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# Chapter 8

# Limestone

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*Exposed Limestone Face at Nether Langwith Quarry*

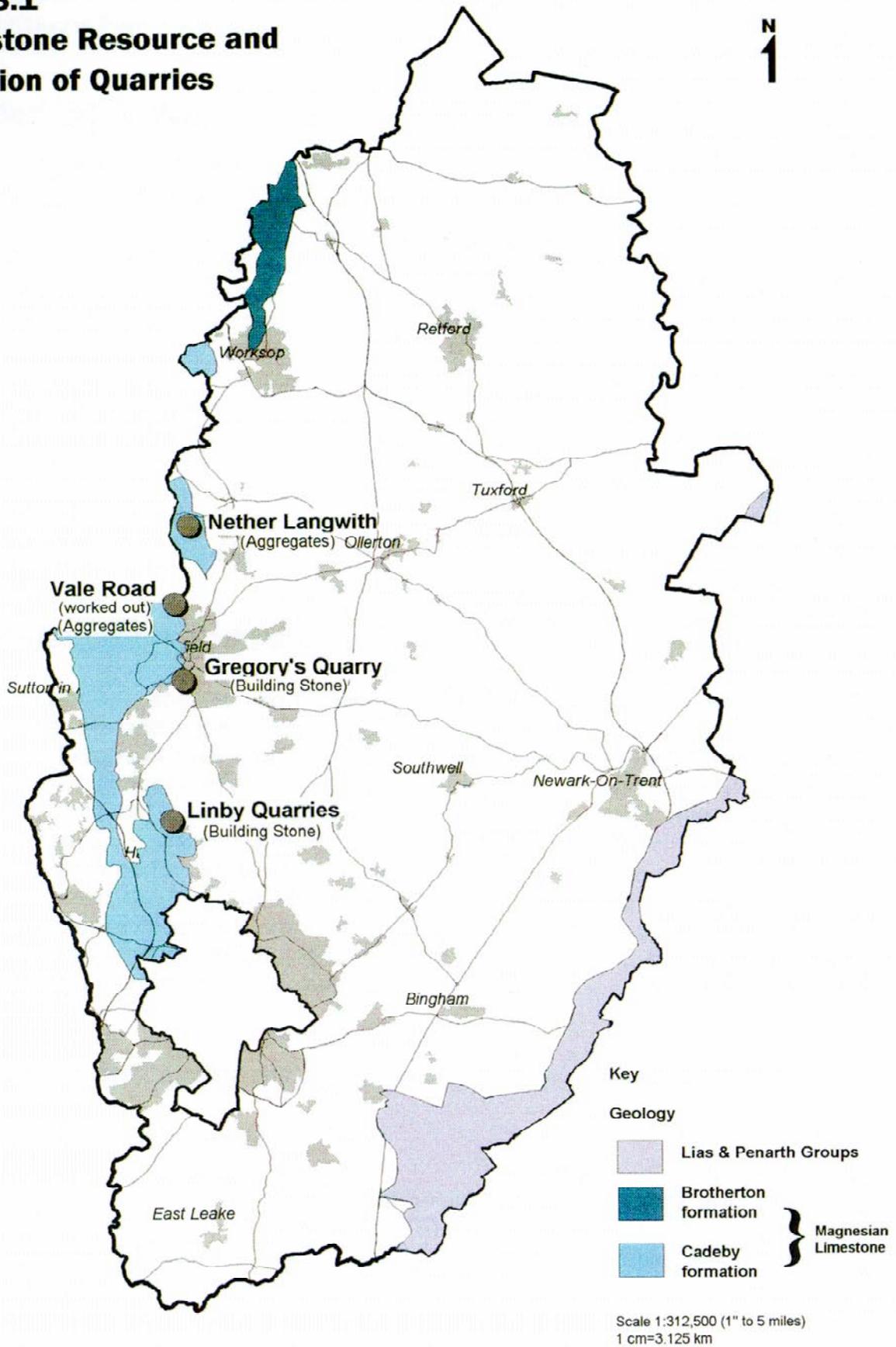
## Introduction

- 8.1 Over 100 million tonnes of limestone are extracted in Great Britain every year making it the largest mineral extractive industry in the Country. About three-quarters is used as an aggregate, the remainder being used in the cement, chemical, glass, iron and steel industries, and agriculture. Limestone is also an important source of building and ornamental stone.
- 8.2 Although the East Midlands is one of the most important limestone producing areas, accounting for about a quarter of national production, Nottinghamshire's resources are relatively limited. Limestone is the only 'hard rock' of any economic interest to be found in the County, and by regional standards output is very low.

