

Nottinghamshire Minerals Local Plan

Local Aggregates Assessment

October 2012

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1. Introduction

- 1.1 The requirement to prepare a Local Aggregates Assessment (LAA) was introduced through the publication of the National Planning Policy Framework in March 2012. The purpose of the LAA is to enable Minerals Planning Authorities to identify local apportionments for all aggregate minerals in their area.
- 1.2 The apportionment figures will then be incorporated into the emerging Nottinghamshire Minerals Local Plan to inform the strategy and to enable Nottinghamshire County Council to plan for a steady and adequate supply of minerals over the plan period to 2030.
- 1.3 The LAA will be updated annually to enable the authority to monitor production figures and ensure that adequate reserves are maintained.
- 1.4 A suite of background papers focusing on each individual mineral has also been produced to support the Minerals Local Plan:

Background papers – specific minerals

- Aggregates - sand and gravel, options for meeting shortfalls
- Aggregates - Sherwood Sandstone, options for meeting shortfalls
- Aggregates – Limestone (crushed rock), options for future provision
- Alternative aggregates
- Brick clay
- Gypsum
- Building stone
- Industrial dolomite
- Silica sand
- Coal
- Hydrocarbons – oil and gas

Background papers – other issues

- Minerals safeguarding
- Biodiversity
- Landscape character
- Archaeology
- Development management policies

Technical reports

- Sustainability Appraisal – scoping report
- Strategic Flood Risk Assessment

- Habitats Regulations Assessment

All of the above documents are available on our website:
www.nottinghamshire.gov.uk/minerals

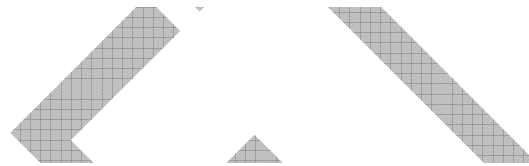
2. Aggregates in Nottinghamshire

2.1 Aggregates account for around 90% of minerals used in construction and are essential in maintaining the physical framework of buildings and infrastructure on which our society depends. Aggregates are usually defined as hard granular materials and include sand and gravel, Sherwood Sandstone and limestone. Their main uses include concrete, mortar, roadstone, asphalt, railway ballast, drainage courses and bulk fill.

2.2 Nottinghamshire's geology gives rise to the following primary aggregate minerals and is set out on plan 1.

Primary aggregates

Sand and gravel



2.3 Important alluvial (river) sand and gravel deposits are found in the Trent and the Idle Valleys which have made Nottinghamshire the largest sand and gravel producing area in the East Midlands. Limited extraction also occurs in glaciofluvial sand and gravel deposits near East Leake. Sand and gravel is mainly used in ready mixed concrete production, although Notts reserves are particularly valuable because they meet high strength concrete specifications as the gravel is made up of quartzite.

Sherwood Sandstone



2.4 Although defined as sandstone, this rock formation rapidly breaks down to sand when extracted. The Sandstone occurs as a broad north-south belt stretching from the border with South Yorkshire, southwards to Nottingham. The mineral is mainly used to produce asphaltting and mortar sand. There is relatively little overlap with the uses that the alluvial and glacial sand and gravels are put to. The Sherwood Sandstone is also used for non-aggregate industrial and other specialist end-uses, the future requirements of which are considered in the background paper on Sherwood Sandstone.

Magnesian Limestone

2.5 This resource occurs as a relatively narrow belt to the west of the Sherwood Sandstone. This outcrop comprises the southernmost limits of the UK's second largest limestone resource that extends from the Durham coast through Yorkshire into Derbyshire and Nottinghamshire. Limestone suitable for use as an aggregate is only found in the Mansfield area and to the north where the mineral is used mainly as a road sub-base material although some mineral is of industrial grade quality. Production is relatively small scale and the lowest in the East Midlands. Around Linby the limestone is suitable for building and ornamental

purposes, although aggregates can be produced as a by-product of utilising reject building stone. The future requirements and issues for building and industrial limestone are considered in the background paper on Limestone.

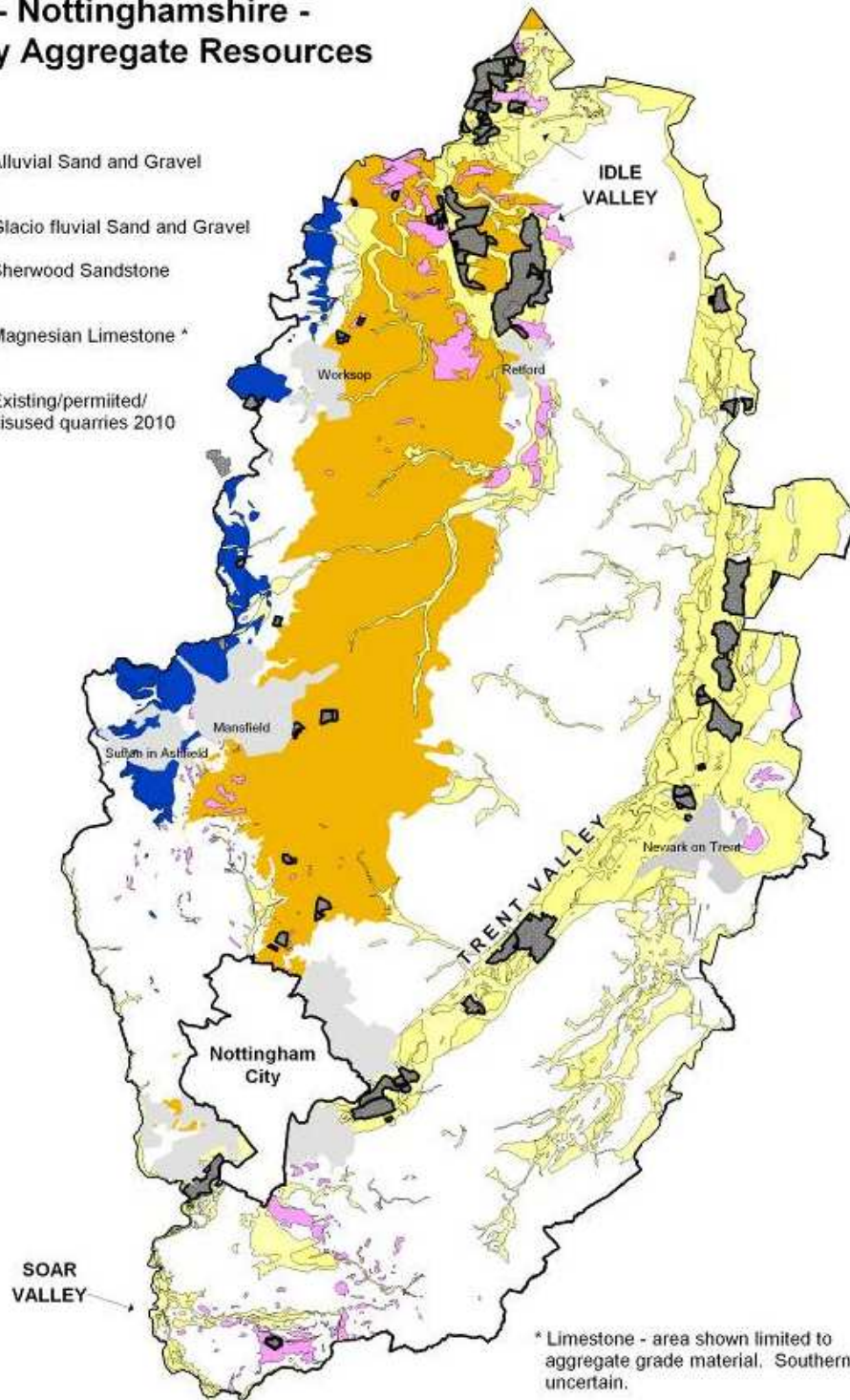
Plan 1 Location of aggregate minerals in Nottinghamshire



