

Joint Local Aggregates Assessment for County Durham, Northumberland and Tyne and Wear



January 2017

Prepared jointly by

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Executive summary of key statistics

This Local Aggregate Assessment (LAA) has been prepared jointly by the eight Mineral Planning Authorities (MPAs) in County Durham, Northumberland and Tyne and Wear⁽ⁱ⁾. This version represents the annual update to the Joint LAA and it has been updated using sales and permitted reserves information from 2015.

The main purpose of this Joint LAA is to provide the evidence base on which to base decisions on the scale, and geographical distribution of future aggregates production. This assessment should therefore be seen as a technical evidence base document rather than a policy document.

Key Statistics - Joint LAA area

Sand and gravel

- Land won sales in 2015 = 916,686 tonnes.
- Marine sales in 2015 = 345,000 tonnes.
- Permitted reserves (land won reserves) at 31 December 2015 = 22.29 million tonnes.

Crushed rock

- Sales in 2015 = 4.46 million tonnes.
- Permitted reserves at 31 December 2015 = 219.76 million tonnes.

Key Statistics - County Durham

Sand and gravel

- Sales in 2015 = 256,489 tonnes.
- Ten year sales average (2006 to 2015) = 230,400 tonnes.
- Three year sales average (2013 to 2015) = 250,000 tonnes.
- Permitted reserves at 31 December 2015 = 8,353,960 tonnes.
- Landbank = 30 years (based on annual demand forecast).
- Annual demand forecast = 281,000 tonnes.
- Demand forecast (2016 to 2031) = 4,489,000 tonnes.
- Balance between supply and demand (2016 to 2031) = +3,865,000 tonnes.
- Demand forecast (2016 to 2033) = 5,050,000
- Balance between supply and demand (2016 to 2033) = +3,304,000

Conclusions on supply - County Durham makes an appropriate contribution to the steady and adequate supply of land-won sand and gravel in North East England. Permitted reserves of sand and gravel are just below a ten year high and are sufficient to maintain supply too beyond the end of County Durham's forthcoming Plan period which is now 2033. Permitted reserves are sufficient to maintain supply in the long term to approximately 2045. On this basis it is considered that no additional provision for sand and gravel supply from County Durham is required in the short to medium-term. However, it is recommended that future development plan policies consider incorporating a degree of flexibility to maintain continuity of supply from a number of sites and

ⁱ The eight MPAs that have jointly prepared this Local Aggregates Assessment are: Durham County Council, Gateshead Council, Newcastle City Council, North Tyneside Council, Northumberland County Council, Northumberland National Park Authority, South Tyneside Borough Council and Sunderland City Council.

in order to maintain an appropriate landbank over the long-term. This could be possibly achieved by seeking to allocating land for further long term working in the Council's forthcoming Minerals and Waste Policies and Allocations Document.

Crushed rock

- Sales in 2015 = 2,770,000 tonnes.
- Ten year sales average (2006 to 2015) = 2,527,600 tonnes.
- Three year sales average (2013 to 2015) = 2,556,667 tonnes.
- Permitted reserves at 31 December 2015 = 138,326,000 tonnes.
- Landbank = 45 years (based on annual demand forecast).
- Annual demand forecast = 3,078,000 tonnes.
- Demand forecast (2016 to 2031) = 49,243,000 tonnes.
- Balance between supply and demand (2016 to 2031) = 89,083,000 tonnes.
- Demand forecast (2016 to 2033) = 55,398,000.
- Balance between supply and demand (2016 to 2033) = +82,928,000

Conclusions on supply - County Durham makes a significant contribution to the steady and adequate supply of crushed rock in the North East England. Permitted reserves of crushed rock are significant and are generally well related to the main market areas in North East England. However, it is recognised that a significant proportion of the County's crushed rock permitted reserves are magnesian limestone and are concentrated within a limited number of sites. It is also recognised that there is a potential shortfall in permitted reserves of carboniferous limestone and that further provision is necessary in order to maintain the level of supply of this particular resource to the end of County Durham's future Plan period which is now 2033.

Key Statistics - Northumberland

Sand and gravel

- Sales in 2015 = 420,197 tonnes.
- Ten year sales average (2006 to 2015) = 432,000 tonnes.
- Three year sales average (2013 to 2015) = 366,667 tonnes.
- Permitted reserves at 31 December 2015 = 7,337,000 tonnes.
- Landbank = 13.9 years (based on annual demand forecast).
- Annual demand forecast = 526,000 tonnes.
- Demand forecast (2016 to 2031) = 8,416,000 tonnes.
- Balance between supply and demand (2016 to 2031) = -1,079,000 tonnes.

Conclusions on supply - Northumberland makes a significant contribution to the supply of land-won sand and gravel in North East England. Permitted reserves are available to maintain supply in the short-term but there is likely to be a shortfall in the medium to long-term and a number of the existing quarries have end dates prior to 2030. Consideration therefore needs to be given to identifying and releasing additional reserves to maintain supply over the long-term where environmentally acceptable.

Crushed rock

- Sales in 2015 = 1,473,000 tonnes.
- Ten year sales average (2006 to 2015) = 1,364,000 tonnes.
- Three year sales average (2013 to 2015) = 1,234,667 tonnes.

- Permitted reserves at 31 December 2015 = 83,990,752 tonnes.
- Landbank years = 50.5 years (based on annual demand forecast).
- Annual demand forecast = 1,661,000 tonnes.
- Demand forecast (2016 to 2031) = 26,574,000 tonnes.
- Balance between supply and demand (2016 to 2031) = +57,417,000 tonnes.

Conclusions on supply - Northumberland has substantial permitted reserves of crushed rock but it is recognised that significant reserves are contained within a single quarry in the south and west of Northumberland, five of the current quarries have end dates before 2030 and permitted reserves are likely to be exhausted within a number of the quarries by 2030. In addition, it is recognised Harden Quarry in the Northumberland National Park produces a crushed rock aggregate that is particularly valued for its red colour. Consideration, therefore, needs to be given to maintaining productive capacity given these issues.

Key Statistics - Tyne and Wear

Sand and gravel

- Sales in 2015 = 240,000 tonnes.
- Ten year sales average (2006 to 2015) = 210,800 tonnes.
- Three year sales average (2013 to 2015) = 218,000 tonnes.
- Permitted reserves at 31 December 2015 = 6,600,000 tonnes.
- Landbank = 26 years (based on annual demand forecast).
- Annual demand forecast = 257,000 tonnes.
- Demand forecast (2016 to 2031) = 4,107,000 tonnes.
- Balance between supply and demand (2016 to 2031) = +2,493,000 tonnes.

Conclusions on supply - Following the issue of planning permission to extend Eppleton Quarry in 2015 this extension will make a contribution to meeting the land won supply needs of Tyne and Wear to 2030 and will help Tyne and Wear maintain a landbank in excess of seven years to 2030 and beyond. However, as there is now only one site supplying sand in Tyne and Wear it is considered that the reliance on supply from one quarry will limit future supply. Consideration should be given to the identifying and releasing additional areas where environmentally acceptable to maintain an appropriate landbank and supply capacity in the long-term.

Crushed rock

- Sales in 2015 = 225,000 tonnes.
- Ten year sales average (2006 to 2015) = 275,000 tonnes.
- Three year sales average (2013 to 2015) = 256,667 tonnes.
- Permitted reserves at 31 December 2015 = 6,700,000 tonnes.
- Landbank = 20 years (based on annual demand forecast).
- Annual demand forecast = 335,000 tonnes.
- Demand forecast (2016 to 2031) = 5,358,000 tonnes.
- Balance between supply and demand (2016 to 2031) = +1,342,000 tonnes.

Conclusions on supply - Permitted reserves in Tyne and Wear are contained within two quarries. Following the issue of planning permission to extend Eppleton Quarry in 2015 this extension will make a contribution to meeting the land won supply needs of Tyne and Wear to 2030 and will help Tyne and Wear maintain a crushed rock landbank in excess of ten years to at least 2025.

However, it is estimated that reserves at Marsden Quarry in South Tyneside could be exhausted by around 2020. Accordingly, consideration should be given to identifying and releasing additional reserves where environmentally acceptable to maintain supply capacity.

1 Introduction

1.1 To plan for a steady and adequate supply of aggregates the National Planning Policy Framework (NPPF) (March 2012) states, amongst other things, that mineral planning authorities should prepare a Local Aggregate Assessment (LAA). The LAA provides a forecast of demand for aggregates, an analysis of supply options and assesses the balance between supply and demand. It therefore provides a key evidence base on which to base decisions on the scale, and geographical distribution of future aggregates supply in minerals plans.

1.2 This LAA covers County Durham, Northumberland and Tyne and Wear has been jointly prepared by the following eight minerals planning authorities as part of their ongoing commitment to work collaboratively on cross boundary minerals planning issues:

- Durham County Council;
- Gateshead Council;
- Newcastle City Council;
- North Tyneside Council;
- Northumberland County Council;
- Northumberland National Park Authority;
- South Tyneside Council; and
- Sunderland City Council.

1.3 **Chapter 2** of this document provides further background information on LAAs, the Managed Aggregates Supply System and how this LAA was prepared. **Chapter 3** provides details of the aggregate resources in the joint LAA area, existing extraction sites and infrastructure for the supply and transportation of aggregates, including marine aggregates, recycled aggregates and secondary aggregates and **Chapter 4** provides information of aggregate sales and reserves with planning permission. **Chapter 5** provides a sets out a forecast of demand based on the ten year sales average and other relevant local information. **Chapter 6** assesses supply options, including marine derived materials, recycled and secondary materials and imports and **Chapter 7** sets out the key conclusions and recommendations of this LAA.

2 Background/context

2.1 This section provides background information on the purpose of the LAA, the Managed Aggregates Supply System and how the document has been prepared.

What are aggregates?

2.2 Aggregates are defined as being hard, granular materials which are suitable for use either on their own or with the addition of cement, lime or a bituminous binder in construction. The most important applications for aggregates include concrete, mortar, roadstone, asphalt, railway ballast, drainage courses and bulk fill.

2.3 A distinction is often made between primary aggregates and aggregates from alternative sources (i.e. secondary aggregates and recycled aggregates):

- **Primary aggregates** are produced from naturally occurring mineral deposits and are also extracted specifically for use as aggregates and are used for the first time. Most primary aggregates are produced from hard, strong rock formations by crushing to produce crushed rock aggregate or from naturally occurring particulate deposits such as sand and gravel.
- **Secondary aggregates** are usually defined as aggregates obtained as a by-product of other mining or quarrying operations or aggregates obtained as a by-product of other industrial processes.
- **Recycled aggregates** arise from various sources including the demolition or construction of buildings and structures or from asphalt planings as a result of work to resurface roads and from railway track ballast. Recycling involves the processing of the waste material so that it can be reused.

What is a Local Aggregate Assessment?

