

PLANNING

Scottish Aggregates Survey 2005

November 2007

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Introduction

1. Minerals are needed for the construction of transport 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)4: Minerals*¹ 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 Aggregates*² provides further information on the supply and demand of aggregates in the UK.

Demand

2. Annex A shows that the amount of crushed rock and sand and gravel produced annually in Scotland is usually between 30 and 35 million tonnes (mts). Around 5 mts of this is likely to be exported to markets outwith Scotland. This pattern is expected to continue for the foreseeable future. The overall contribution from recycled and secondary aggregates has reached 18% with the potential for this to increase over time.

3. The demand for aggregates in each geographical part of Scotland varies considerably and is likely to be influenced by development pressures 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 central belt, 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

4. SPP 4 continues the 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 minerals over a minimum 10 year period based on current production levels. The 10 year period recognises the likely time scale between an operator deciding that there is a need for a new site and bringing the site into full production.

5. SPP 4 confirms The Scottish Government's view that city regions for the four largest cities should form the principal market areas for the provision of aggregates. Authorities in these regions should work together to provide a landbank of permitted reserves equivalent to a minimum 10 years extraction at all times for the appropriate part of the city region market area. This requirement also extends to some adjoining local authorities, particularly in the Central Belt, where their output contributes to the

¹ www.scotland.gov.uk/Publications/2006/08/30152427/0

² www.mineralsuk.com/britmin/mpfaggregates.pdf

main market area in the city regions. Elsewhere it will be the responsibility of individual planning authorities to decide on an appropriate 10 year landbank.

The Scottish Aggregate Survey

6. This is the first Scottish Aggregates Survey that has been completed since 1993. A copy of the Survey form, which was prepared in consultation with the Quarry Products Association (Scotland) and the British Aggregates Association, is included at Annex B. The form was simplified to recognise the need to minimise burdens on operators whilst collecting only information that was considered essential. New geographical areas for collating returns have been put in place. These areas recognise the difficulties of defining market areas in a country like Scotland with considerable variation in population density and geology. The areas are therefore being used solely for the purposes of this Survey and are not intended to reflect “market” areas. The intention is to provide the volume statistics necessary to inform the planning process without creating problems of commercial confidentiality.

7. The Survey gathers together information on the production, distribution and reserves of material produced and available from Scottish quarries as at 2005. The information gathered on production was designed to mirror that provided separately to the Office of National Statistics (ONS) for its *Mineral Extraction in Great Britain (Business Monitor PA1007)*³. 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 *2005/2006 Directory of Quarries & Quarrying Equipment*⁴. This information was supplemented by that gathered by the BGS through its annual updating exercise to gather information for ONS for Business Monitor PA1007. This produced 207 useable responses. However, because of confidentiality agreements, the returns from sand and gravel operators in Shetland have had to be excluded from the Survey. Similarly, two sites with small outputs producing neither crushed rock or sand and gravel have also been excluded from the Survey. The main conclusions are therefore drawn from returns elsewhere relating to 160 active and new sites, with consideration given to 43 inactive sites solely in relation to reserves. The geographical spread of the active and new sites are shown in Table 1:

³ www.statistics.gov.uk/StatBase/Product.asp?vlnk=606

⁴ ISSN: 1477-9919

TABLE 1: GEOGRAPHICAL SPREAD

Regions	Crushed Rock	Sand and Gravel	Total
East Central	8	3	11
Highland	9	9	18
North East	15	13	28
Orkney	3	3	6
Shetland	5	*	5
South	9	9	18
Tayside and Fife	12	12	24
West Central	21	19	40
Western Isles	6	4	10
Total	88	72	160

9. The total amount of production in 2005 recorded by SAS was 22.0 million tonnes (mt) of crushed rock and 7.5 mt of sand and gravel. The equivalent figures in ONS's Business Monitor PA1007 was 24.7 mt for crushed rock and 8.8 mt for sand and gravel. This represents a return rate, based on output, of 89% and 85% for the Scottish Survey. It is believed that this return level represents a reasonable basis for taking the Survey forward.