Plan 1 - Nottinghamshire - Primary Aggregate Resources

Key

- Alluvial Sand and Gravel
- Glacio fluvial Sand and Gravel
- Sherwood Sandstone
- Magnesian Limestone *
- Existing/permited/
disused quarries 2010



* Limestone - area shown limited to aggregate grade material. Southern limit uncertain.

* Alluvial Sand and Gravel - minor tributaries and glaciofluvial - economic potential limited.

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Alternative aggregates

- 2.6 Alternative aggregates comprise secondary and recycled materials, although these terms are often used interchangeably. Recycled aggregates are materials that have been used previously and include construction and demolition waste, asphalt road planings and used railway ballast. Secondary aggregates are by-products of other processes that have not been previously used as aggregates. They include colliery spoil, china clay waste, slate waste, power station ashes, blast furnace and steel slag, incinerator ashes and foundry sands.
- 2.7 Alternative aggregates are currently most widely used in lower grade applications such as bulk fill. However, the range of uses is widening due to advances in technology and the increasing economic incentive to use them instead of primary aggregates (see background paper on future aggregate requirements for definitions and more detail on primary aggregates).
- 2.8 In Nottinghamshire, sources of alternative aggregates include construction and demolition waste, power station ash, river dredgings, road planings and rail ballast.

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3. Local production

Sand and gravel

- 3.1 Historically sand and gravel production in Nottinghamshire has been characterised by significant peaks and troughs as it mirrors periods of economic growth and recession. (fig 1). From 2001 production remained relatively stable increasing to a high of 3.41 million tonnes before steadily declining over the following years, but still remaining above the existing apportionment of 2.65mt. Production fell sharply from 2007 onwards in response to the current recession (in line with the national output) falling to just 1.27 million tonnes in 2009. This was a result of both the recession and production at Finningley quarry temporarily moving across the county boundary into Doncaster. Extraction restarted at Finningley quarry (Nottinghamshire) in 2010 but total output only increased to 1.59 million tonnes representing the lowest production figure since records began in 1973. Production in 2011 increased slightly to 1.71 million tonnes. (Fig 2)

Fig 1 Historic sand and gravel production, 1973-2011 (million tonnes)