## Geology

- 8.3 All recent limestone extraction has been derived from the Permian Lower Magnesian Limestone which is so named because the rock contains the magnesium rich mineral 'dolomite'. Prior to the mid 1970s, the Jurassic limestones of the Vale of Belvoir were also exploited, principally for cement manufacture at Barnstone. In the more distant past these limestones were also used as a poor quality, local building material. There seems little likelihood of any further exploitation of this resource, and the Jurassic limestones will not be considered further in this Plan.
- 8.4 Within Nottinghamshire the main Magnesian Limestone outcrop occurs between Mansfield Woodhouse and Bulwell. Further north the outcrop widens but falls largely within Derbyshire and South Yorkshire, (see Plan 8.1). The limestones have created some of the most dramatic landscape features in the County, where river action has produced a number of steep valleys and gorges, for example, at Creswell Crags and Pleasley Vale.
- 8.5 In Mansfield, the limestone is generally coarse grained and suitable as an aggregate, in particular as a granular sub-base in road construction. This relatively low grade end-use reflects its quality which falls between the very high grade Carboniferous limestones of Derbyshire, and the lower grade Jurassic limestones of Leicestershire and Lincolnshire. In the past limestone from the Mansfield area was widely used as a building material both locally and nationally. Notable examples of its use include Southwell Minster, Ely Cathedral and the lower courses of the Houses of Parliament.
- 8.6 In the Linby and Bulwell area the limestone takes on a very different character and is known locally as 'Bulwell Stone'. Here the rock is very impure, coarse grained and flaggy. It is too soft for most aggregate purposes, but serves as a good ornamental building and rockery stone. It was used extensively in the past as a local building stone, and many walls in the Nottingham area were built of this material.

# Plan 8.1 Limestone Resource and Location of Quarries





- 8.7 It should be noted that Magnesian Limestone is not chemically suited for use in Flue Gas Desulphurisation Limestone/ Gypsum processing plants (see Chapter 10). These plants are used at power stations to remove sulphur emissions from the burning of coal.

## **Method of Working and Environmental Impact**

- 8.8 Limestone is normally extracted by blasting, although where building and ornamental stone is sought, low grade explosives are used to dislodge rather than shatter the rock. Aggregate mineral is then crushed and screened to the required grades. Washing is not involved, so avoiding the need for settling ponds. Building and ornamental stone is dressed by hand or machinery, which may be done in on-site workshops depending on the range of products.
- 8.9 The Magnesian Limestone is classified by the Environment Agency as a major aquifer and workings can breach the water table. This can have important implications for reclamation, as considered below. The Magnesian Limestone frequently produces good soils, and most agricultural land above this resource falls within the best and most versatile category (see Chapter 3, paras 3.60-62 for details). It also supports some of the few calcareous grasslands in the County.

## **Reclamation and After-use**

- 8.10 Most ancient shallow workings have been assimilated back into the surrounding landscape. In urban areas, quarry floors have often been built over, whereas in rural settings, natural regeneration may have occurred. A notable example of the latter is at Quarry Banks, Linby, where a whole complex of old quarries has developed into a woodland that has been accorded SSSI status. Although some old quarries have in the past been filled with imported waste, its aquifer status means that the range of wastes which could now be imported is very restricted, regardless of any other environmental considerations. A former large aggregate quarry at Vale Road, Mansfield Woodhouse is being partly filled with inert waste, but a new quarry at Nether Langwith will be reclaimed at a lower level.

## **Supply and Demand**

### **Sources of Information**

- 8.11 The surveys carried out by the East Midlands Working Party also include limestone (see Chapter 6, Para 6.16). Published data for limestone production in Nottinghamshire has generally been restricted because aggregate sales figures have largely related to one site. Although disclosures have been possible for certain years, confidentiality restrictions have meant that all data for Nottinghamshire has generally been amalgamated with Leicestershire.