10. A direct comparison between the two Surveys is shown in table 2. It should be noted that the SAS form indicated, for the purposes of that Survey, that Stirling Council area should be regarded as part of East Central Scotland. However, the ONS Survey included Stirling in West Central Scotland. To enable direct comparisons between both Surveys, SAS therefore includes Stirling as part of West Central Scotland. However, there remains some discrepancies at regional level 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. It must also be noted that the Survey relates to the position at 2005.

TABLE 2: COMPARISONS BETWEEN SAS AND ONS

Region	Crushed Rock ONS	Crushed Rock SAS	%	Sand and Gravel ONS	Sand and Gravel SAS	%
East Central	2,444	2520	103	555	371	67
Highland	6,298	5936	94	890	491	55
North East	1,567	1321	84	829	926	112
Orkney	*	53		*	2	
Shetland	177	173	98	146	*	
South	1,725	1217	71	821	573	70
Tayside and Fife	2,593	2493	96	2524	1813	72
West Central	9,665	8062	83	2989	3309	111
Western Isles	*	177		*	27	
Scotland	24732	21952	89	8808	7512	85

Aggregate production

11. Aggregate production recorded by SAS by region for 2005 is shown in Table 3. Also shown, is the proportion of total Scottish aggregates produced in 2005 and the percentage of Scotland's population in each region in 2006 from *The Registrar General's Annual Review of Demographic Trends*. This shows that production levels and population levels are least matched in the Highland and East Central Scotland. Glensanda will significantly influence the figures in Highland, whilst the position in East Central Scotland is indicative of a densely populated region where there is significant demand for aggregates but restricted access to resources.

TABLE 3: AGGREGATE PRODUCTION

Region	Crushed Rock	Sand and Gravel	Total	Production %	Population %
East Central	2520	371	2893	10	19.5
Highland	5936	491	6427	22	4.2
North East	1321	926	2247	8	10.4
Orkney	53	2	60	0	0.4
Shetland	173	0	173	1	0.4
South	1217	573	1790	6	5.0
Tayside and Fife	2493	1813	4306	15	14.7
West Central	8062	3309	11397	39	44.8
Western Isles	177	27	220	0.7	0.5
Scotland	21952	7512	29513	100.0	100

Distribution

12. Table 4 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, Orkney and Western Isles all retaining 100% of the material they produce. Again, the Highland figures will be strongly influenced by Glensanda. East Central Scotland, North East Scotland, the South of Scotland and West Central Scotland all imported crushed rock with East Central Scotland needing to import 33% to meet demand.

13. Distribution of sand and gravel shows a slightly smaller proportion of product generally retained in the region although East Central Scotland was both a significant exporter and importer of material with, overall, a significant proportion of material being supplied from sites outwith the region.

14. Overall, exports to England from Scottish quarries was nearly 2 mts and further afield over 3.5 mts. These exports will be predominately from Glensanda. This means that, overall, 18.5% of Scotland's aggregates are supplied to markets outwith Scotland. This position has not changed significantly since the previous Survey in 1993.

15. The import and export figures are shown as region to region flows in Table 5. These confirm that the flow of material in East Central Scotland for both crushed rock and sand and gravel is from the neighbouring South of Scotland, Tayside and Fife and West Central Scotland regions. Elsewhere, the figures show that flows between neighbouring regions are common and highlight the need to adopt a cautionary approach when identifying “market” areas.

