = 14,063 - (8,455+5,578=14,023)

⁶ Note there is a mismatch of 3 in figures due to information provided on returned response forms = 4,468 - (4,452+13)

14. The import and export figures are shown as region to region flows in Table 4. These confirm that the majority of the flow of material in the SESplan area for both crushed rock and sand and gravel is from the neighbouring West Central Scotland A & B (and Dumfries and Galloway) and TAYplan regions. Elsewhere, the figures show that flows between neighbouring regions are common and highlight the need to adopt a cautionary approach when identifying "market" area.

TABLE 4: REGIONAL FLOW DISTRIBUTION TO

Hard Rock (Distribution from)	Argyll & Bute	Forth Valley	Highland & Moray	North East Scotland	Orkney & Shetland Islands	SESPlan	TAYplan	West Central Scotland A	West Central Scotland B and Dumfries & Galloway	Western Isles	England	Outside GB
Argyll & Bute	*											
Forth Valley		0										
Highland & Moray			341	86							5,573	
North East Scotland			8	1,034								
Orkney & Shetland Islands					142							
SESPlan	150	15				1,165	35	90	30		5	
TAYPlan		27	20	20		50	731					
West Central Scotland A		113				200		2,938	76			
West Central Scotland B and Dumfries & Galloway									*			
Western Isles										267		
Grand Total	*	154	369	1,140	142	1,415	766	3,028	*	267	5,578	0

Regional Flow	(Distribution to)											
Sand & Gravel (Distribution from)	Argyll & Bute	Forth Valley	Highland & Moray	North East Scotland	Orkney & Shetland Islands	SESPlan	TAYplan	West Central Scotland A	West Central Scotland B & Dumfries & Galloway	Western Isles	England	Outside GB
Argyll & Bute	*											
Forth Valley	*	*						*	*			
Highland & Moray			502			2		2			12	
North East Scotland				204			55					
Orkney & Shetland Islands												
SESPlan		*				179	13	196	93		1	
TAYPlan	96	*		5		10	618	64				
West Central Scotland A						200		1,162	143			
West Central Scotland B and Dumfries & Galloway								*	*			
Western Isles										6		
Grand Total	181	365	502	209	0	391	686	1,609	503	6	13	0

Consented reserves

15. Table 5 shows the information gathered from respondents on consented reserves for crushed rock and sand and gravel respectively. As confirmed in paragraph 8, 43 forms were returned where sites were classified as "inactive". This means that the site has been worked in the past and still contains consented reserves. However, no production took place at the sites during 2012. It is assumed that these sites can be worked without the need for planning permission so Table 6 provides further information on estimated years supply taking these sites into account.

16. Table 5 also shows that the apparent life of reserves for crushed rock are likely to be more secure than sand and gravel. At 2012 there was an average 29 year supply for hardrock in Scotland from active sites. For sand and gravel, the average years supply from active sites is 14 years, with the highest levels in the SESplan area which is recorded as having a 32 year supply from active sites.

TABLE 5: PRODUCTION, RESERVES & YEARS SUPPLY

Hard Rock	Production	Estimated Consented Reserves	Maximum Supply at 2012 Production Levels in Years	Estimated Consented Reserves in active sites in 2012	Maximum Supply from active sites at 2012 Production Levels in Years
Argyll & Bute	*	*	*	*	*
Forth Valley	0	*	-	0	-
Highland & Moray	6,040	*	*	23,205	4
North East Scotland	1,042	*	*	240,792	231
Orkney & Shetland Islands	*	1,759	*	*	*
SESPlan	1,489	47,275	32	21,809	15
TAYplan	848	21,483	25	17,193	20
West Central Scotland A	3,327	94,841	29	81,627	25
West Central Scotland B & Dumfries & Galloway	720	*	*	18,131	25
Western Isles	267	*	*	2,770	10
	14,063	533,562	38	410,427	29
Sand & Gravel	Production	Estimated Consented Reserves	Maximum Supply at 2012 Production Levels in Years	Estimated Consented Reserves in active sites in 2012	Maximum Supply from active sites at 2012 Production Levels in Years
Argyll & Bute	*	*	*	*	*
Forth Valley	*	*	*	*	*
Highland & Moray	521	5,469	11	5,430	10
North East Scotland	259	4,151	16	4,151	16
Orkney & Shetland Islands	0	0	-	0	-
SESPlan	520	17,768	34	16,768	32
TAYplan	827	20,360	25	10,460	13
West Central Scotland A	1,505	26,740	18	18,791	12
West Central Scotland B & Dumfries & Galloway	*	*	*	*	*
Western Isles	6	123	20	123	20
	4,468	83,795	19	60,842	14

Conclusions

17. Some caution must be exercised in relation to any findings arising from the Survey as the level of returns, when compared with ONS's Business Monitor PA1007, are likely to represent only about 70% and 77% of output for crushed rock and sand and gravel respectively.