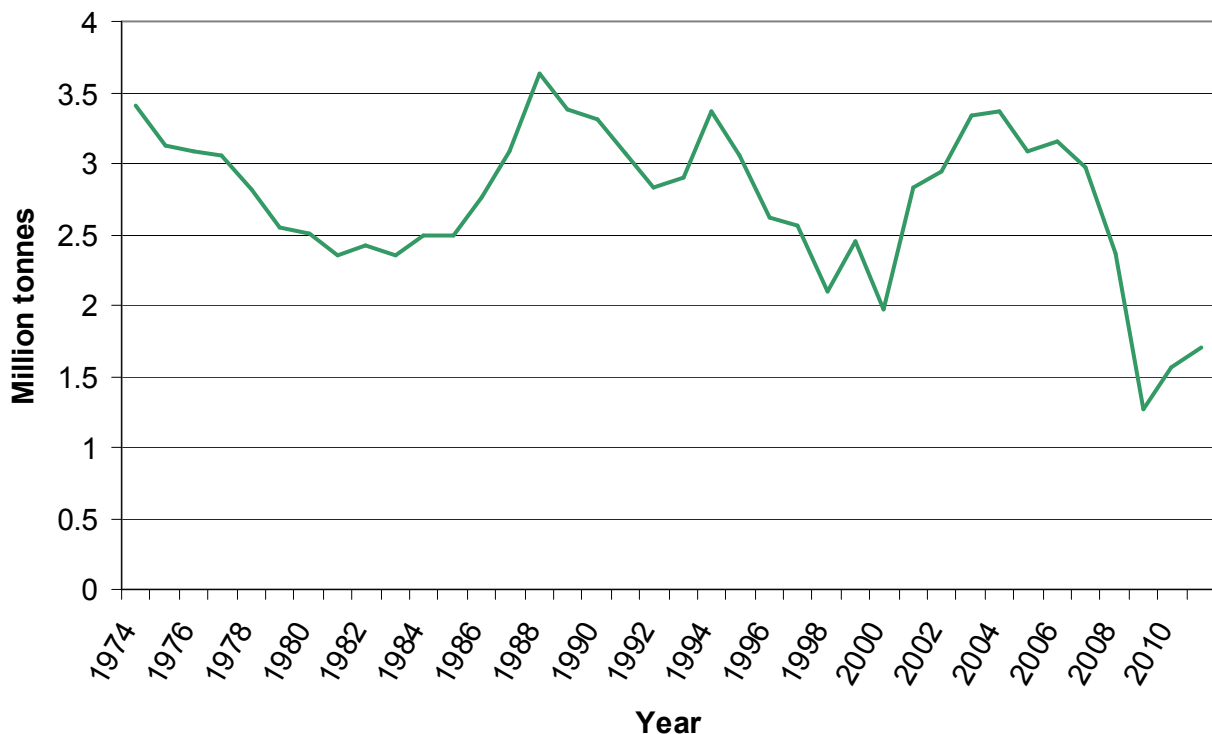
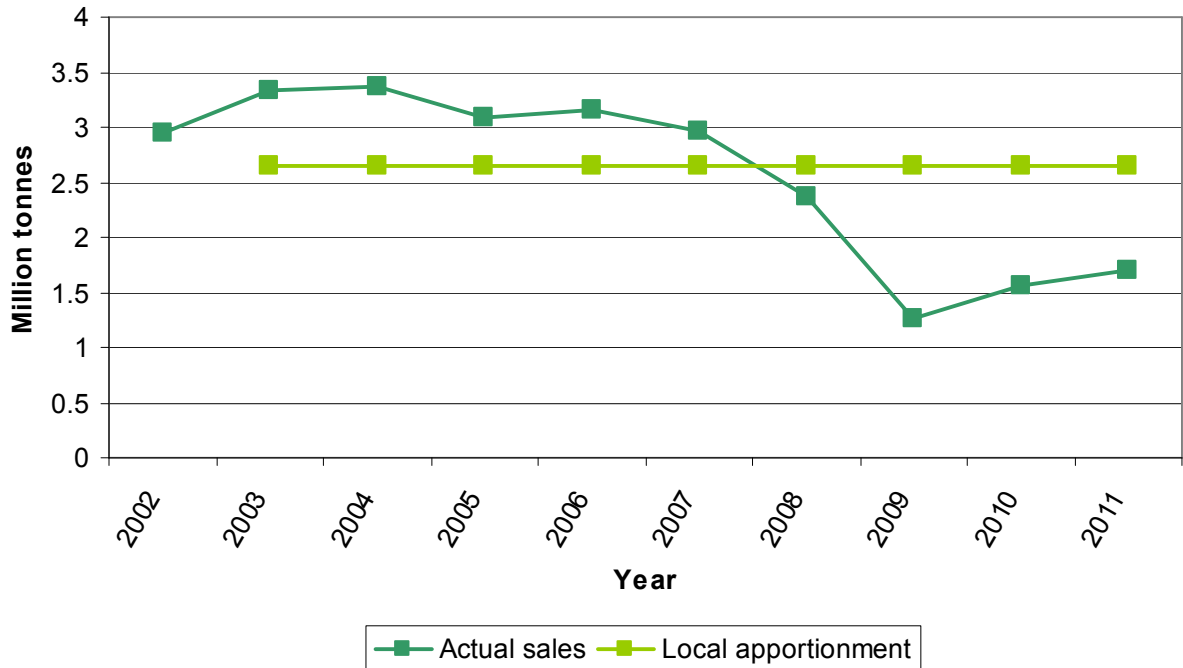


Fig 2 Recent sand and gravel production, 2001-2011 (million tonnes)



Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Production (Million tonnes)	2.95	3.34	3.37	3.08	3.15	2.97	2.37	1.27	1.56	1.71

Resources and landbank

- 3.2 Currently there are 13 permitted sand and gravel sites although at present only 10 are being worked. A combination of falling sales and new reserves being permitted in recent years has increased the landbank above the minimum 7 year minimum after it fell to 5.5 years in 2007. In 2011 the landbank stood at 7.28 years equal to 19.3 million tonnes

Table 1 Permitted sand and gravel quarries in Nottinghamshire

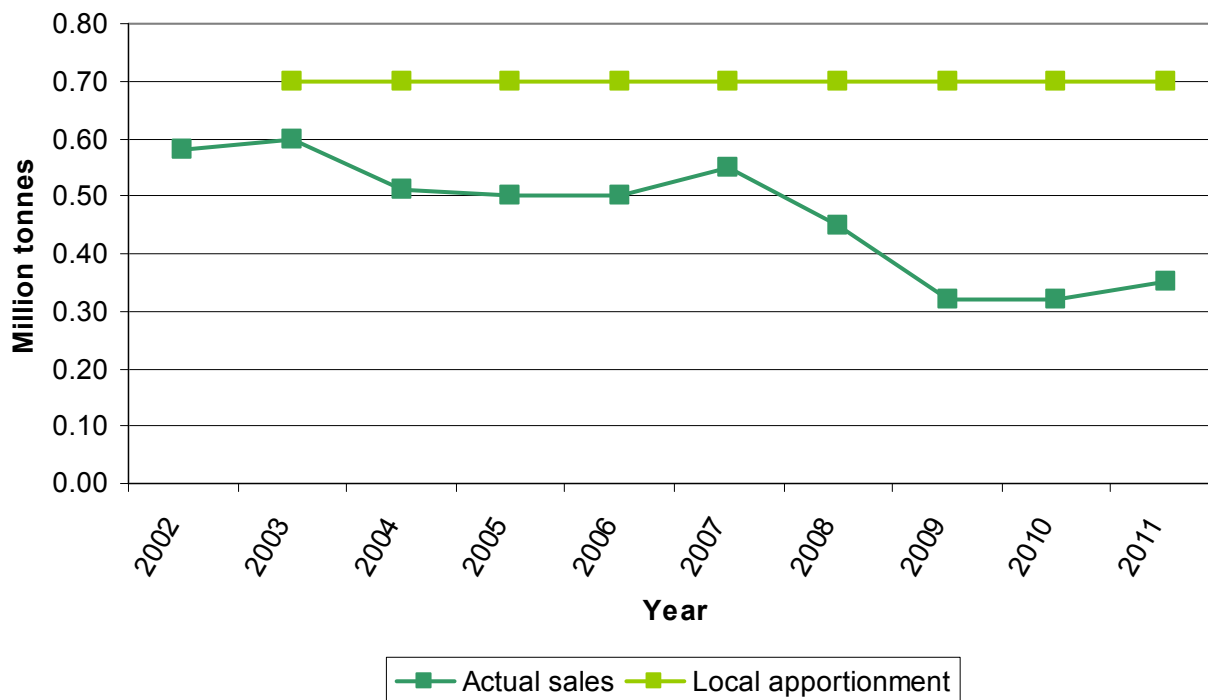
Site	Operator	Status
Langford Lowfields	Tarmac	Active
Girton	Tarmac	Active
Besthorpe	Lafarge	Active
Sturton Le Steeple	Lafarge	Yet to be worked
East Leake	CEMEX	Active
Cromwell	CEMEX	Yet to be worked
Lound/Blaco Hill	Tarmac	Active
Misson West	Hanson	Active