TABLE 4: DESTINATION

Crushed Rock	Production	Retained in Region	Imports to Region	Retained + Imports	England	Outside UK	% Retained in Region	% imported
East Central	2520	2246	825	3071	58	0	89	33
Highlands	5936	500	30	530	1644	3448	8	1
North East	1321	1321	212	1533	0	0	100	16
Orkney	53	53	0	53	0	0	100	0
Shetland	173	131	0	131	40	2	76	0
South	1217	1044	248	1292	27	1	86	20
Tayside and Fife	2493	2196	5	2201	20	1	88	0
West Central	8062	7125	492	7617	45	60	88	6
Western Isles	177	177	0	177	0	0	100	0
Sand and gravel	Production	Retained in Region	Imports to Region	Retained + Imports	England	Outside UK	% Retained in Region	% imported
East Central	371	135	1193	1328	0	0	36	322
Highlands	491	404	0	404	30	53	82	0
North East	926	753	3	756	0	0	81	0
Orkney	2	2	0	2	0	0	100	0
Shetland	0	0	0	0	0	0	n/a	n/a
South	573	384	16	400	64	0	67	3
Tayside and Fife	1813	1446	177	1623	0	0	80	10
West Central	3309	2481	344	2825	0	0	75	10
Western Isles	27	27	0	27	0	0	100	0

TABLE 5: REGIONAL FLOW

DISTRIBUTION TO

Crushed Rock	East Central	Highland	North East	Orkney	Shetland	South	Tayside and Fife	West Central	Western Isles	England	Outside GB	
East Central	2,246					116		100		58		2520
Highland		500	8					335		1,644	3,448	5935
North East			1,321									1321
Orkney				53								53
Shetland					131					40	2	173
South	100					1,044		45		27	1	1217
Tayside and Fife	34	25	199			6	2,196	12		20	2	2494
West Central	691	5	5			126	5	7,125		45	60	8062
Western Isles									177			177
Total Consumed	3,071	530	1,533	53	131	1,292	2,201	7,617	177	1,834	3,513	21952
Sand and Gravel	East Central	Highlands	North East	Orkney	Shetland	South	Tayside and Fife	West Central	Western Isles	England	Outside GB	
East Central	135					13	3	220				371
Highlands		404						4		30	53	491
North East			753				173					926
Orkney				2								2
Shetland												0
South	39					384		86		64		573
Tayside and Fife	329		3			1	1446	34				1813
West Central	825					2	1	2481				3309
Western Isles									27			27
Total Consumed	1328	404	756	2	0	400	1623	2825	27	94	53	7512

Consented reserves

16. Table 6 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 2005. 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.

17. Table 6 also shows that the apparent life of reserves for crushed rock are likely to be more secure than sand and gravel. The minimum landbank for crushed rock is in Tayside and Fife with an estimated supply of 11 years at 2005 production levels. For sand and gravel, landbanks of less than 10 years are held in East Central Scotland, South of Scotland and Tayside and Fife although it should be noted that Table 2 confirms particular low levels of returns in each of these three areas. It is not clear what the impact of non-responding sites would have on these figures.

TABLE 6: PRODUCTION, RESERVES & YEARS SUPPLY

Crushed Rock	Production	Estimated Consented Reserves	Maximum Supply at 2005 Production Levels in Years	Estimated consented reserves in sites producing in 2005	Maximum Supply at 2005 Production Levels in Years
East Central	2520	43301	17	28301	11
Highland	5936	481609	81	406979	69
North East	1321	622617	471	613557	464
Orkney	53	4000	75	4000	75
Shetland	173	5430	31	4530	26
South	1217	35978	30	29214	24
Tayside and Fife	2493	27884	11	20454	8
West Central	8062	143372	18	118337	15
Western Isles	177	3481	20	2401	14
	21952	1367672		1227773	
Sand and Gravel	Production	Estimated Consented Reserves	Maximum Supply at 2005 Production Levels in Years	Estimated consented reserves in sites producing in 2005	Maximum Supply at 2005 Production Levels in Years
East Central	371	3400	9	3400	9
Highland	491	19607	40	17952	37
North East	926	24791	27	23566	25
Orkney	2	820	358	820	358
Shetland	0	40		40	
South	573	3516	6	3506	6
Tayside and Fife	1813	15896	9	10976	6
West Central	3309	54122	16	41500	13
Western Isles	27	565	21	565	21
	7512	122757		102325	

Conclusions

18. 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 89% and 85% of output for crushed rock and sand and gravel respectively. The influence of the shortfall at a Regional level and how this influences interpretation of the data produced elsewhere can be assessed by the Regional comparisons between both Surveys in Table 2.