## **Recent Production History and Trends**

- 8.12 Derbyshire and the Peak District National Park dominate limestone production in the East Midlands, accounting for 80% of the region's output of around 25 million tonnes per annum. This is for both aggregate and non-aggregate limestone.
- 8.13 In comparison limestone production in Nottinghamshire has been very small scale and for most of the 1990's was negligible, following the closure of the County's only aggregate limestone quarry at Vale Road, Mansfield Woodhouse. However, aggregate limestone extraction resumed in 2001 when a new quarry opened at Nether Langwith. This quarry, which contains 4 million tonnes of reserves, is expected to provide 250,000 tonnes per annum until approximately 2017.

## **Markets**

- 8.14 There is no published information analysing the distribution of sales of limestone aggregates from Nottinghamshire. The Nether Langwith Quarry is, however, the southernmost large Magnesian Limestone quarry in England and it is therefore quite probable that in addition to local markets around Mansfield it will supply markets to the east and southwards as far as Lincolnshire and East Anglia, where only low grade aggregate Jurassic limestones occur.
- 8.15 Current sales of building and ornamental stone are probably mostly local, although the relatively high value of this end-use does mean that transport costs are much less critical.

## **Aggregate Limestone - Future Provision**

- 8.16 With most limestone being used as an aggregate, the relevant guidance for assessing future demand is contained in MPG 6. The demand forecasts and other criteria are broadly similar to those that apply for sand and gravel, as described in Chapter 6. The main distinction is that for limestone, landbanks in excess of 7 years may be appropriate. As set out in Chapter 6 (see paras 6.22 – 6.27) MPG 6 is out of date and the Government has issued revised guidelines on future provision for the 16 year period 2001-2016.
- 8.17 The previous guidelines required the East Midlands to provide 33.7 million tonnes of crushed rock (i.e. limestone, granite and sandstone) per annum between 1992 and 2006. Nottinghamshire's share was set at just 375,000 tonnes per annum, less than 2% of the regional total. Although this figure was arithmetically correct, it did not provide a meaningful interpretation of the County's future share of aggregate production, which, as noted above, had all but ceased by the early 1990's. In the previous Plan it was therefore interpreted as requiring the County to provide for one new limestone quarry, a requirement that was satisfied when a new quarry at Nether Langwith opened in 2001.

- 8.18 The new guidelines require the East Midlands to provide 32.7 million tonnes per annum, slightly less than the previous requirement. As Nottinghamshire has just one quarry, which was considered adequate for meeting the County's previous share, the only realistic option is to retain this approach for the new guidelines period. As noted in Paragraph 8.13, this gives a figure of 250,000 tonnes per annum. In February 2004, the East Midlands Regional Assembly approved the local apportionment based on this approach. The figure for Nottinghamshire was set at 263,000 tonnes per annum, which is very close to the planned output from Nether Langwith Quarry. As permitted reserves are expected to last until 2017 no provision needs to be made for the current Plan period.
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#### **POLICY M8.1 AGGREGATE LIMESTONE PROVISION**

**The County Council will endeavour to maintain an appropriate landbank of permitted reserves of limestone and an adequate production capacity in order that Nottinghamshire will meet its reasonable share of regional aggregate provision throughout the Plan period. No further proposals for the extraction of limestone for aggregate purposes will be granted unless it is demonstrated that an adequate production capacity and landbank will not be maintained.**

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### **Non-aggregate Limestone – Future Provision**

- 8.19 A few small quarries at Linby and Mansfield have traditionally met demand for local building and ornamental stone. No comprehensive information on reserve levels is available, but existing workings are likely to be able to supply stone for some years to come. Although production of building and ornamental stone is very small scale, it has a very important role to play in helping to preserve and enhance the distinctiveness of local historic towns and villages. Local stone is needed to allow existing historic buildings to be properly repaired and it also means that new buildings in historic areas can blend in more effectively. Replacement sites may therefore be justified to maintain current production levels, subject to the provisions of Chapters 3 & 4.
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#### **POLICY M8.2 NON-AGGREGATE LIMESTONE PROVISION**

**Proposals to extract Limestone primarily for building and ornamental purposes will be permitted where it is demonstrated they:**

- (a) are needed to maintain traditional, small scale levels of production;**
  - (b) the submitted scheme of working and reclamation is environmentally acceptable.**
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