2.4 The principal purpose of a LAA is to set out the current and future aggregate supply situation in a particular area with respect to all aspects of aggregates supply including:

- land won resources including landbanks and allocations;
- secondary aggregates, whose sources come from industrial wastes such as glass, ash, railway ballast, fine ceramic waste and scrap tyres; and industrial and minerals by-products, notably waste from china clay, coal and slate extraction and spent foundry sand;
- marine sources, from areas licensed by the Marine Management Organisation (MMO) for marine sand and gravel dredging. Over the next few years, the MMO will prepare Marine Plans around England to guide the licensing process; and
- imports into, and exports out of, the MPA area. The MPA must capture the amount of aggregate that it is importing and exporting as part of its Assessment.

2.5 In particular a LAA is expected to include:

- a forecast of the demand for aggregates based on the average of 10 years sales data and other relevant local information, including for example, the National Infrastructure Plan. MPAs should also look at the average 3 year sales in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply;
- an analysis of all aggregate supply options, as indicated by landbanks, development plan allocations and capacity data e.g. marine licences for marine aggregate extraction and the potential throughput's from wharves. This analysis should be informed by planning information, the aggregate industry and other bodies such as Local Enterprise Partnerships; and

- an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed.

2.6 It is intended that LAA will provide the evidence base on which decisions could be taken on the scale, and geographical distribution of future aggregates production.

Joint approach to the Local Aggregate Assessment

2.7 The NPPF advises that an annual LAA can be prepared by either individual or jointly by agreement with another or other mineral planning authorities. This LAA has been jointly prepared by Durham County Council, Northumberland County Council, Northumberland National Park Authority and the Tyne and Wear authorities of Gateshead Council, Newcastle City Council, North Tyneside Council, South Tyneside Council and Sunderland City Council. The area covered is consistent with that of the North East Combined Authority.

Map 1 Joint Local Aggregate Assessment Area - County Durham, Northumberland and Tyne and Wear



2.8 The mineral planning authorities have sought to work together in the preparation of this joint LAA as part of their ongoing commitment to work collaboratively on cross boundary minerals planning issues and in order to satisfy the 'Duty to Cooperate'⁽ⁱⁱ⁾ as set out in Section 110 of the Localism Act.

ii Section 110 of the Localism Act sets out a new 'duty to co-operate'. This applies to all local planning authorities, national park authorities and county councils in England – and to a number of other public bodies. The new duty: relates to sustainable development or use of land that would have a significant impact on at least two local planning areas or on a planning matter that falls within the remit of a county council; requires that councils set out planning policies to address such issues; requires that councils and public bodies 'engage constructively, actively and on an ongoing basis' to develop strategic policies; and requires councils to consider joint approaches to plan making.

Managed Aggregates Supply System

2.9 The Managed Aggregates Supply System (MASS) exists to ensure a steady and adequate supply of aggregate minerals is available to meet the needs of the construction industry. It seeks to ensure that the geographical imbalances between supply (i.e. the locations where the mineral resources are found and can be extracted) and demand (i.e. the locations where the mineral resources are required) are appropriately addressed at the local level. MASS has operated for over 35 years and involved the Government providing guidelines for the provision of aggregates at both a national and regional level, based on forecasts of demand, and then apportioning these guidelines to individual MPAs based on the advice of the AWP.

2.10 In line with the Government's principles of a more local approach to planning matters, the approach to the MASS has been amended. These reforms maintain the main principles of MASS but each MPA is now required to prepare an LAA. The LAA is required to assess the demand for aggregates and the supply of aggregates to determine the appropriate level of aggregate extraction in their area.

2.11 National and sub-national guidelines will continue to be published by Government. These will provide an indication of the total amount of aggregate the MPAs within each AWP cluster should collectively seek to provide as well as providing the MPAs with some context and understanding of the overall demand. The guidelines are based on forecasts of demand for aggregates. The most recent 'National and Regional Guidelines for the provision of aggregate minerals in England' were published in June 2009 and cover the 16 year period from 2005 to 2020 (see Table 2.1).

Table 2.1 National and sub-national guidelines for aggregates provision in England, 2005 to 2020 (all figures are million tonnes)

	Guidelines for land-won production		Assumptions		
	Sand and gravel	Crushed rock	Marine sand and gravel	Alternative materials	Net imports to England
South East England	195	25	121	130	31
London	18	0	72	95	12
East of England	236	8	14	117	7
East Midlands	174	500	0	110	0
West Midlands	165	82	0	100	23
South West England	85	412	12	142	5
North West England	52	154	15	117	55
Yorkshire Humber	78	212	5	133	3
North East England	24	99	20	50	0
England	1,028	1,492	259	993	136

Source: DCLG (2009). National and regional guidelines for aggregates provision in England 2005-2020. Department for Communities and Local Government, June 2009. Available at:

<https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020>.

Timescale for the Local Aggregate Assessment

2.12 Given the long term nature of aggregate mineral working and the need to ensure that a steady and adequate supply of aggregates is maintained in the long term, this LAA looks forward sixteen years to the end of 2031⁽ⁱⁱⁱ⁾ thereby setting the basis for aggregates supply for the preparation of all Local Plans within the North East by the mineral planning authorities involved in this LAA.

Overview of the data used

2.13 In accordance with the guidance on the preparation of LAAs, a wide range of data has been used to inform the preparation of this report, including:

- The Annual Minerals Raised Inquiry (AMRI) Survey, which sets out sales for each mineral type in Great Britain^(iv);
- The four yearly Aggregate Minerals Survey for England and Wales on sales, movement, consumption and permitted reserves of aggregate minerals^(v);
- North East Aggregates Working Party Annual Aggregates Monitoring Reports^(vi);
- Report for the North East Aggregates Working Party Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report (Entec, May 2010)^(vii);
- Relevant information from planning application documentation from the Joint Local Aggregate Assessment Authorities;
- Information on permitted reserves and sales provided to the MPAs in response to conditions attached to planning permissions and non-confidential survey information returned by operators to individual MPAs (where available) or where such information is not available best estimates have been used;
- Data and information on mineral resources held by the British Geological Survey and the Crown Estate; and
- Environment Agency and other local data on the arisings of and recovery/disposal routes of construction and demolition waste, including inert waste to restore mineral sites.

iii In instances where Mineral Planning Authorities Plan period does not align with the sixteen year period of this Joint LAA it is recommended that within their Local Plans MPAs roll forward forecasts to align with their individual Plan periods. Figures for County Durham are presented for both the sixteen year period to the end of 2031 and the eighteen year period to the end of 2033 to align with the County Durham Plan period.

iv The Annual Minerals Raised Inquiry Surveys can be downloaded here: <https://www.gov.uk/government/collections/minerals>

v The Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales can be downloaded here: <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2014>

vi North East Aggregates Working Party Annual Monitoring Reports can be downloaded here: <http://www.northumberland.gov.uk/Planning/Planning-policy/Reports.aspx#mineralswastestudies>

vii The Report for the North East Aggregates Working Party Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report can be downloaded here: <http://www.northumberland.gov.uk/Planning/Planning-policy/Reports.aspx#mineralswastestudies>

3 Aggregate resources, consents and allocations

3.1 For each of the mineral planning authorities in County Durham, Northumberland and Tyne and Wear this section identifies:

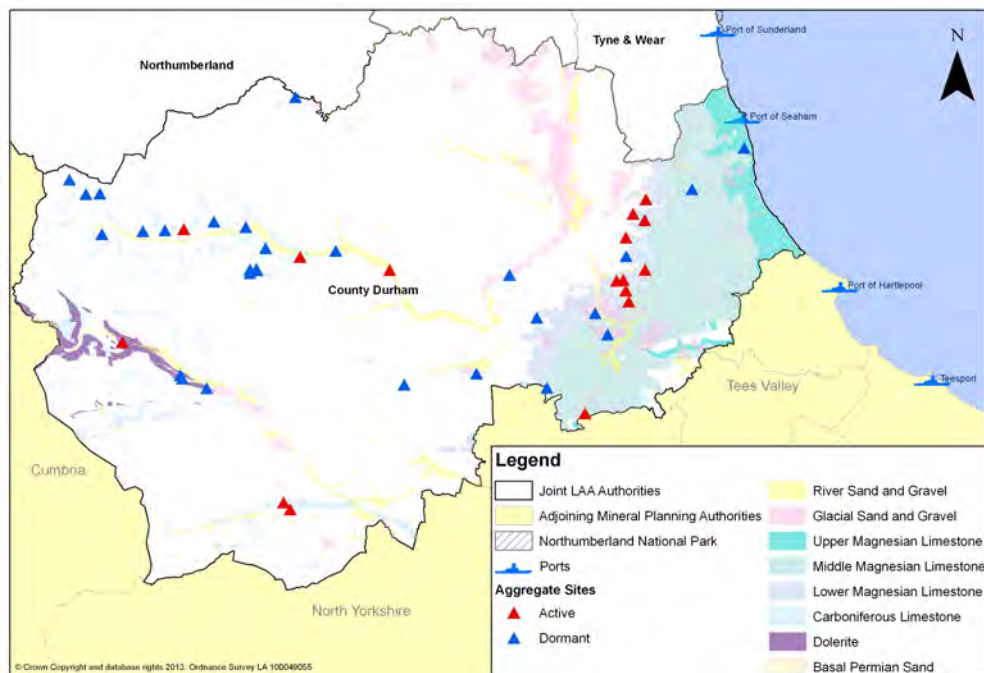
- the range and distribution of aggregate resources;
- the location of existing active and dormant aggregate sites;
- the location of wharfs for the importation of aggregate minerals;
- the location of secondary and recycled aggregate processing infrastructure; and
- the location of existing mineral site allocations within existing local minerals plans.

County Durham

3.2 County Durham is a geologically complex County. A wide range of rocks and more recent sedimentary deposits are found throughout the County. The extent of potential mineral resources which are potentially available for extraction is defined by this complex geology. County Durham's geology gives rise to the following aggregate resources:

- Permian magnesian limestone;
- Carboniferous limestone;
- Igneous rock; and
- Sand and gravel (fluvial, glacial and basal Permian sand).

Map 2 Aggregate resources and mineral permissions in County Durham



Hard rock

Limestone

3.3 Two types of limestone are extracted in County Durham, magnesian limestone and carboniferous limestone. Although both are limestones, the two types are different in terms of their physical properties and make up. This is related to the environment in which they were formed, as well as the types of materials that formed them.

Permian magnesian limestone

3.4 The Magnesian limestone resource in County Durham is of both national and regional importance and it is the most important mineral resource currently worked in County Durham.

3.5 Magnesian limestone underlies the majority of east Durham and at its eastern edge forms a bold escarpment running in a north-south direction between Pitlington and Ferryhill and then south-westwards, with the escarpment gradually disappearing to the south of Shildon. To the north of Pitlington, the escarpment gradually disappears towards the adjoining MPA area of Sunderland in Tyne and Wear.