19. The Survey also relates to the position at the end of 2005 so this should be taken into account when considering the current position on reserves in particular.

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

- production levels for aggregates in Scotland has remained fairly constant at around 30-35 mt since 1990.
- the ONS Survey confirmed that output from Scottish quarries in 2005 was 33.5 mt;
- in 2005, crushed rock accounts for 74% of aggregate output. This has risen from 64% since 1990;
- Scotland exported 5.3 million tonnes of crushed rock in 2005. This represents 21.6% of Scottish crushed rock output (based on ONS output total);
- the distribution of aggregates, particularly in the Central Belt, is not confined by Regional boundaries, with East Central Scotland appearing, in particular, to be dependent on supplies from outwith the Region to meet demand;
- returns show that reserves for crushed rock are generally sufficient to meet local demand but, in some regions, sand and gravel reserves fall below a ten year landbank.

Future Surveys

21. The intention is, subject to the continued co-operation of the industry, to carry out further Surveys in the future so that trends can be monitored closely. These Surveys are normally undertaken every 4 years to link in with Surveys in England and Wales. However, given the findings emerging from this document, the Scottish Government is minded to bring forward the next Scottish Survey to 2008. Suggestions on the scope of future Surveys should be e-mailed to ian.mitchell3@scotland.gsi.gov.uk.

AGGREGATES PRODUCTION IN SCOTLAND 1990 – 2005

YEAR	CRUSHED ROCK	SAND & GRAVEL	TOTAL
1990	22.7	12.6	35.3
1991	21.7	12.2	33.9
1992	21.9	11.8	33.7
1993	22.7	11.4	34.1
1994	22.7	11.4	34.1
1995	24.2	10.9	35.1
1996	22.2	9.9	32.1
1997	21.7	9.9	31.6
1998	23.1	10.1	33.2
1999	23.5	10.0	33.5
2000	23.2	10.0	33.2
2001	21.4	10.8	32.2
2002	22.2	8.6	30.8
2003	22.1	8.1	30.2
2004	25.5	8.4	33.9
2005	24.7	8.8	33.5

Figures are in million tonnes

(Source National Statistics PA 1007 : Mineral Extraction in Great Britain)

SURVEY OF AGGREGATES WORKING IN SCOTLAND 2005

ANNEX B
(tick as appropriate)

Part 1 Status of Site

Active: in production for some time during 2005 (complete all parts)	<input type="checkbox"/>
Inactive: worked in past and still contains consented reserves (complete parts 2 and 5)	<input type="checkbox"/>
Closed: containing no workable consented reserves (complete part 2 only or if site closed in 2005 parts 2 to 4)	<input type="checkbox"/>
New: planning permission received but not yet worked (complete parts 2 and 5)	<input type="checkbox"/>

Part 2: Site details

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

Part 3: Material type (thousand tonnes)

	Crushed rock	Sand and gravel	Other
Output during 2005⁵			

Part 4: Distribution areas for product sold in 2005⁶ (thousand tonnes)

Region (see map over)	Crushed rock	Sand and gravel	Other⁷
South of Scotland			
West Central Scotland			
East Central Scotland			
Tayside and Fife			
North East Scotland			
Highlands			
Western Isles			
Orkney			
Shetland			
England			
Wales			
Outside Great Britain			

Part 5 Consented reserves ⁸(thousand tonnes)