Misson Newington	Hanson	Active
Scrooby	Rotherham Sand & Gravel	Active
Mattersey	Rotherham Sand & Gravel	Dormant
Finningley	Lafarge	Active
Misson Bawtry Road	Rowley	Active

Sherwood Sandstone

- 3.3 Historically Sherwood Sandstone production has been much lower than sand and gravel production as it is generally used in different, more specialist markets. Production has slowly declined since the mid 1990's and has been below the current apportionment of 0.7mt since it was introduced in 2003. Between 2001 and 2007 it remained relatively stable but as with sand and gravel, output fell significantly from 2008 onwards to record lows of just 0.32mt in 2009 and 2010 as a result of the recession. Output increased slightly in 2011 to 0.35mt.

Fig 3 Recent Sherwood Sandstone production, 2001-2011 (million tonnes)



Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Production (million tonnes)	0.58	0.60	0.51	0.50	0.50	0.55	0.45	0.32	0.32	0.35

- 3.4 There are seven permitted Sherwood Sandstone quarries although at present only six are being worked.

Table 2 Permitted Sherwood Sandstone quarries in Nottinghamshire

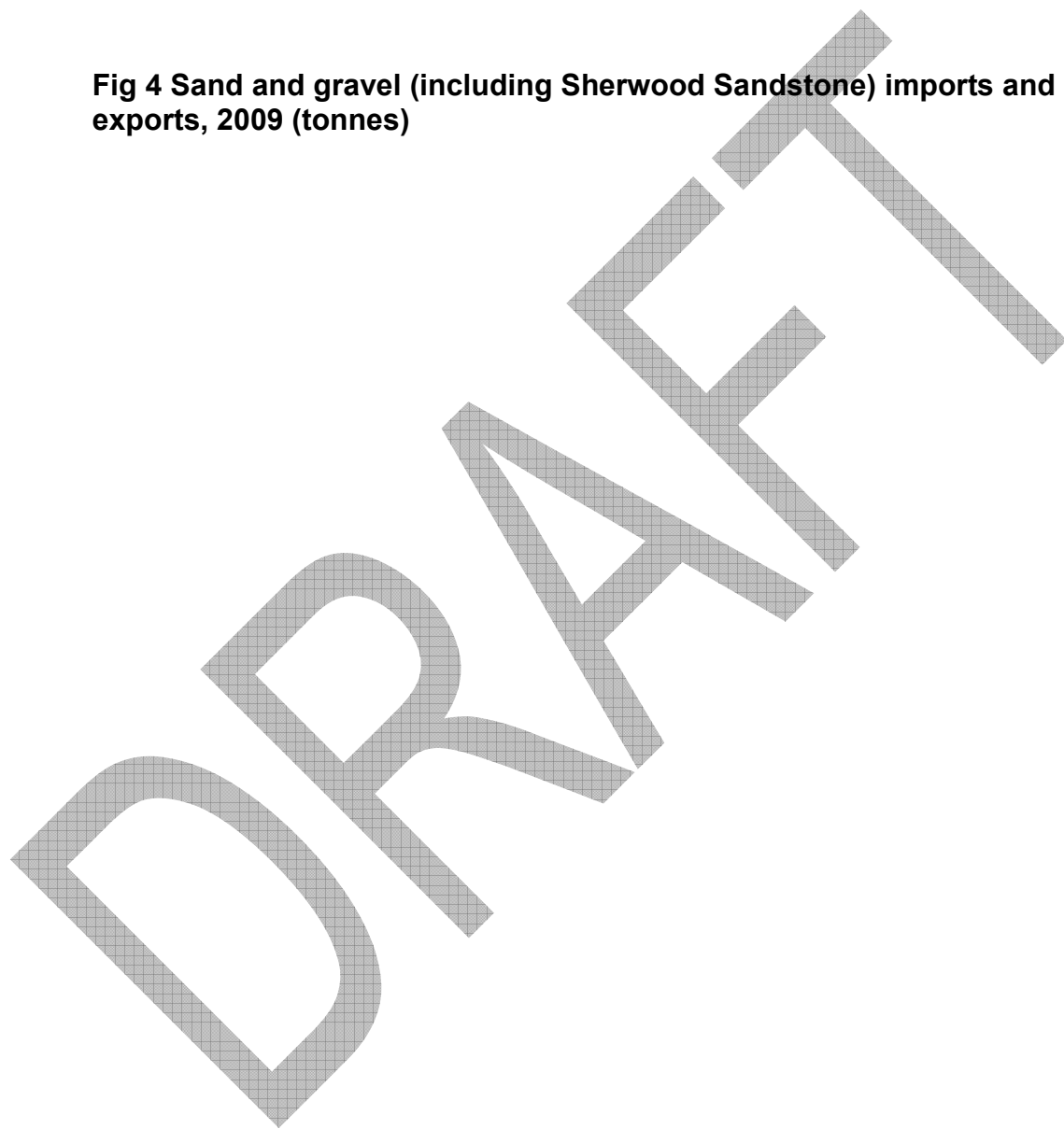
Site	Operator	Status
Burntstump	Tarmac	Active
Bestwood 2	Tarmac	Active
Carlton Forest	Tarmac	Active
Ratcherhill	Mansfield Sand Company	Active
Rufford	Desert Aggregates Limited	Active
Scrooby Top	Rotherham Sand & Gravel	Active
Serlby	Rotherham Sand & Gravel	Dormant