3.6 The magnesian limestone resource is understood to be highly variable, both regionally and locally. Within County Durham the lower magnesian limestone (also known as the Raisby formation), which only outcrops extensively along the escarpment between Pitlington and Shildon in County Durham, is the most important formation of the magnesian limestone succession due to its chemical qualities, purity and range of applicable uses. In the past most quarrying for aggregate uses has been from the lower magnesian limestone, with the overlying limestones of the Middle Magnesian Limestone (Ford formation) generally not being suitable for aggregate use, apart from granular sub-base of fill applications. Similarly, the Upper Magnesian Limestone has not been extensively quarried as generally it is only suitable for low grade aggregate uses, such as granular sub-base roadstone and fill. On 31 December 2015 there were ten^(viii) quarries with planning permission to work magnesian limestone in County Durham (see Table 3.1). In addition there are also a further five sites which are identified as dormant or which are Interim Development Orders (see Appendix A tables A2 and A3). However, with the exception of Hawthorn Quarry^(ix) there is no information currently available on the extent of remaining reserves and no known interest by any operator in progressing proposals to resume working at any of these sites, it is not considered that any of these sites will make any contribution to meeting future need.

Table 3.1 Sites with planning permission for magnesian limestone extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2015	Expiry date for extraction
Thrislington Quarry West	Cornforth NZ 317 322	Tarmac	Active	18/01/2015 ^(a)
Thrislington Quarry East	Cornforth NZ 317 322	Tarmac	Active	01/07/2045
Crime Rigg Quarry	Sherburn NZ 346 416	Sherburn Stone Co.	Active	31/12/2022
Witch Hill Quarry	Sherburn NZ 345 397	Sherburn Stone Co.	Inactive	21/02/2042 ^(b)
Running Waters Quarry	Bowburn NZ 334 403	Sherburn Stone Co.	Inactive	21/02/2042
Aycliffe Quarry East and extension	Aycliffe NZ 290 222	Stonegrave Aggregates	Closed. Quarry now being restored.	12/05/2014

viii Aycliffe Quarry East ceased working in 2014. (Please note for clarity that Thrislington Quarry will now be treated as two permissions, reflecting the two planning permissions west and east of the A1(M).

ix It is understood that Hawthorn Quarry contains 12,659,000 of magnesian limestone of which 9,537,000 is claimed as high grade. In July 2015 Tarmac submitted a periodic review of the mineral planning permission at Hawthorn Quarry. The environmental statement which accompanied the ROMP suggested that it would be proposed to extract approximately 700,000 tonnes per annum with a view to extracting 10.5 million tonnes over a 15 year period. Of this 700,000 tonnes extracted per annum, the environmental statement indicated that approximately 400,000 tonnes would be distributed within the UK and the remainder potentially exported overseas.

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2015	Expiry date for extraction
Old Quarrington Quarry and Cold Knuckles	Bowburn NZ 330 380	Tarmac	Active	21/02/2042
Cornforth West (IDO/7/5/1)	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042
Cornforth East (MRA/7/2)	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042
Coxhoe (Raisby) Quarry	Coxhoe NZ 347 352	Breedon ^(c)	Active	01/09/2018 ^(d)
Bishop Middleham Quarry	Ferryhill NZ 328 326	W & M Thompson Quarries	Active	30/06/2029

- a. Operator previously advised that they were intending on making a planning application to allow an additional 15 years of working i.e. until end 2030 which will allow remaining Civils grade limestone reserves to be worked out. That application was submitted in January 2015. Determination of this planning application is now expected in 2017.
- b. In December 2015 Sherburn Stone submitted a periodic review of the mineral planning permissions at Witch Hill Quarry. The environmental statement which accompanied the ROMP advised that the quarry will work until 2042 and operations will commence in 5 years. It also advised that the 3.125 million tonnes of reserves within the site would be extracted at a rate of 150-200,000 tonnes per annum of which approximately 100,000 tonnes will comprise agricultural lime which will be exported to continental Europe via Seaham or Hartlepool docks.
- c. In August 2016 Breedon acquired Hope Construction Materials.
- d. On 13 April 2016 Hope Construction Materials submitted a planning application which proposed a vertical extension to recover 1.4 million tonnes of basal permian sand and a extension of time until 31 December 2042 for quarrying activities; operation of Ready Mixed plant; operation of concrete block manufacturing plant and secondary aggregate recycling facility with restoration by 31st December 2044. Determination of this planning application is now expected in 2017.

Carboniferous limestone

3.7 The carboniferous limestone resource in County Durham outcrops in West Durham fairly continuously along the sides of Weardale above Frosterley and to the south of Barnard Castle along the A66. Although similar in some respects to magnesian limestone, carboniferous limestone often differs in some of its physical properties. In particular, it tends to be harder and more durable than magnesian limestone. It resists weathering and can be used in situations where it is frequently exposed to precipitation and freezing. Accordingly, it is used predominantly for such things as road building and maintenance, concrete manufacture and sea defence works.

3.8 There are only four quarries with planning permission to work carboniferous limestone (see table 3.2). The two largest, Heights Quarry and Hulands Quarry both having asphalt/coating plants. In addition there are also eleven other carboniferous limestone quarry's where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995 (see appendix A tables A5 and A6). In this respect, with the exception of Harrow Bank and Ashy Bank Quarry^(x) there is no information currently available on the extent of remaining reserves in any of these sites and no known interest by any operator in progressing proposals to resume working.

x In May 2007 Tarmac Northern Ltd (now known as Tarmac) submitted an Environmental Statement and a revised schedule of working and restoration conditions to the Council, proposing to work part of this site in order to extract 3,750,000 tonnes of carboniferous limestone from 30 ha of the 76.4 ha permission area over a 15 year period. No further progress has been made with the reopening of the quarry since this date.

Table 3.2 Sites with planning permission for Carboniferous limestone extraction

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2015	Expiry date for extraction
Heights Quarry	Westgate NY 925 388	Aggregate Industries UK	Active	21/02/2042
Hulands Quarry	Bowes NZ 016 140	Aggregate Industries UK	Active	14/09/2024
Kilmondwood Quarry	Bowes NZ 024 134	Kearton Farms	Active	21/02/2042 ^(a) .
Broadwood Quarry	Frosterley NZ 035 365	Sherburn Stone Co.	To be confirmed.	21/02/2042

a. On 13 June 2016 Kearton Farms Limited submitted a planning application for the winning and working of 5 million tonnes of Carboniferous limestone and the importation of 192,000 cubic metres of inert materials, with restoration to broad leaved woodland, low nutrient grassland, calcareous grassland, hedgerow and natural regeneration on exposed limestone over 26 years and 6 months. Determination of this planning application is now expected in 2017

Dolerite

3.9 The dolerite resource in County Durham is found as intrusions in the carboniferous limestone series in the west of the County. It is considered an important source of crushed rock aggregate. The most important of these is the series of intrusions collectively known as the Whin Sill, from which the term whinstone is derived. The Whin Sill is a sheet intrusion of dolerite and is up to 70 metres thick where it outcrops in Upper Teesdale (within the North Pennines). Coupled to the sill are a number of dykes which run through the country rock to the eastern side of County Durham.

3.10 Dolerite is an igneous rock it is exceptionally hard and durable and has a high polished stone value (PSV). These qualities make it an important source of high specification roadstone for the top wearing course of roads which have to withstand heavy volumes of traffic. It is also used as a concrete aggregate and in the construction of sea defences.

3.11 Currently there is only one quarry producing dolerite in the County, Force Garth Quarry in Teesdale, (see Table 3.3). This quarry is viewed as an important component of the County's aggregate supply network. The majority of the Force Garth permission is designated as part of the Moor House-Upper Teesdale Special Area of Conservation (SAC) and North Pennines Moors Special Protection Area (SPA) under the EU Habitats and EU Wild Birds Directive. The periodic review under the Environment Act 1995 is being undertaken but determination had been delayed due to the need to first undertake a separate assessment, as required by Regulation 63 of the Conservation of the Habitats and Species Regulations 2010 (as amended) and the EU Habitats Directive (Directive 92/43/EEC) as well as the need for further information in respect of the review permission itself. The County Council has now concluded the Regulation 63 Review and is of the view that the proposed working will have some affect but no likely significant effect on the integrity of European designated sites either alone or in combination with other mineral consents adverse effect, on the integrity of European Designated Sites in combination with other mineral consents. In addition there are also a number of small dormant dolerite quarries where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995. In this respect there is no information currently available on the extent of remaining reserves and no known interest by any operator in progressing proposals to resume working, (See Appendix A table A8).

3.12 The entirety of the Dolerite resource lies within the North Pennines AONB and large areas of the resource being designated as part of the Moor House-Upper Teesdale SAC and North Pennines Moors SPA. In locational terms, therefore options for identifying new areas of working for this mineral within County Durham are extremely limited.

Table 3.3 Sites with planning permission for dolerite extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2015	Expiry date for extraction
Force Garth Quarry	Middleton-in-Teesdale NY 872 282	CEMEX	Active	21/02/2042

Sand and gravel

3.13 County Durham contains two main categories of sand and gravel:

- Superficial deposits which include sand and gravel which was deposited by fluvial, fluvio-glacial or fluvial processes and beach and blown sand deposits; and
- Bedrock deposits and these are only represented by basal permian sand as it is understood that the working of beach sand deposits is not a prospect.

3.14 Information on the known or suspected location of sand and gravel resources in the County are set out in two principal sources. The British Geological Society (BGS) report 'Durham and the Tees Valley Mineral Resources and Constraints' and an independent study carried out by Engineering Geology Ltd for the Department of the Environment in 1989 using existing borehole and geological information, 'Assessment of the potentially workable sand and gravel resources of County Durham'. Both reports draw upon a series of sand and gravel Mineral Assessment Reports produced by the Institute of Geological Sciences in the period between 1979 and 1982. While the information which is available is recognised as the best available it is important to note that there is no definitive information on the precise extent and occurrence of sand and gravel in the County. As the BGS report notes, "The variability of sand and gravel together with their possible concealment within or beneath glacial till (boulder clay), means that, compared to other bulk minerals, it is more difficult to infer the location and likely extent of potentially workable resources from geological maps."