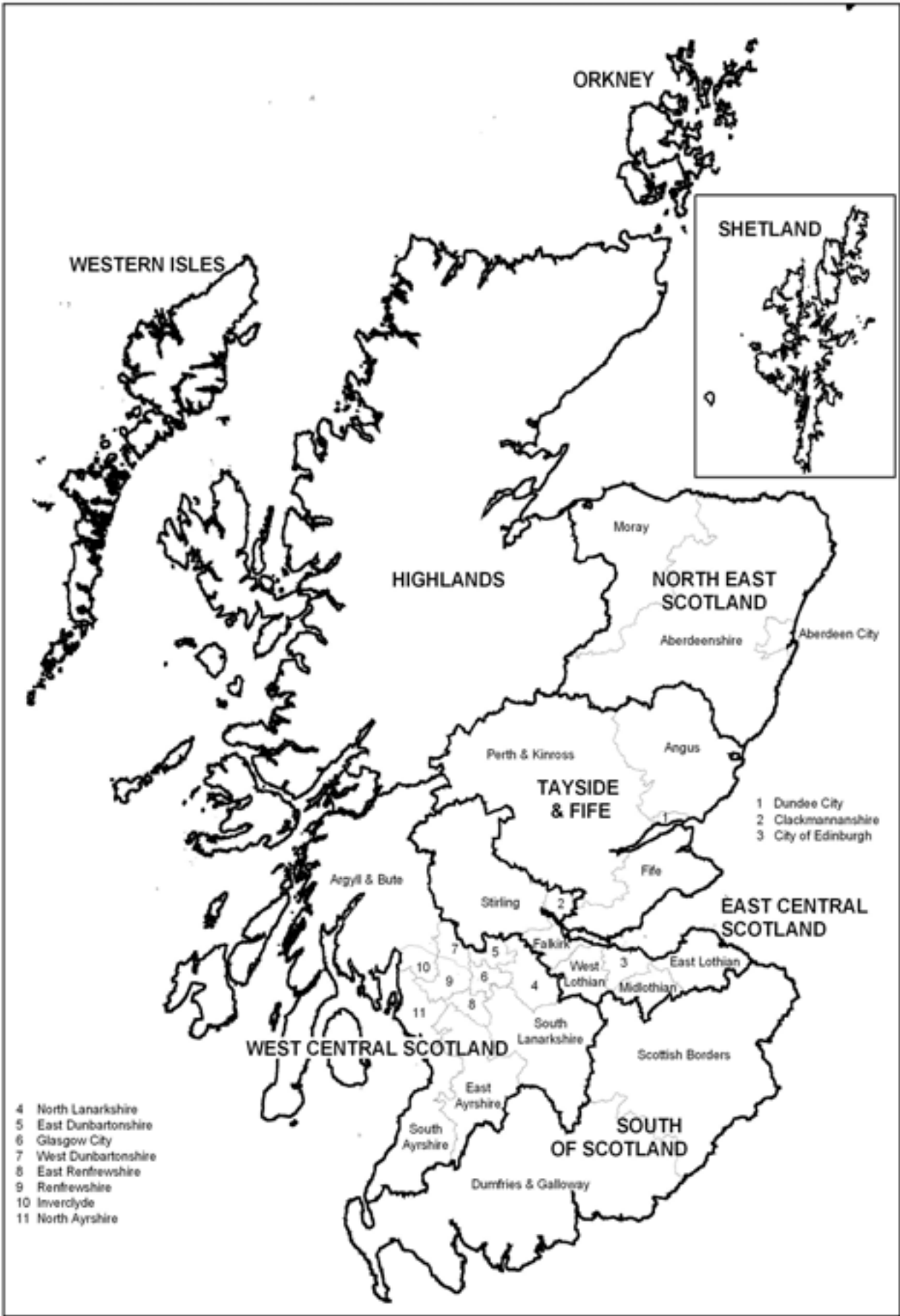
	Crushed rock	Sand and gravel	Other
Consented reserves			

⁵ Exclude all material brought on to site.

⁶ 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.

⁷ Including waste historically used as an aggregate, but excluding construction, demolition and landfill waste.

⁸ Estimated reserves of aggregate minerals, including stockpiles, with planning permission, that are likely to be sold for aggregate purposes only at 31 December 2005. The figure should estimate net saleable reserves, taking account of the likely losses during extraction and processing.





The Scottish
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