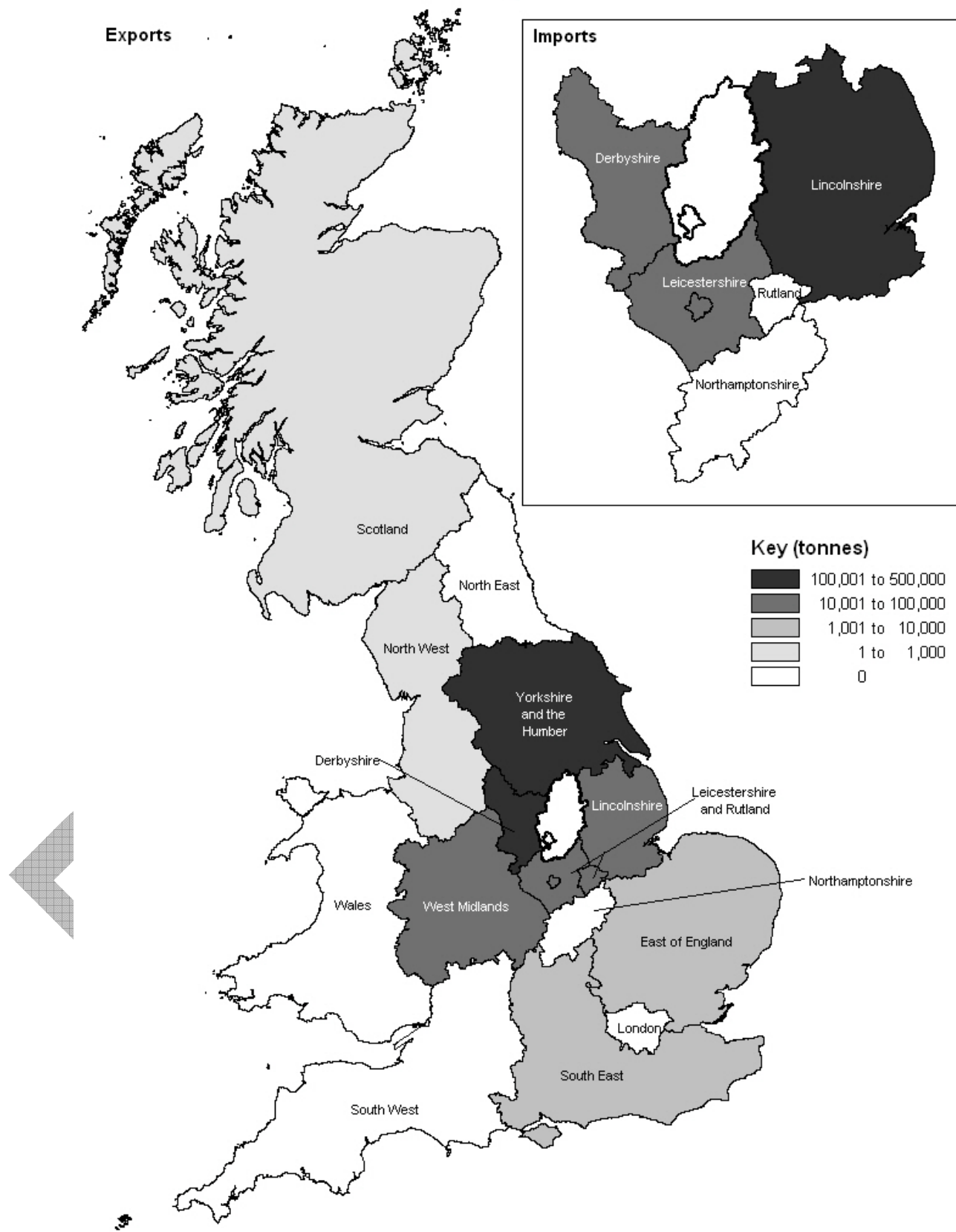
- 3.5 The Sherwood Sandstone landbank has remained well above the seven year minimum standing at 11.3 years in 2011 equating to 6.8mt although reserves are unevenly distributed between quarries.

Imports and Exports of sand and gravel (including sherwood sandstone)

- 3.6 Our imports of sand and gravel (including sherwood sandstone) from the East Midlands are very small in comparison to the amount extracted from our own quarries (250,000 tonnes compared to 1.60 million tonnes in 2009). It is likely that these imports supply markets close to the county boundary.
- 3.7 In 2009 52% of the sand and gravel (including sherwood sandstone) extracted in Nottinghamshire was exported out of the county (comprising of 22% to the East Midlands and 30% elsewhere). This is in part due to the high strength quartzite gravel that meets the specifications for making high strength concrete. The main export markets are South Yorkshire and neighbouring authorities in the East Midlands although some is transported a much greater distance.
- 3.8 The 2009 figures are the most up to date information as this was the last full survey undertaken by the then Regional Aggregate Working Party. Within this survey, export and import figures do not include a breakdown for sherwood sandstone, hence the combined assessment in this report.

Fig 4 Sand and gravel (including Sherwood Sandstone) imports and exports, 2009 (tonnes)