18. The Survey also relates to the position at the end of 2012 so this should be taken into account when considering the current position on reserves in particular.

19. Subject to such interpretations, the main conclusions arising from the Survey are:

- the ONS Survey confirmed that output from Scottish quarries in 2012 was 25.8 mt;
- in 2012, crushed rock accounts for 75% of aggregate output. This has risen marginally from 74% since 2005;
- Scotland exported 5.6 million tonnes of crushed rock in 2012. This represents 39.7% of Scottish crushed rock output (based on survey output total);
- the distribution of aggregates is not confined by Regional boundaries, with SESplan, Forth Valley, Argyll and Bute and West Central Scotland A appearing, in particular, to be dependent on supplies from outwith the Region to meet demand;
- returns show that reserves for crushed rock and sand & gravel in 2012 were generally sufficient to meet local demand.

Future Surveys

20. The Scottish Government will consider the need for any future surveys as part of any review of National policies, in consultation with planning authorities and the minerals industry. The Scottish Government makes a contribution to the Annual Minerals Raised Inquiry published in the business monitors referred to in this report which can be a useful additional point of reference. Any enquiries on this document should be directed by e-mail to graham.marchbank@scotland.gsi.gov.uk.

ANNEX 1 - Example of 2012 Survey Form

PART 1: STATUS OF SITE

Active: in production for some time during 2012 (complete all parts)	
Inactive: worked in past and still contains consented reserves (complete parts 2 and 5)	
Closed: containing no workable consented reserves (complete part 2 only or if site closed in 2012, parts 2 to 4)	
New: planning permission received but not yet worked (complete parts 2 and 5)	

PART 2: SITE DETAILS

Company	
Quarry name(s)	
Address and post code	
Grid ref	
Contact name and telephone number	
Local authority area(s)	

PART 3: MATERIAL TYPE (THOUSAND TONNES)

Output during 2012 ¹	Sand and gravel	Hard Rock

¹ Exclude all material brought on to site.



PART 4: DISTRIBUTION AREAS FOR PRODUCT SOLD IN 2012² (THOUSAND TONNES)

Distribution area (see map over)	Sand and gravel	Hard Rock ³
South of Scotland – Dumfries and Galloway		
West Central Scotland A – the 8 authorities in the Glasgow and the Clyde Valley SDPA ⁴		
West Central Scotland B – E, N, and S Ayrshire Argyll and Bute		
East Central Scotland – (SESPlan) comprises East, West and Midlothian, Edinburgh, Fife (south) ⁴ and Scottish Borders		
TAYPlan and Fife (north) ⁵		
Forth Valley – Stirling, Clackmannanshire and Falkirk		
North East Scotland – comprises Aberdeen City and Aberdeenshire ⁶		
Highland and Moray		
Western Isles		
Orkney		
Shetland		
England		
Wales		
Outside Great Britain		

PART 5: CONSENTED RESERVES⁷ (THOUSAND TONNES)

Consented reserves	Sand and gravel	Hard Rock

² If not known, please make estimates wherever possible and include quantities delivered to initial destinations only (including asphalt, ready-mix and precast concrete plants). Also exclude all material brought on to site.

³ Including waste historically used as an aggregate, but excluding construction, demolition and landfill waste.