3.15 Glacial sand and gravel deposits are found in all parts of the County although they are more common in the central and eastern parts including around Chester-le-Street and Durham. In certain areas they have been assessed as being up to 30 metres thick, but this assessment is problematic, given their origin they can disappear within a short distances. In addition in certain areas such as the Durham Coalfield area they can contain a significant proportion of organic material, particularly coal. Fluvial sand and gravel deposits include post-glacial river terrace deposits, alluvial deposits and fluvio-glacial deposits. Alluvial deposits are developed along the major river valleys. They are widespread and are well developed on both the River Tees and River Wear and some of the major tributaries. Fluvio-glacial deposits also occur in the area. These are the material left by the melt waters of glaciers. They give rise to more uniform deposits of sand and gravel than glacial deposits, although the quality is generally not up to that of river terrace deposits, particularly those of the River Tees. No fluvial or glacial sand and gravel deposits are currently worked in County Durham. However, mineral working is expected to occur at two sites in coming years. In July 2010 members resolved to grant planning permission for a proposal for the working of 2.5 million tonnes of sand and gravel at Low Harperley near Wolsingham over a 16 year period and planning permission was subsequently issued on 19 August 2013 following the signing of legal agreements. Development commenced in August 2016 and production is expected to start in 2017. In addition in November 2011 a new scheme

of working and restoration conditions were issued at a previously dormant site at Hummerbeck near West Auckland, enabling the recovery of 670,000 tonnes of sand and gravel over a 8 year period, (in addition planning permission for a concrete batching plant was also given).

3.16 Basal Permian Sand is a bedrock deposit of sand, laid down under desert conditions. It consists of weakly cemented, yellow, fine to medium grained well sorted sands of wind blown origin, with only a small proportion of fines or coarse sand and gravel. It occurs in County Durham in four linear deposits, or ridges (southwest of Hetton, Haswell, Thornley and West Cornforth) which outcrop intermittently along the base of the Magnesian Limestone Escarpment and continue for some distance and dip to the east under the Magnesian Limestone. It is understood that that these ridges are between one and two kilometres wide with sand thicknesses of up to 35 metres in depth. Due to the eastward dip of the resource and due to the presence of the overlying deepening magnesian limestone, the economically accessible resources does not occur very far beyond the outcrop.

3.17 Basal Permian Sand is currently worked at three quarries on the East Durham Limestone Plateau at Thrislington Quarry, Old Quarrington and Cold Knuckles Quarry and at Crime Rigg Quarry. Generally, this sand is linked with the working of the economically important overlying magnesian limestone. While the deposit is a uniformly graded fine aggregate and has traditionally been mainly worked as a source of building sand and asphaltting sand, it is understood that quarries in County Durham are also producing quantities of concreting sand from these deposits^(xi).

3.18 In addition there are also a small number of dormant/Interim Development Order sand and gravel quarries where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995. In this respect there is no information currently available on the extent of remaining reserves and no known interest by any operator in progressing proposals to resume working at any of these sites, (see Appendix A table A10 and A11).

Table 3.4 Sites with planning permission for sand and gravel extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2015	Expiry date for extraction
Thrislington Quarry	Ferryhill NZ 317 322	Tarmac	Active	18/01/2015 ^(a) .
Crime Rigg Quarry	Sherburn NZ 346 416	Sherburn Stone	Active	31/12/2022
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042
Hummerbeck	West Auckland	Hall Construction	Inactive ^(b)	21/02/2042
Low Harperley	Wolsingham	Sherburn Stone	Inactive ^(c)	08/08/2032

- a. Lafarge Tarmac (now Tarmac) previously advised that they were intending on making a planning application to allow an additional 15 years of working i.e. until end 2030 which will allow remaining Civils grade Limestone reserves to be worked out. That application was submitted in January 2015.
- b. Planning permission was issued on 25 November 2011. Period of working would be 8 years. However, the site actually has permission to 2042.
- c. Planning permission was issued on 19 August 2013. The development commenced on 8 August 2016.

Existing Development Plan allocations

3.19 The County Durham Minerals Local Plan (December 2000) identified a number of aggregate related allocations to meet identified need in the period to 2006^(xii). These allocations included:

xi At Thrislington Quarry basal permian sand is blended with limestone fines to produce concreting sand.

xii Maps of these sites can be seen in the County Durham Minerals Local Plan: <http://www.durham.gov.uk/article/3274/Minerals-Local-Plan>

- Five sand and gravel Areas of Search under Policy M6 including:
 - Hummerbeck (80 ha in size and lies to the south of the existing industrial estates at West Auckland);
 - Nunstainton (40 ha in size and lies within the open countryside south of Ferryhill);
 - Embelton (250 ha in size and lies in the open countryside east of Sedgefield close to the County boundary);
 - Hutton Magna (55 ha in size and lies in open countryside south-east of Barnard Castle, immediately north of the A66); and
 - Lea Hall (60 ha in size and lies in the open countryside to the east of Newton Aycliffe).

These allocations were made in order to meet an identified shortfall of some 4 million tonnes of concreting sand in the period to 2006. To date none of these allocations have been subject to a planning application for working. Although one site was subject to pre-application discussions and a second area, Hummerbeck has been resubmitted as a site allocation following the Council's call for new minerals and waste site in 2008/2009, given their age it is not considered that these sites can be relied upon to make a contribution to meeting future need for sand and gravel.

- One Preferred Area for carboniferous limestone working for cement manufacture was made under Policy M10. This 160 ha allocation was allocated as an extension to Eastgate Quarry which served the nearby cement works. It was made in order to ensure that a 15 year landbank remained at the end of the Plan period in 2006. Given the purpose of the allocation, the closure of Eastgate Quarry and its cement works, and its location within the North Pennines AONB and its relationship with both internationally and nationally important nature conservation designations it is no longer considered a suitable site for minerals extraction.
- Two Preferred Areas of magnesian limestone working were allocated at Thrislington Quarrington under Policy M10. One preferred area lay to the east of the A1(M) and the second lay to the west of the A1(M) to the south of the existing quarry. Both allocations were made in order to provide supplies of high grade dolomite for a range of uses including in the steel industry. In July 2011 planning permission was issued for the working of the allocation east of the A1(M). Given the issue of planning permission for the allocation east of the A1(M) which has met the need for high grade dolomitic limestone it is not considered that there will be a need for the working of the southern allocation west of the A1(M). In addition Lafarge Tarmac have also agreed not to pursue working of the southern allocation.

3.20 Unless allocated within the emerging County Durham Local Plan as a strategic site or as a non-strategic allocation in the forthcoming Minerals and Waste Policies and Allocations document all of the above allocations will lapse upon adoption of the Council's new planning documents.

Secondary and recycled aggregates facilities in County Durham

3.21 County Durham contains seven fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B, see Table B1. In addition it should be noted that it is understood that within the North East mobile facilities make a significant potential to the production of recycled aggregates at brown field redevelopment sites.

Wharfs for the importation and exportation of aggregate minerals in County Durham

3.22 In County Durham there is one port at Seaham which is capable of handling the importation and exportation of aggregates. It is understood that while the Port of Seaham has been used in the past to export limited quantities of coal, no minerals including aggregates are either imported or exported.

Railheads for the transportation of aggregate minerals in County Durham

3.23 Thrislington Quarry is the only quarry in County Durham served by a railhead. In addition Policy M39 of the County Durham Minerals Local Plan (December 2000) sought to protect rail routes and alignments which were considered to have the potential to transport minerals by rail. An updated list of rail routes and alignments which could potentially be used to transport minerals by rail are listed in Appendix C, Table C1.

Mineral Processing Infrastructure in County Durham

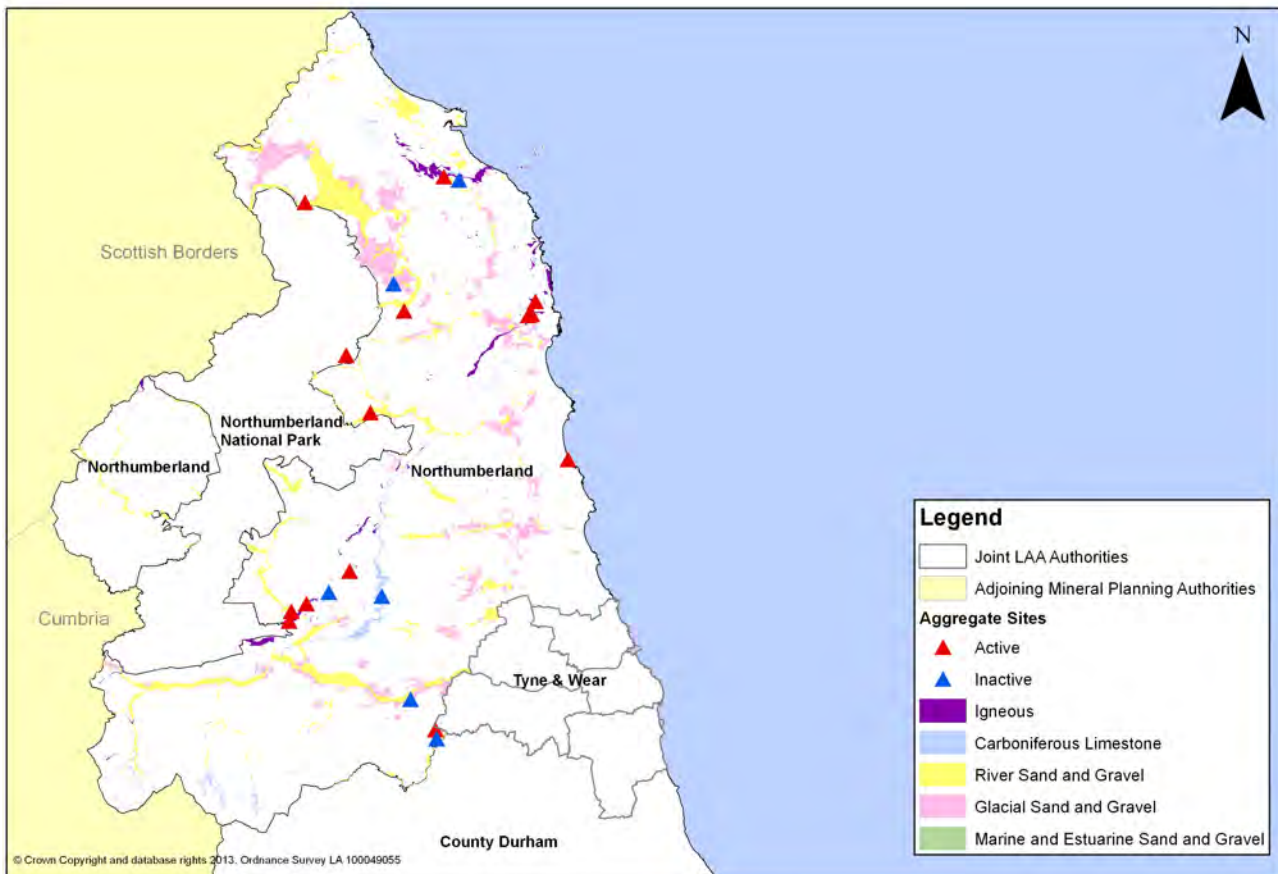
3.24 Details of all known mineral processing infrastructure relating to aggregate minerals and mineral extracted at aggregate quarries including sites for concrete batching and the manufacture of concrete products and coated materials are listed in Appendix C, Table C2 and C3.