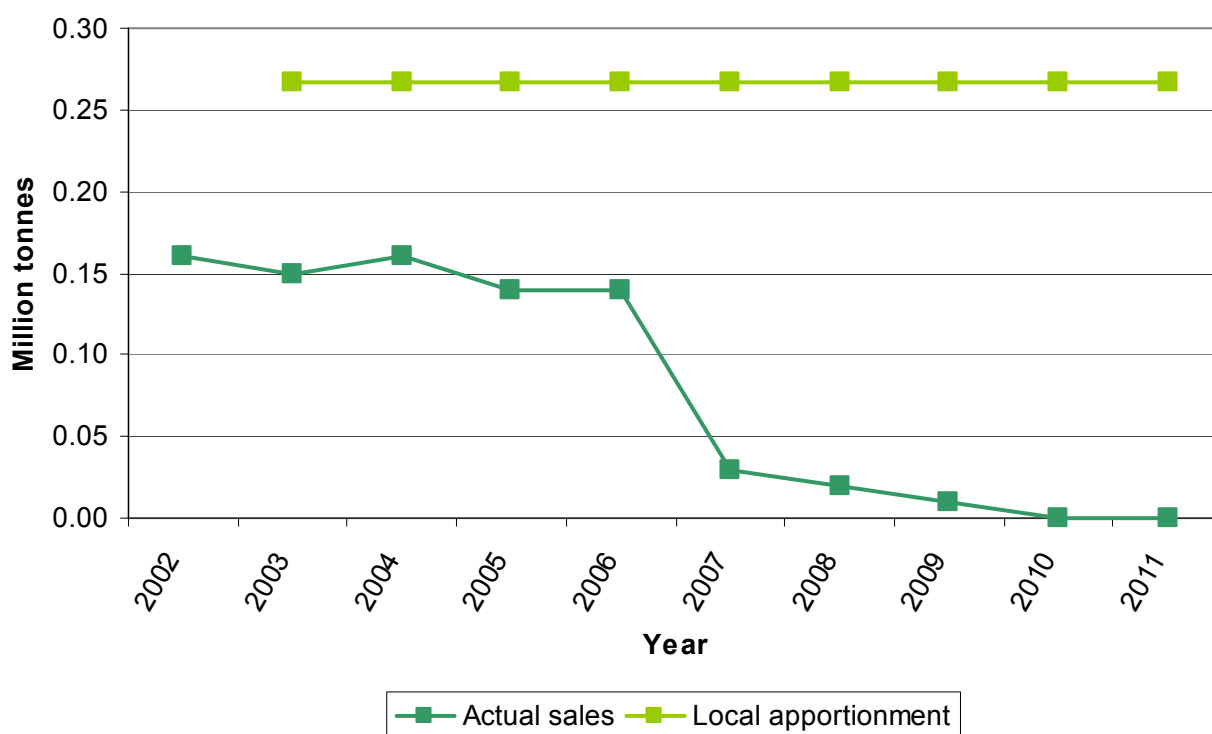




Aggregate Limestone

- 3.9 Limestone production in Nottinghamshire has been low by regional standards and over the last ten years has been well below the apportionment figure. Production increased between 2002 and 2007 before falling back to very low levels. In 2010 and 2011 zero output was recorded. Nottinghamshire only has one dedicated aggregate quarry (at Nether Langwith) and is only worked seasonally as it serves as a satellite to a much larger quarry in Derbyshire. This reflects the lack of limestone found in the county. Some aggregate is also produced from reject stone at a building stone quarry although this is small.

Fig 5 Recent aggregate limestone production, 2001-2011 (million tonnes)

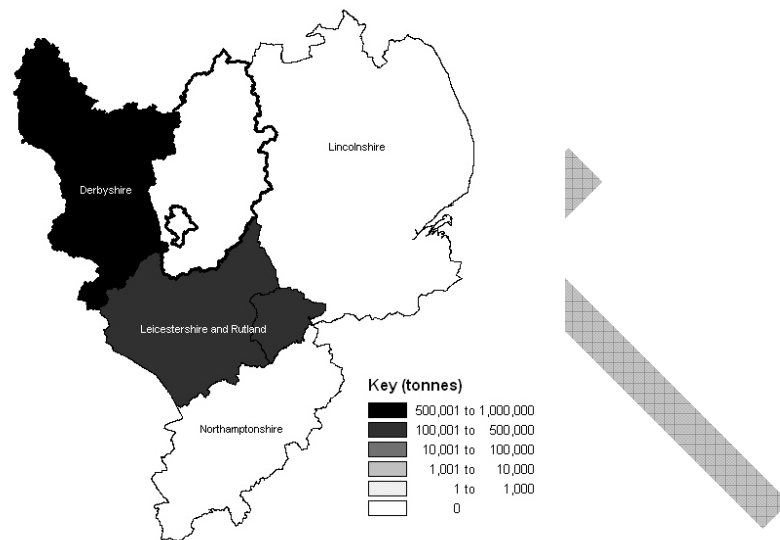


Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Production (million tonnes)	0.16	0.15	0.16	0.14	0.14	0.03	0.02	0.01	0.0	0.0

Imports and exports

- 3.10 Limestone resources in Nottinghamshire are relatively limited therefore the majority of limestone used is imported from Derbyshire and Leicestershire. No mineral was exported at the time of the last survey in 2009.

Fig 6 Aggregate limestone imports, 2009 (tonnes)



Alternative aggregates

- 3.11 Production figures for alternative aggregates are limited to national estimates. Since 1980 there has been a significant increase in annual alternative aggregate production in Great Britain, rising from 20 million tonnes to 71 million tonnes by 2007. It is estimated that alternative aggregates currently make up around 25% of aggregate use. This proportion is three times higher than the European average.
- 3.12 Current forecasts for the East Midlands suggest an annual production of 6.8 million tonnes per annum up to 2020.
- 3.13 Local data for alternative aggregates is very limited however the main types of alternative aggregates in Nottinghamshire are set out below:

Power station ash

- 3.14 Nottinghamshire has three power stations which produce furnace bottom ash and pulverised fuel ash. In total around 1.7 million tonnes of ash is produced each year. The main use is in the production of building blocks, cement or as a secondary aggregate.

Construction and demolition waste

- 3.15 National estimates suggest that around 80-90% of construction and demolition waste is re-used or recycled, a large proportion of which usually occurs on site within the same development using mobile processing plants.
- 3.16 There are no local figures but estimates suggest that around 1 million tonnes was produced in 2010/11. There is also a number of permanent recycling facilities that have a total capacity of around 430,000 tonnes per annum.

Used rail ballast crushing

- 3.17 Worn out rail ballast is taken by rail to recycling centres for crushing into aggregate. As this material comprises high quality limestone or granite it can be re-processed for high-grade uses. In Nottinghamshire there is a railway ballast recycling centre at Toton railway sidings in Stapleford with an annual output of between 100,000 -200,000 tonnes.
- 3.18 Further information is included in the background paper on alternative minerals and also in the Waste Core Strategy Documents.

4. Calculating future aggregate apportionments

- 4.1 The supply of land-won aggregate in England has traditionally been based on the Managed Aggregate Supply System (MASS) which assists Mineral Planning Authorities in planning for a steady and balanced supply of aggregates. The MASS is based on national and regional guidelines for aggregate provision published by the Government. The latest guidelines were published in 2009 and cover the period 2005 – 2020.
- 4.2 The regional apportionments, guidance and policies for aggregates were delivered through the East Midlands Regional Spatial Strategy based on advice provided by the East Midlands Aggregate Working Party – which comprises industry, MPA and Government representatives.
- 4.3 Since the 2009 apportionment figures were published, the planning system has gone through considerable change. Firstly the Localism Act, published in 2011 has all but abolished the Regional Spatial Strategy and secondly the National Planning Policy Framework (NPPF) published in March 2012, has significantly reduced the amount of national planning guidance.
- 4.4 Although the planning system has changed significantly, the main thrust for minerals planning has remained the same in that each Mineral Planning Authority (MPA) must plan to “provide a steady and adequate supply of minerals to meet demand over the plan period”.
- 4.5 Under the NPPF MPAs will now need to calculate their own apportionment figures using an average of 10 years sales data and other relevant information and should be set out in an annually produced Local Aggregates Assessment.
- 4.6 The NPPF states that authorities should still participate in an Aggregate Working Party (AWP) and take advice from the party when preparing their LAA, although at present it is unclear as to the role and scope of the East Midlands AWP now that the Regional Spatial Strategy is in the process of being revoked.
- 4.7 Calculating apportionments on the basis of average sales over a 10 year period takes into account periods of slow and high economic growth experienced through economic cycles and smoothes out any peaks and troughs. The figures for Nottinghamshire are set out in table 3