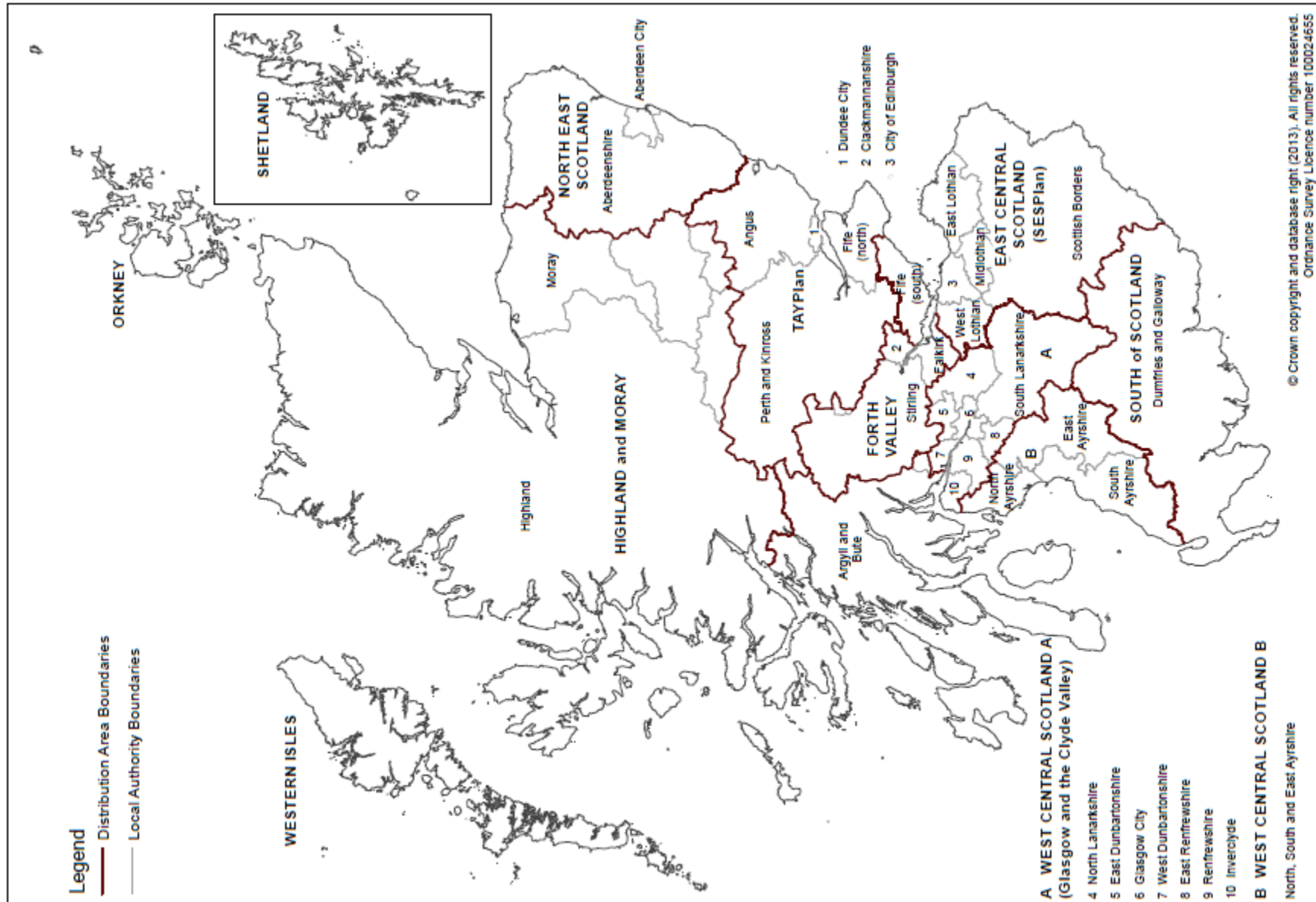
⁴ The Glasgow and the Clyde Valley SDPA north-western boundary excludes that part of West Dunbartonshire lying within the Loch Lomond and the Trossachs National Park. For survey purposes product sold in any part of West Dunbartonshire will be allocated to the Glasgow and the Clyde Valley SDPA area.

⁵ A best estimate should be made of distribution between north and south Fife to avoid double counting, as Fife lies in both the TAYPlan and SESPlan SDPA areas. Additionally, the TAYPlan northern boundary excludes parts of Angus and Perth & Kinross lying within the Cairngorms National Park. For survey purposes product sold in either Angus or Perth & Kinross will be allocated to the TAYPlan area.

⁶ The Aberdeen City and Shire SDPA western boundary excludes that part of Aberdeenshire lying within the Cairngorms National Park. For survey purposes product sold in that part of Aberdeenshire will be allocated to the (North East Scotland) Aberdeen City and Shire SDPA area.

⁷ Estimated reserves of aggregate minerals, including stockpiles, with planning permission, that are likely to be sold for aggregate purposes only at 1 January 2012. The figure should estimate net saleable reserves, taking account of the likely losses during extraction and processing.

ANNEX 2 - MAP OF DISTRIBUTION AREA AND LOCAL AUTHORITY BOUNDARIES



Footnotes

Footnotes

1. The British Geological Survey (BGS)'s Mineral Planning Factsheet: Construction Aggregates -

<http://www.bgs.ac.uk/mineralsuk/planning/construction.html>

2. Office of National Statistics (ONS) for its Mineral Extraction in Great Britain (Business Monitor PA1007) 4 ISSN: 1477-9919 -

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/285128/Mineral_extraction_in_Great_Britain_2012_-_Business_Monitor_PA1007.pdf

<https://www.gov.uk/government/statistics/mineral-extraction-in-great-britain-2013>

3. Forth Valley = Stirling, Falkirk and Clackmannanshire Areas

4. ONS Survey - <https://www.gov.uk/government/statistics/mineral-extraction-in-great-britain-2012>

5 & 6. In relation to total figures given in Table 3 - Distribution

Hard Rock - Note there is a mismatch of 40 [tonnes?] in figures due to information provided on returned response forms = 14,063 - (8,455+5,578=14,023)

Sand & Gravel - Note there is a mismatch of 3 [tonnes?] in figures due to information provided on returned response forms = 4,468 - (4,452+13)



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