Northumberland

3.25 A wide range of rocks and more recent sedimentary deposits are found throughout Northumberland. The geology of Northumberland gives rise to the following aggregate resources:

- Carboniferous limestone;
- Igneous rock; and
- Sand and gravel (fluvial, glacial, marine and estuarine, beach and blown deposits).

Map 3 Aggregate resources and mineral permissions in Northumberland



The geology of the Northumberland National Park area can be seen on the Mineral Resource Map for Northumberland and Tyne and Wear which was produced by the British Geological Survey which can be downloaded here: <http://www.bgs.ac.uk/downloads/start.cfm?id=2578>

Hard rock

3.26 In Northumberland, the Whin Sill is an important resource of igneous rock for crushed rock aggregate. The Whin Sill is a tabular, sheet-like intrusive body of quartz dolerite and is known locally as 'whinstone'. The Whin Sill has an average thickness of 25 to 30 metres and may be up to 70 metres thick. It underlies most of the Carboniferous rocks in northern Northumberland. Within the Northumberland National Park the Whin Sill is drift-free and gives rise to an escarpment along or to the north of Hadrian's Wall. Due to its properties this resource is particularly valued for roadstone. There are active planning permissions for the extraction of the resource at Barrasford Quarry, Belford (Easington) Quarry, Cragmill Quarry, Divethill Quarry, Howick Quarry, Keepersshield Quarry, Longhoughton (Ratcleugh) Quarry and Swinburne Quarry.

3.27 Within the northern part of the Northumberland National Park intrusive and extrusive rocks are associated with the Cheviot Igneous Complex, which is of Devonian age. The core of the Cheviot Hills is formed of the Cheviot Granite, the surface outcrop of which occupies an area of some 70 kilometres square. The granite is surrounded by volcanic rocks consisting of mainly andesitic and rhyolitic lavas. The igneous complex is deeply weathered and altered and forms a remote, upland, massif characterised by rounded features. The potential of both the granite and the volcanic as a source of aggregate is thought to be low. However, a small intrusion of felsite in the complex is worked at Harden Quarry on the edge of the Northumberland National Park. Harden Quarry produces a range of aggregate products and the material is valued for its red colour. This resource is known as the 'red whin'.

3.28 The Carboniferous limestones in Northumberland occur in a cyclical sequence of limestone, mudstone and sandstone beds. The limestones are less than 10 metres thick and, therefore, are too thin to support a modern quarrying operation and are excluded from the British Geological Survey mineral resources map. However, there is potential to extract this resource where it is closely associated with the Whin Sill and it is currently extracted at Barrasford and Keepersfield quarries. The main exception is the 'Great Limestone' which is sufficiently thick (up to 20 metres), extensive and consistent in quality to form a workable resource. The Great Limestone is a basal limestone of Upper Carboniferous sediments. It produces a relatively strong and durable crushed rock aggregate. Current sites in Northumberland with planning permission to extract this resource are Mootlaw Quarry and Cocklaw Quarry. Extraction at Cocklaw Quarry has yet to commence following the approval of consent to reactivate a dormant planning permission and Mootlaw Quarry is currently mothballed^(xiii).

Table 3.5 Quarries with planning permission for hard rock extraction for aggregate use in Northumberland

Quarry	Location and Grid Reference	Mineral	Operator ^(a)	Planning status at 31 December 2015	Expiry date for extraction
Barrasford Quarry	Barrasford NY 913 743	Igneous rock and Carboniferous limestone	Tarmac	Active	31/12/2038
Belford (Easington) Quarry	Belford NU 130 343	Igneous rock	Tarmac	Inactive	31/12/2016
Cocklaw Quarry	Wall NZ 931 701	Igneous rock	Tynedale Roadstone	Inactive (yet to commence)	21/02/2042
Cragmill Quarry	Belford NY 108 346	Igneous rock	CEMEX	Active	21/02/2042
Divethill Quarry	Great Bavington NY 978 795	Igneous rock	CEMEX	Active	31/12/2018
Harden Quarry	Biddlestone NY 959 086	Igneous rock	Tarmac	Active	31/10/2029
Howick Quarry	Longhoughton NU 238 169	Igneous rock	Tarmac	Active	21/12/2020

xiii A recent planning application, granted permission on 11 February 2015, has allowed further time for extraction of the permitted reserve at this site and the completion of the restoration

Quarry	Location and Grid Reference	Mineral	Operator ^(a)	Planning status at 31 December 2015	Expiry date for extraction
Keepersshield Quarry	Humshaugh NY 895 727	Igneous rock and Carboniferous limestone	Hanson	Active	21/02/2042
Longhoughton (Ratcheugh) Quarry	Longhoughton NU 232 153	Igneous rock	Purvis	Active	21/02/2042
Mootlaw Quarry	Matfen NZ 018 755	Igneous rock	North Tyne Roadstone	Inactive	31/12/2025
Swinburne Quarry	Colwell NZ 021 791	Igneous rock	Hanson	Inactive	31/12/2036

a. During 2015 the operator of Barrasford, Belford, Harden and Howick quarries changed from Lafarge Tarmac to Tarmac.

Sand and gravel

3.29 The sand and gravel resources in Northumberland are superficial deposits. These resources are divided into four categories:

- Fluvial sand and gravel
- Glacial sand and gravel
- Marine and estuarine sand and gravel
- Beach and blown sand deposits

3.30 Post glacial river terrace and alluvial deposits are developed along the major river valleys in Northumberland such as the Breamish, Coquet, Till and Tyne. Fluvioglacial deposits may also occur beneath these deposits. River gravels are generally well-sorted, well-rounded and of a high commercial quality. Terrace deposits are generally well- to fairly well-graded with moderate fines content. Narrow belts of floodplain gravel are also common in valleys. Fluvioglacial sands and gravels, generally thicker deposits than river alluvium, have been partially, but imperfectly, sorted by streams issuing from the melting glaciers. The largest spread of such deposits is near Wooler where extensive terraces of sand and gravel are up to 9 metres thick. Terraces are also present along the River Tyne and its tributaries.

3.31 The glacial sand and gravel deposits typically occur as lenses within or beneath the till (boulder clay). The composition and thickness of these deposits is highly variable, although characteristically sandy, except in the Tyne Valley where gravels predominate. They may also grade into till as fines content increases. Impersistent glacial beds may reach up to 30 metres in the Tyne Valley. British Geological Survey have assessed part of the area for sand and gravel and within these areas the extent of sand and gravel including the possible extent of sand and gravel beneath the till is shown on the British Geological Survey mineral resource maps. Outside the areas assessed only the glacial sand and gravel at the outcrop is shown.

3.32 Marine and estuarine sand and gravel resources are found in the estuaries of the Blyth and Wansbeck rivers, where they consist of silt, pebbly clay and sand and gravel. The deposits are up to 11 metres thick in the Wansbeck estuary but are not currently worked.

3.33 Beach deposits are found along the length of the Northumberland coast. They are generally clean fine- and medium-grained sands of uniform quality and are suitable for use as concreting and building sand. A planning permission to extract sand from an area of Druridge Bay is still active and is worked on an intermittent basis. Blown or dune sand deposits are of variable thickness and consist of uncemented fine- to medium-grained sands. Sand dunes often back the beach deposits along the Northumberland Coast. Blown deposits are not currently extracted in Northumberland as these areas often have nature conservation designations.

Table 3.6 Quarries with planning permission for sand and gravel extraction for aggregate use in Northumberland

Quarry	Location and grid reference	Operator ^(a)	Planning status at 31 December 2015	Expiry date for extraction
Ebchester (Broadoak) Quarry ^(b)	Ebchester NZ 098 547	Tarmac	Active	31/12/2023
Houghton Strother Quarry	Humshaugh NY 978 795	W & M Thompson (Quarries)	Active	31/08/2022
Hedgeley Quarry	Powburn NZ 068 180	North East Concrete	Active	31/12/2018
Hemscott Hill Beach	Widdrington NZ 931 703	W Bell	Active	31/12/2020
Lanton (Cheviot) Quarry	Milfield NT 954 311	Tarmac	Active	31/12/2020
Merryshields Quarry	Stocksfield NZ 063 617	W & M Thompson (Quarries)	Inactive	21/02/2042
Wooperton Quarry	Wooperton NU 048 204	North East Concrete	Inactive	31/12/2022

- a. During 2015 the operator of Ebchester and Lanton quarries changed from Lafarge Tarmac to Tarmac, the operator Merryshields Quarry changed from SITA UK to Thompsons of Prudhoe and the operator of Wooperton Quarry changed from CEMEX to North East Concrete.
- b. Ebchester Quarry is a combination of two sites, Broadoak and Hollings Hill, which have separate planning permissions but have been operated as a single unit by the operator. Extraction at Hollings Hill was completed in 2013.

Existing development plan allocations for aggregates extraction

3.34 The Northumberland Minerals Local Plan (March 2000) identified a number of allocations for the extraction of primary aggregates to meet the need identified in the period to 2006. Three areas were allocated for crushed rock provision under Policy A6 and five areas were allocated for sand and gravel provision under Policy A4. These allocations are summarised in the table below.

Table 3.7 Summary of sites allocated for aggregates extraction in the Northumberland Minerals Local Plan (adopted March 2000)

Allocation	Mineral resource	Estimated reserve	Status
Cragmill (extension)	Igneous rock	8 to 10 million tonnes	Planning permission granted on 1 December 2015 for the extraction of 6.3 million tonnes with an average annual output of 150,000 tonnes per annum

Allocation	Mineral resource	Estimated reserve	Status
			(maximum 200,000 tonnes per annum and low of 75,000 tonnes per annum).
Divethill (extension)	Igneous rock	1.6 million tonnes	Site has planning permission and is included in the current landbank.
Swinburne (extension)	Igneous rock	5 million tonnes	Not developed. No planning application received.
Marley Knowe	Sand and gravel	2.75 million tonnes	Not developed. No planning application received.
Farnley Haugh (extension)	Sand and gravel	400,000 tonnes	Planning application granted. Extraction now complete and site restored.
Houghton Strother	Sand and gravel	1.9 million tonnes	Planning application granted. Site is active.
Merryshields	Sand and gravel	500,000 tonnes	Not developed. No planning application received.
Plenmeller (extension)	Sand and gravel	1.5 million tonnes	Not developed. No planning application received.

Secondary and recycled aggregates facilities in Northumberland

3.35 Northumberland contains five fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B, see Table B2. Materials produced include construction and demolition wastes, road planings and power station ash from Lynemouth Power Station. In addition it is understood that within Northumberland mobile facilities make a significant potential to the production of recycled aggregates at construction and demolition sites.