Table 3 NPPF 10 year averages for Nottinghamshire

Mineral	NPPF 10 year average (million tonnes)
Sand and gravel	2.58
Sherwood	0.46

Sandstone	
Limestone	0.08

- 4.8 The contribution secondary/ recycled aggregates make to future primary aggregate demand has traditionally been taken into account when the national and regional forecasts have been developed and therefore no specific figure needs to be taken off any apportionment to account for this.

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5. Local approach to apportionment

- 5.1 The NPPF states that as well as using the 10 year average sales figures, MPAs should take account of any local considerations when developing their apportionments. This could for example include significant house or road building, new infrastructure for major projects (such as the recent Olympics in London) or issues such as the exploitation of major new resources or resource depletion affecting future output. Once any issues have been identified they can be factored into the apportionment figures where necessary.
- 5.2 By far the greatest planning issue for Nottinghamshire is the long term provision of sand and gravel over the plan period and is set out below. Sherwood Sandstone and Limestone present fewer issues due to the much lower output and are considered later.

Sand and gravel

- 5.3 The new plan provision for sand and gravel should be based on the NPPF apportionment, however two previous methodologies exist and these can be compared with the NPPF figure to present a context:
1. The current apportionment of 2.65 million tonnes set by the Regional Spatial Strategy and included in current minerals plan.
 2. The 2009 draft figure of 3.25 million tonnes. This figure was agreed through the Regional Aggregate Working Party and was intended to be included in the revised Regional Spatial Strategy (RSS). However the revised RSS never progressed so this figure has not been tested and included in any plan. It has since been replaced by the NPPF methodology.

Table 4: Comparison of apportionments

	NPPF 10 year average	Current Minerals Local Plan apportionment	Draft 2009 apportionment
Sand and gravel (million tonnes)	2.58	2.65	3.25

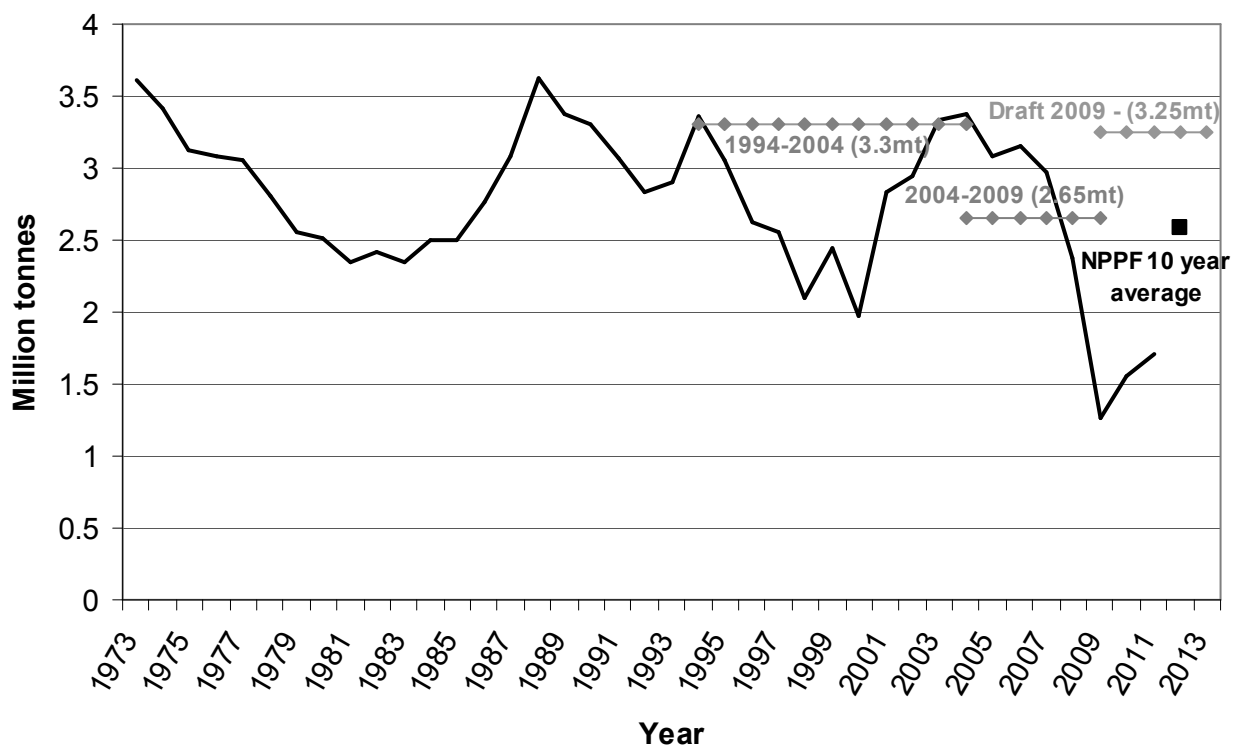
How appropriate is using the NPPF methodology to determine the amount of sand and gravel to be provided over the plan period?

- 5.4 As can be seen in table 4 the NPPF figure is slightly lower than the current apportionment but approximately 25% below the draft 2009 apportionment figure.

5.5 In deciding whether the NPPF figure is appropriate there are several factors that should be taken into account.

1. The NPPF figure includes a period of high output up to 2008 as well as the severe recession since, ensuring a balanced approach to future provision.
2. The 2009 apportionment does not reflect the recent economic downturn, and is higher than the 10 year rolling sales average over the last 30 years.
3. The NPPF figure is little different from the current apportionment, which accounted for a period of lower production (although not as low as the last three years).
4. Production would need to increase significantly over the next 10 years to produce an average figure so far above the NPPF apportionment figure that it could be considered 'out of date'

Fig 7 Comparison of past alluvial sand and gravel production with apportionments, 1973-2013 (million tonnes)



N.B Apportionment data is unavailable pre-1994 as a different system was in place before this date

5.6 On the face of it the NPPF figure therefore tries to address both the periods of growth and recession and produce a stable and robust figure for future planning.