Wharves for the importation of aggregate minerals in Northumberland

3.36 In Northumberland aggregate minerals are currently imported via the Port of Blyth. Sand and gravel is imported by Sherburn Stone to predominantly supply a concrete batching facility at Battleship Wharf and crushed rock is imported by Aggregate Industries from the Glensanda 'super' quarry on the west coast of Scotland to predominantly supply a concrete products manufacturing facility near West Sleekburn. The Port of Blyth has also recently been used to transport crushed rock aggregate from Divethill Quarry to a wharf at Ipswich in Suffolk (although it is understood that these movements have not happened since around at least 2012) and for the export of crushed rock aggregate from Harden Quarry. The port at Berwick-upon-Tweed is also capable of handling the importation and exportation of aggregate minerals but this activity is not currently being carried out there.

Railheads for the transportation of aggregate minerals in Northumberland

3.37 Belford (Easington) Quarry is the only quarry in Northumberland served by a railhead. This quarry is currently inactive and the associated railhead is not currently in use.

Location of concrete and coated material facilities in Northumberland

3.38 Details of concrete making facilities and coated roadstone facilities in Northumberland are detailed in Tables 3.9 below and Tables C5, C6 and C7 in Appendix C. The coating plants in Northumberland are located at quarry sites while the concrete facilities are located as standalone facilities on industrial estates or in locations that are accessible from the main transport network.

Table 3.8 Sites for concrete batching, the manufacture of concrete products and coated materials

Coating plant	Concrete batching	Concrete products manufacturing
<ul style="list-style-type: none"> • Barrasford Quarry • Cragmill Quarry • Divethill Quarry • Howick Quarry • Keepersfield Quarry • Swinburne Quarry 	<ul style="list-style-type: none"> • Old Gasworks Site, Alnwick • Barrington Road, Bedlington • Battleship Wharf, Cambois • Bebside, Blyth • Brock Lane, West Sleekburn • Townfoot, Haltwhistle • Howford Quarry, Acomb • Lynefield Park, Lynemouth • Red Row, Bedlington • South Farm, Belford 	<ul style="list-style-type: none"> • Lynx Precast, Lynemouth • Stephenson Way, Bedlington • Brock Lane, West Sleekburn

Tyne and Wear

3.39 Tyne and Wear is geologically similar to the adjoining areas of County Durham. The geology of Tyne and Wear gives rise to the following aggregate resources:

- Permian magnesian limestone; and
- Sand and gravel (fluvial, glacial and basal Permian sand).

Map 4 Mineral Permissions and location of wharfs in Tyne and Wear



The geology of Tyne and Wear can be seen on the Mineral Resource Map for Northumberland and Tyne and Wear which was produced by the British Geological Survey which can be downloaded here: <http://www.bgs.ac.uk/downloads/start.cfm?id=2578>

Permian magnesian limestone

3.40 Dolomites, dolomitic limestones and limestones of Permian age (the magnesian limestone) naturally occur in Sunderland and South Tyneside with a small area within North Tyneside. These rocks which have a complex geology, mineralogy and chemistry form the northernmost narrow part of a narrow, easterly dipping outcrop which extends from South Tyneside to Nottingham.

3.41 The magnesian limestone is traditionally divided into three formations (Upper, Middle and Lower). It is highly variable in its physical, chemical and mechanical properties and thus its suitability for particular uses. In South Tyneside all formations from the magnesian limestone are capable of producing aggregates suitable for sub-base roadstone and fill. In Sunderland Eppleton Quarry works the lower magnesian limestone (Raisby formation) and underlying Permian basal sands. Towards the top of the sequence, the better quality Upper Magnesian Limestone (concretionary limestone) is worked at Marsden Quarry in South Tyneside. This is a relatively hard, crystalline limestone and is capable of producing higher grades of aggregate materials suitable for roadbase usage or even concreting aggregates.

Sand and gravel

3.42 Tyne and Wear contains deposits of fluvial, glacial sand and gravel laid down in the last 2 million years and bedrock deposits in the form of the Basal Permian Sands. The variability of the fluvial and glacial deposits together with their potential concealment within or beneath glacial till means that it is difficult to infer the location and likely extent of potentially workable deposits. However, within Tyne and Wear, the majority of the fluvial deposits lie on the River Tyne within Gateshead. Similarly, the majority of glacial deposits also lie within Gateshead, with lesser areas in both South Tyneside and in Newcastle. Reflecting the overall distribution of fluvial and glacial sand and gravel deposits, past working within Tyne & Wear has been concentrated within Gateshead.

3.43 The Basal Permian Sands outcrop intermittently along the base of the Magnesian Limestone escarpment and dip to the east beneath the limestone and is worked with overlying magnesian limestone aggregate at Eppleton Quarry.

Table 3.9 Sites with planning permission for aggregates extraction in Tyne and Wear

Quarry	Location and grid reference	Operator	Mineral	Planning status at 31 December 2015	Expiry date for extraction
Eppleton Quarry	Hetton le Hole Sunderland NZ 360 482	Eppleton Products Ltd	Magnesian limestone and basal Permian sand	Active	To be confirmed ^(a)
Marsden Quarry	Whitburn South Tyneside NZ 406 642	Owen Pugh	Magnesian limestone	Active	2027

a. On 20 October 2015 planning permission was granted to extend Eppleton Quarry. This permission allows the extraction of additional quantities of sand and limestone with the importation of soils for restoration. Condition 7 of the permission requires that all mineral extraction shall cease no later than 25 years from commencement of the development, unless as otherwise agreed in writing by the Mineral Planning Authority.

3.44 In contrast to the more rural parts of the Joint LAA area, such as County Durham and Northumberland, Tyne and Wear currently contains only two active aggregate mineral quarries. Tyne and Wear has, however, had a long history of mineral working with a large number of sites being worked in the past for a range of aggregate and non-aggregate minerals such as glacial clay and fireclay for brick-making purposes, surface coal and sandstone. For example, there is an active brick shale quarry within South Tyneside at Red Barnes, Wardley. Within Tyne and Wear both Gateshead and Sunderland have been particularly important sources of both aggregate and non-aggregate

minerals, this being due to the resources which naturally occur within these areas and the ability of these areas to accommodate environmentally acceptable sites in the past. Detailed information on the location of past working can be seen on the Northumberland and Tyne and Wear 'A Summary of Mineral Resource Information for Development Plan Mineral Resources (South) map^(xiv)'. Similarly, the BGS report^(xv) illustrates the extent of past historical production^(xvi).

Existing Development Plan allocations

3.45 There are no saved allocations for minerals working in any of the existing Development Plan documents of the Tyne and Wear authorities.

Location of secondary and recycled aggregates facilities in Tyne and Wear

3.46 Tyne and Wear contains seven fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B, see Table B3.

Location of mineral processing infrastructure in Tyne and Wear

3.47 Details of all known mineral processing infrastructure including sites for concrete batching and the manufacture of concrete products are shown in Appendix C, Table C9.

Location of wharfs for the importation of aggregate minerals in Tyne and Wear

3.48 Within Tyne and Wear there are currently four wharf sites. Three of these sites are located on the River Tyne at Gateshead, Howdon (North Tyneside) and Jarrow (South Tyneside) with a fourth located at Greenwells Quay in Sunderland.

Table 3.10 Wharfs for the importation of aggregate minerals in Tyne and Wear

Site	Location and Grid Reference	Operator	Mineral	Planning status at 31 December 2015
Gateshead Wharf	Gateshead NZ 306 609	Tarmac	Sand and gravel	Inactive
Howdon Wharf	North Shields, North Tyneside NZ 360 482	Tarmac	Sand and gravel	Inactive
Jarrow Wharf	South Shields, South Tyneside NZ 335 657	CEMEX	Sand and gravel	Active
Sunderland (Greenwells Quay) Wharf	Sunderland NZ 409 579	Northumbrian Roads	Sand and gravel	Active

xiv The extent of past mineral working within Tyne and Wear can be seen on the Mineral Resource Map for Northumberland and Tyne and Wear which was produced by the British Geological Survey which can be downloaded here: <http://www.bgs.ac.uk/downloads/start.cfm?id=2578>. Note as this map was published in 2000 reference should be made to the individual MPA for the most up to date information on the extent of past working.

xv Mineral Resource Information for Development Plans Northumberland and Tyne and Wear: Resources and Constraints

xvi Figure 2b Production of sand and gravel and crushed rock aggregate in Tyne and Wear 1979 - 1998.

4 Aggregate sales and permitted reserves

4.1 Section 4 sets out known information on sales and permitted reserves of both sand and gravel and crushed rock in the Joint LAA area. It includes some estimates of sales and reserves where figures are not otherwise available. Due to the use of estimates there may be some minor discrepancies between the figures quoted here and those provided in the annual monitoring reports published by the North East Aggregates Working Party.

Current position on aggregate sales

4.2 Sales information for both sand and gravel and crushed rock, at 31 December of each year, are published in the Annual Aggregates Monitoring Report which is produced by the North East Aggregates Working Party. These annual reports provide the best regular consistent source of information for the preparation of LAAs. However, due to the way that information is collected for these reports information is normally only available on a regional or sub-regional level and it is not possible to identify sales at a site level. Where possible this joint LAA has sought to provide further detail in relation to the extent of sales.

Sand and gravel

4.3 Information on sales of land won and marine dredged sand and gravel for aggregate use from quarries and wharfs in County Durham, Northumberland, Tyne and Wear and North East England as a whole in 2015 is provided in Table 4.1 below.

Table 4.1 Sales of land-won and marine dredged sand and gravel for aggregate use from County Durham, Northumberland and Tyne and Wear, 2015 (tonnes)

	Land won sand and gravel	Marine dredged sand and gravel
County Durham	256,489	0
Northumberland	420,197	20,000
Tyne and Wear	240,000+	325,000

Source: Aggregate Minerals Survey and North East Aggregates Working Party reports. Notes: + Mineral Planning Authority estimate.

4.4 A comparison of land won sand and gravel sales from County Durham, Northumberland and Tyne and Wear from 2006 to 2015 is shown in Table 4.2. Prior to the economic downturn around 2008 sales were over 1 million tonnes per annum. Sales of sand and gravel decreased by over 47% between 2005 (1,360,000 tonnes) and 2013 (715,000 tonnes). This decrease is considered mainly to be the result of the economic downturn and a resulting reduction in the requirement for primary aggregates and not due to a lack of permitted reserves. Sales have subsequently increased in 2014 and 2015 as a result of growth in construction activity but are significantly lower than those prior to the economic downturn.

Table 4.2 Sales of land won sand and gravel from County Durham, Northumberland and Tyne and Wear, 2006 to 2015 (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
County Durham	371+	201+	183	199	164	237	199	218	276	256
Northumberland	505	574	515	425	402	450	349	319	361	420
Tyne and Wear	409	241	208+	113+	171+	162+	165+	177+	236+	240+

Source: North East Aggregates Working Party Reports and Mineral Planning Authority best estimates. Notes: + Mineral Planning Authority estimate.

4.5 Sales of sand and gravel from marine wharfs in North East England at which marine-dredged sand and gravel was landed and processed was 595,458 tonnes in 2015. This represents a 47% decrease when compared with sales from 2007. As with sales of land-won sand and gravel, this overall decrease is considered to be mainly as a result of the economic downturn and a resulting reduction in demand for primary aggregates but the mothballing of the Gateshead Wharf (since 2011) and Howdon Wharf (since 2014) on the River Tyne and Billingham Wharf on the River Tees, which were all inactive in 2014, is also considered to have had an effect on sales.

Table 4.3 Sales of marine-dredged sand and gravel from North East England, 2006 to 2015 (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
North East England*	1,142	1,132	998	563	678	509	491	343	536	595

Source: Aggregate Minerals Survey and North East Aggregates Working Party Annual Monitoring Reports.

4.6 The sales of sand and gravel by broad end-use product categories for 2015 are shown in Table 4.4. These end-use figures should be treated with some caution as, although operators know what products they sell, they cannot always be certain what the products will ultimately be used for. Concreting sand and sand for use in mortar were the largest products for sand and gravel sales in 2015.

Table 4.4 Sales of land-won and marine sand and gravel for aggregates by end-use from County Durham, Northumberland and Tyne and Wear in 2015 (tonnes)

End use	Land won	Marine	Total sand and gravel
Sand for asphalt	110,206	0	110,206
Sand for use in mortar	287,773	0	287,773
Concreting and sharp sand	218,500	327,818	546,318
Gravel for asphalt	0	0	0
Gravel for concrete aggregate	89,133	8,327	97,460
Other screened/graded gravel	62,733	9,530	72,263
Other sand and gravel	48,247	86	48,333
Sand and gravel with unknown end use	0	0	0
Total sand and gravel	916,592	345,750	1,262,342

Source: Aggregate Minerals Survey and North East Aggregates Working Party Annual Monitoring Report

Crushed rock

4.7 Information of sales of crushed rock from quarries in County Durham, Northumberland and Tyne and Wear in the period 2006 to 2015 is provided in Table 4.5 below. Sales from the Joint LAA area in 2015 were 4.5 million tonnes with 62% of sales were from quarries in County Durham, 33% were from quarries in Northumberland and the remaining 5% from sites in Tyne and Wear.

4.8 Sales of crushed rock in the Joint LAA area decreased by around 40% between 2007 (5.6 million tonnes) and 2009 (3.4 million tonnes) and this was considered to be mainly as a result of the economic downturn and a resulting reduction in demand for primary aggregates. Sales remained at a broadly similar level in the period from 2009 to 2013 reflecting the economic conditions. Sales have, however, increased by 17% from 2013 to 2014 and increased again in 2015 reflecting some growth in construction activity. Nonetheless the level of sales are still lower than the level of sales prior to the economic downturn.

Table 4.5 Sales of crushed rock for aggregate uses from County Durham, Northumberland and Tyne and Wear, 2006 to 2015 (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
County Durham	3,384	3,559	3,036	1,920	2,056	1,955	1,696	2,245	2,655	2,770
Northumberland	1,796	1,676	1,664	1,153	1,188	1,230	1,233	1,060	1,171	1,473
Tyne and Wear	393*	375*	300+	282+	194+	224+	212+	236+	309	225+

Source: Aggregate Minerals Survey, North East Aggregates Working Party Reports and Mineral Planning Authority best estimates. Notes: + Mineral Planning Authority best estimates. * Report Apportionment of North East England Guidelines for Aggregates Provision, 2005-2020: Environmental Report.

4.9 The sales of crushed rock by broad end-use product categories and mineral type are shown in Table 4.6 for 2014. These end-use figures should be treated with some caution as, although operators know what products they sell, they cannot always be certain what the products will ultimately be used for. The crushed rock extracted in County Durham, Northumberland and Tyne and Wear has a wide range of end-uses and this can vary depending on mineral type. In 2015 type 1 and type 2 roadstone materials (23.1%), concrete aggregate (16.3%), other screened and graded aggregates (19.2%) and other constructional use (24.9%) represent the main end-uses for crushed rock aggregate from quarries in the Joint LAA area.

Table 4.6 Sales of crushed rock for aggregate use in County Durham, Northumberland and Tyne and Wear by mineral resource and end-use in 2015 (tonnes)

End use	Carboniferous limestone	Magnesian limestone	Igneous rock	Total crushed rock
Coated roadstone*	242,039	0	420,538	662,577
Uncoated roadstone (Type 1 and 2)	167,361	588,816	277,121	1,033,298
Uncoated roadstone (surface chippings)	0	0	26,764	26,764
Railway ballast	5,000	0	2,046	7,046
Concrete aggregate	176,304	426,928	126,210	729,442
Other screened/graded	72,261	469,365	316,204	857,830
Armour and gabion stone	5,964	4,427	29,403	39,434
Other constructional use	154,641	565,270	393,200	1,113,111
Unknown end use	0	0	0	0
Total sales for aggregate use	823,570	2,054,806	1,591,126	4,469,502

Source: North East Aggregates Working Party. Notes: *Coated roadstone includes crushed rock used for asphalt manufacture on and off site.

Current position on permitted reserves

4.10 Permitted reserves information for both sand and gravel and crushed rock, at 31 December of each year, are published in the North East AWP Annual Aggregates Monitoring Report. Like aggregate sales, these annual reports provide the best regular consistent source of information for the preparation of LAAs. However, due to the way that information is collected for these reports information is normally only available on a regional or sub-regional level and it is not possible to identify permitted reserves at a site level. Where possible this joint LAA has sought to provide further detail in relation to the extent of permitted reserves using publicly available information on the extent of the permitted reserves.

Sand and gravel reserves

4.11 Table 4.7 identifies the extent of permitted reserves in County Durham, Northumberland and Tyne and Wear on the 31 December 2015.

4.12 At 31 December 2015 permitted reserves of sand and gravel in the Joint LAA area were 22,290,960 tonnes. Table 4.8 shows that this represents an increase from the equivalent figure at 31 December 2014 and has resulted from planning permission being granted for an extension to Eppleton Quarry in Tyne and Wear.

Table 4.7 Permitted reserves of sand and gravel reserves for aggregate use in County Durham, Northumberland and Tyne and Wear at 31 December 2015.

Area	Permitted reserves (tonnes)	Percentage permitted reserves in Joint LAA area
County Durham	8,353,960	37.5%
Northumberland	7,337,000	32.9%
Tyne and Wear	6,600,000*	29.6%

Source: Unless otherwise stated North East Aggregates Working Party Reports.

Notes: *Mineral Planning Authority estimate.

Table 4.8 Comparison of permitted reserves of sand and gravel at 31 December between 2006 and 2015 (thousand tonnes)

Area	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
County Durham	2,752	2,296	2,093	3,715	3,483	4,606	6,679	8,923	8,650	8,354
Northumberland	9,629	8,913	8,551	8,051	9,538	8,969	8,331	7,727	7,414	7,337
Tyne and Wear	1,429	1,199	#	#	1,007+	118+	1,200+	1,022+	853+	6,600+

Source: Unless otherwise stated North East Aggregates Working Party Reports and Mineral Planning Authority best estimates.

Notes: # The reserves for Tees Valley and Tyne and Wear are included in the regional figure in the relevant AWP report for the year concerned. + Mineral Planning Authority estimates.

County Durham

4.13 Through further work to prepare the joint LAA work has been undertaken to determine the extent of permitted reserves which are either currently available or will become available in future years. The North East Aggregates Working Party Annual Monitoring Report for 2014 that permitted reserves of sand and gravel in County Durham were 8,353,960 tonnes at 31 December 2015. At the end of 2015 these permitted reserves were contained within five sites:

- Thrislington Quarry;
- Crime Rigg Quarry;
- Old Quarrington and Cold Knuckles Quarry;
- Low Harperley; and
- Hummerbeck.

4.14 The distribution of permitted sand and reserves is shown below.

Table 4.9 Distribution of permitted reserves of sand and gravel permitted in County Durham in 2015.

Quarry	Permitted reserves at 31 December 2015
Thrislington Quarry	2,226,000 ¹
Crime Rigg Quarry	1,174,960 ¹
Old Quarrington and Cold Knuckles Quarry	1,783,000 ¹
Hummerbeck	670,000 ²
Low Harperley	2,500,000 ²
DCC best estimate	8,353,960

Notes: 1 Information provided by mineral operators in response to Durham County Council mineral survey. 2 Information sourced from planning committee reports.

4.15 Table 4.10 below provides details of the claimed production capacity for individual sites. This information is sourced from planning committee reports and the Council's annual survey of mineral operators. It should be noted that none of the existing sites which have been in production in recent years (Thrislington Quarry, Old Quarrington and Cold Knuckles Quarry and Crime Rigg Quarry) has ever achieved the scale of sales identified below. The maximum level of sales achieved by these sites is estimated at 411,000 in 2005. Accordingly the figures should be treated with a degree of caution. Nevertheless, the implications of this information, in particular the historic maximum sales figure (over the last ten years) is that when in full production County Durham's sand and gravel sites have a significant production capacity well in excess of historic sales levels.

Table 4.10 Productive capacity of sites in County Durham

Quarry	Estimate of productive capacity
Thrislington Quarry	300,000 tonnes per annum ¹
Crime Rigg Quarry	250,000 tonnes per annum ¹
Old Quarrington and Cold Knuckles Quarry	140,000 tonnes per annum ¹
Hummerbeck Quarry	80,000 tonnes per annum over 8 years ²
Low Harperley Quarry	156,000 tonnes per annum over 16 years ²

Notes: 1 Information provided by mineral operators in response to Durham County Council mineral survey. 2 Information sourced from planning committee reports.

Northumberland

4.16 Permitted reserves of sand and gravel in Northumberland were 6,390,000 tonnes at 31 December 2015^(xvii). These reserves were contained within six quarries, none of which are located within the Northumberland National Park:

- Ebchester (Broadoak);
- Haughton Strother;
- Hedgeley;
- Lanton (Cheviot);
- Merryshields; and
- Wooperton.

4.17 The quarries at Merryshields and Wooperton have been worked in the past but were inactive in 2015. It is, however, anticipated that production at both sites will re-commence in 2016. Sand is also extracted from a beach site at Hemscott Hill in the Druridge Bay area but the reserve for this site is not quantified. Since 31 December 2015 no further reserves of sand and gravel have been granted planning permission in Northumberland and no applications are currently awaiting determination.

4.18 Northumberland County Council has sought to understand the extent of reserves within sites and the spatial distribution of the reserves. The remaining permitted reserves in sites have been estimated based on the information on reserves and the anticipated level of production provided in planning applications. As these figures are estimates they will need to be treated with a degree of caution. The comparison with the figure for Northumberland set out in the North East Aggregates Working Party Annual Monitoring Report indicates that the level of reserves is slightly underestimated using this method. Nonetheless this information provides a reasonable estimate of reserves. It also provides an indication of the split in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.19 This work gives an indication that a significant proportion of the permitted sand and gravel reserves in Northumberland are not simply found in a limited number of the sites. It is also estimated that around 40% of sand and gravel reserves in Northumberland are found in the Tyne Valley catchment in the south and west of Northumberland and around 60% are found in the North Northumberland area.