Other factors to take account of over the plan period

- 5.7 In order to understand if the proposed NPPF figure is the most suitable approach for the Minerals Local Plan to adopt, a broad range of issues need to be assessed which may influence future local demand. This include population forecasts, house building projections, new road construction or other large building projects.

Population forecasts

- 5.8 The population of Nottinghamshire (the Geographic County, including Nottingham City) is expected to grow over the plan period by almost 140,000 to about 1.23m; a rate of around 13%. Theoretically it is likely that this rate of growth can easily be accommodated in the apportionment figure as it takes into account the large export market for Nottinghamshire aggregates. However it is difficult to make a direct comparison between the figures.

Future house building

- 5.9 Future house building over the plan period will be a significant element of the use of the County's aggregates. Planned levels are high in relation to current and recent past house-building. Consequently the steady growth in planned provision over the plan period, along with the current economic circumstances would suggest a slow and steady increase from current levels towards the planned average figures by the end of the period.
- 5.10 Planned house-building for the County (including Nottinghamshire) is 86,500. This is an annual rate of 4,325, somewhat higher than that achieved over the 10 years to 2010 (3,600).

Major transport projects

1) A453

- 5.11 Work on upgrading the A453 linking Nottingham to Junction 24 of the M1 to a dual carriageway is planned to start in 2014. Given the location of the road it is likely that the scheme will use aggregate mineral from Derbyshire and Leicestershire as well as Nottinghamshire. (Crushed rock in particular is most likely to come from Derbyshire and Leicestershire as there are limited reserves in Nottinghamshire.) The actual source of the minerals will be a commercial decision by the contractors involved in the scheme.

2) Nottingham Express Transit (NET) phase two

- 5.12 Construction is currently underway on NET phase two to Clifton and Beeston. The construction phase is likely to bring about a small, short term increase in

demand for aggregates however construction is expected to be completed by the end of 2014.

Are there adequate reserves to meet demand?

- 5.13 A call for sites has been undertaken which has resulted in sites containing approximately 79 million tonnes of sand and gravel being put forward. The sites put forward have yet to be fully assessed however it is clear that in theory there are adequate reserves to meet the apportionments.
- 5.14 Using the NPPF figure would mean that any shortfall over the plan period would drop to 32 million tonnes from 46 million tonnes for the current apportionment (see Table 5). Thus there would be a greater opportunity for the best and most suitable sites to be selected to best meet demand over the plan period. The specific background papers identify all those sites that have been put forward.

Table 5 Impact of different apportionments on overall alluvial sand and gravel supply (million tonnes)

	Proposed Annual provision	Total provision 2011 - 2030 inclusive	Permitted reserves 21 Dec 2011	Shortfall (surplus) As at 31 December 2030
NPPF	2.58	51.6	19.3	32.3
Adopted figure	2.65	53.0		33.7
Draft RSS figure	3.25	65.0		45.7

Conclusion for Sand and Gravel

- 5.15 Based on current evidence the NPPF 10 year average sales methodology appears to produce a robust set of apportionment figures with no need for any local adjustment.

Sherwood Sandstone

- 5.16 Sherwood Sandstone production is much lower than sand and gravel and historically has been in steady decline. The landbank is also well above the minimum amount required which means that the shortfall over the plan period is likely to be relatively small raising few issues. As with sand and gravel there are two previous apportionment figures that can be compared against the NPPF figure which are included in table 6.
- 5.17 As can be seen in table 7 the NPPF 10 year average figure is significantly below the current and draft 2009 apportionment levels. Compared to the draft RSS figure the projected shortfall would be reduced from 4.56 million tonnes to 2.36

million tonnes. The lower apportionment figure is a result of the declining output over the last 10 years.

Table 7 Impact of different apportionments on overall Sherwood Sandstone supply (million tonnes)

	Proposed Annual provision	Total provision 2011 - 2030 inclusive	Permitted reserves 21 Dec 2011	Shortfall (surplus) As at 31 December 2030
NPPF figure	0.46	9.2		2.36
Adopted figure	0.7	14	6.84	7.16
Draft RSS figure	0.57	11.4		4.56

- 5.18 Other than those highlighted under the sand and gravel section there are currently no further factors that are likely to see production of Sherwood Sandstone increase significantly over the plan period.
- 5.19 In terms of reserves to meet demand a call for sites has been undertaken which has identified x million tonnes. The sites put forward have yet to be fully assessed however it is clear that with such a wealth of capacity in viable sites there are likely to be adequate reserves to meet the apportionments.

Conclusion on Sherwood Sandstone

- 5.20 Based on current evidence the NPPF 10 year average sales methodology appears to produce a robust apportionment figure.



- 5.21 Limestone is only worked from one quarry in Nottinghamshire and production has been very low partly due to the seasonal working of the site and abundance of limestone worked in Derbyshire and Leicestershire. There are two previous apportionment figures for limestone that can be compared to the NPPF figure which are included in table 8.
- 5.22 As can be seen in table 9 the NPPF figure is lower than either the current or draft RSS figure; this reflects the overall decline in production in recent years. The table shows that only the current apportionment would indicate any shortfall in reserves.

Table 9 Impact of different apportionments on overall limestone supply

	Proposed Annual	Total provision	Permitted reserves 21	Shortfall (surplus) As at
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	provision	2011 - 2030 inclusive	Dec 2010	31 December 2030
NPPF figure	0.08	1.6		(1.75)
Adopted figure	0.26	5.2	3.35	1.85
Draft RSS figure	0.10	2		(1.35)

- 5.23 As part of the call for sites, a potential quarry has been put forward at Steetley near Worksop which would directly supply a recently built pre-cast concrete works. This would be in addition to the existing site at Nether Langwith. If the proposed quarry was permitted, and the projected output from the site was achieved it would increase to levels not seen since 1993.

Conclusion

- 5.24 Whilst the potential site at Steetley needs to be taken into account there is no guarantee that the site will be permitted or that the expected output is met. Therefore the NPPF sales methodology appears to produce a robust apportionment figure

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