Table 4.11 Estimated permitted reserves of sand and gravel in Northumberland at 31 December 2015 (tonnes)

Quarry	Estimate of permitted reserves at 31 December 2015
Ebchester (Broadoak) Quarry	2,200,000
Haughton Strother Quarry	800,000
Hedgeley Quarry	200,000
Hemscott Hill Beach	Unquantified
Lanton (Cheviot) Quarry	1,800,000
Merryshields Quarry	147,000
Wooperton Quarry	1,600,000

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Notes: The reserve information presented in this table are Mineral Planning Authority best estimates based on reserve and output information provided in planning applications. The estimates have been made on a site-by-site basis and do not sum to the actual total permitted reserves for Northumberland.

Tyne and Wear

4.20 The North East AWP Annual Monitoring Reports do not provide permitted reserves information for Tyne and Wear at the 31 December 2015. Information on permitted reserves for Tyne and Wear has been combined into the figure for North East England in order to avoid disclosing individual site information which is treated confidentially by the North East AWP.

4.21 Previously there has been two quarries within Tyne and Wear which contain sand and gravel Eppleton Quarry in Sunderland and Crawcrook Quarry in Gateshead. As discussed in Chapter 3, it is now understood that all sand and gravel extraction in Gateshead has now ceased. It is also understood that within Tyne and Wear there is also one outstanding planning application to extend Crawcrook Quarry. However, in response to the consultation on the first Joint LAA in early 2013, CEMEX have confirmed that following a reappraisal of the reserve at Crawcrook Quarry that they do not intend to pursue a further extension to this site. It is therefore now considered that all remaining permitted reserves within Tyne and Wear in 2015 lie within Eppleton Quarry in Sunderland.

Table 4.12 Estimated permitted reserves of sand and gravel in Tyne and Wear 31 December 2015 (tonnes).

Quarry	Estimate of permitted reserves at 31 December 2015
Tyne and Wear	6,600,000+

Notes: + Mineral Planning Authority estimate.

4.22 The extent of remaining permitted reserves within Tyne and Wear have now significantly increased following the grant of planing permission and the signing of a section 106 agreement to extend Eppleton Quarry in Sunderland.

Crushed rock reserves

4.23 Table 4.13 below identifies the extent of permitted reserves in County Durham, Northumberland and Tyne and Wear at the 31 December 2015. Table 4.13 provides a historical comparison of permitted reserves over the last ten years since 2006 within County Durham, Northumberland and Tyne and Wear. Table 4.14 also shows that permitted reserves within County Durham, Northumberland and Tyne and Wear have not collectively declined over the ten year period. This is due to a number of new permissions being granted during that time period.

Table 4.13 Permitted reserves of crushed rock reserves for aggregate use in County Durham, Northumberland, Tyne and Wear at 31 December 2015

Area	Permitted reserves	Percentage of overall permitted reserves in LAA area
County Durham	138,326,200	60.4%
Northumberland	83,990,752	36.7%
Tyne and Wear	6,700,000	2.9%

Source: North East Aggregates Working Party Reports and Mineral Planning Authority best estimates.

Notes: + Mineral Planning Authority best estimates.

Table 4.14 Comparison of permitted reserves of crushed rock at 31 December between 2006 to 2015 (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
County Durham	174,647	140,563	136,326	137,893	135,205	136,734	134,065	140,731	138,345	138,326
Northumberland	79,986	78,385	78,422	76,433	79,098	78,003	77,264	76,642	77,972	83,991
Tyne and Wear	#	#	#	#	1,400+	1,176+	964+	728+	560+	6,700

Sources: North East Aggregates Working Party Reports and Entec report Apportionment of North East Region Guidelines for Aggregates Provision. Notes: # The reserves for Tyne and Wear are included in the regional figure in the relevant AWP Annual Monitoring Report. + Mineral Planning Authority best estimates. As a consequence these best estimates are subject to a degree of error and the cumulative total for all four sub regions do not sum to the total for the North East Region.

County Durham

4.24 Through work to prepare the County Durham Local Plan and this Joint LAA the County Council has sought to understand the extent of permitted reserves within each of County Durham's crushed rock quarries, the spatial distribution of permitted reserves and the split of permitted reserves by resource type. The results of this work are set out in Table 4.15. It should be noted the overall sum of the Council's figures is slightly lower than the overall crushed rock permitted reserve figure for County Durham, as set out in Table 4.13 above. Nonetheless, despite this slight discrepancy, this information provides a robust and credible indication of spilt in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.25 This work gives an indication that in 2015 a significant proportion of the permitted crushed rock reserves in County Durham were contained within six sites. Of these sites five are magnesian limestone sites (Old Quarrington and Cold Knuckles Quarry, Thrislington Quarry East, Cornforth West Quarry, Cornforth East Quarry and Coxhoe Quarry) and one a dolerite site (Force Garth Quarry). It can also be seen that the majority of crushed rock permitted reserves in County Durham were magnesian limestone. In 2015 it is estimated that approximately 81% of permitted reserves were magnesian limestone, 6% Carboniferous limestone and 13% were dolerite.

Table 4.15 Estimated permitted reserves of crushed rock in County Durham at 31 December 2015 (tonnes).

Quarry	Estimated/Actual Permitted reserves remaining at 31 December 2015
Heights Quarry	2,860,000 ¹
Hulands Quarry	2,840,000 ²
Kilmondwood Quarry	1,850,000 ¹
Broadwood Quarry	355,000 ²
Total Carboniferous limestone permitted reserves	7,905,000²
Aycliffe Quarry	0
Witch Hill Quarry	1,532,500 ²
Running Waters Quarry	350,000 ¹
Crime Rigg Quarry	5,000,000 ¹
Bishop Middleham Quarry	2,825,000 ²
Old Quarrington and Cold Knuckles Quarry	19,516,000 ¹
Thrislington Quarry West Thrislington Quarry East	16,743,000 ¹
Cornforth East Cornforth West Quarry	37,719,000 ¹
Coxhoe (Raisby) Quarry	28,539,000 ¹
Total magnesian limestone permitted reserves	112,282,570²
Force Garth Quarry	17,982,000 ²
Total extent of all crushed rock permitted reserve best estimates	138,169,570³

Source: Durham County Council, 2016. Notes: 1 Operator returns to Council survey 2 Mineral Planning Authority best estimates. 3 Note this figure is slightly higher than the figure set out within the North East Aggregates Working Party Annual Monitoring Report for 2015, however, it is within 1% of the AWP figure.

4.26 No information is provided in Table 4.15 to detail production capacity for individual sites, however, information obtained by Durham County Council from both planning applications and operators indicate that when in full production County Durham's crushed rock sites have a significant production capacity well in excess of historic sales levels. Using available information the Council estimates that County Durham's crushed rock sites could, at full production produce approximately 4.9 million tonnes per annum. It should be recognised that this scenario is unlikely ever to occur.

Northumberland

4.27 Permitted reserves of crushed rock in Northumberland were 74,741,886 tonnes at 31 December 2015. These reserves were contained within eleven quarries, one of which, Harden Quarry, is located within the Northumberland National Park:

- Barrasford;
- Belford (Easington);
- Cocklaw;
- Cragmill;
- Divethill;
- Harden;
- Howick;
- Keepersshield;
- Longhoughton (Ratcleugh);
- Mootlaw; and
- Swinburne.

4.28 Belford (Easington) Quarry, Mootlaw Quarry and Swinburne Quarry have been worked in the past but were inactive in 2015. The activation of a dormant planning consent at Cocklaw Quarry was permitted in 2010 but extraction has yet to commence and this site is also inactive. Since 31 December 2015, an extension to Cragmill Quarry at Belford was granted planning permission involving the extraction of 6.3 million tonnes of igneous rock for aggregate uses.

4.29 Northumberland County Council and the Northumberland National Park Authority have sought to understand the extent of reserves within sites, the spatial distribution of the reserves and the split of reserves by resource type. The remaining permitted reserves in sites have been estimated based on the information on planning reserves and the anticipated level of production provided in planning applications. As these figures are estimates they will need to be treated with a degree of caution. The comparison with the figure for Northumberland set out in the North East Aggregates Working Party Annual Monitoring Report indicates that the level of reserves is underestimated. Nonetheless this information provides an indication of split in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.30 This work gives an indication that a significant proportion, in the region of 60 to 65%, of the permitted crushed rock reserves in Northumberland are estimated to be contained within a single site (Barrasford Quarry). It is also estimated that around 90% of crushed rock reserves in Northumberland are igneous rock and 10% are Carboniferous limestone, which broadly reflects the current split in sales between these resources.

Table 4.16 Estimated permitted reserves of crushed rock in Northumberland by site at 31 December 2015 (tonnes)

Quarry	Estimate of permitted reserves at 31 December 2015
Barrasford Quarry	48,000,000
Belford (Easington) Quarry	3,800,000
Cocklaw Quarry	700,000
Cragmill Quarry	7,500,000
Divethill Quarry	1,000,000

Quarry	Estimate of permitted reserves at 31 December 2015
Harden Quarry	1,350,000
Howick Quarry	2,750,000
Keepersshield Quarry	7,000,000
Longhoughton (Ratcleugh) Quarry	350,000
Mootlaw Quarry	4,185,000
Swinburne Quarry	5,250,000

Notes: The reserve information presented in this table are Mineral Planning Authority best estimates based on reserve and output information provided in planning applications. The estimates have been made on a site-by-site basis and do not sum to the actual total permitted reserves for Northumberland.

Tyne and Wear

4.31 The North East AWP Annual Monitoring Report for 2015 does not provide a figure of permitted reserves for Tyne and Wear at 31 December 2015. Information on permitted reserves for Tyne and Wear has been combined into the figure for North East England in order to avoid disclosing individual site information which is treated confidentially by the North East AWP.

4.32 The North East Aggregates Working Party Annual Monitoring Report for 2015 advises that within Tyne and Wear the entirety of existing crushed rock permitted reserves were contained within two magnesian limestone quarries, Marsden Quarry in South Tyneside and Eppleton Quarry in Sunderland.

4.33 In terms of the extent of permitted reserves remaining on 31 December 2015 it is estimated that approximately 6.7 million tonnes of permitted reserves remained within Tyne and Wear. The increase in permitted reserves between 2014 and 2015 is due to the granting of planning permission to extend Eppleton Quarry in Sunderland on 20 October 2015.

Table 4.17 Estimated permitted reserves in Tyne and Wear at 31 December 2015 (tonnes).

	Estimated permitted reserves at 31 December 2015
Tyne and Wear	6,700,000+

Notes: + Mineral Planning Authority best estimates.

Imports and exports

4.34 The most up-to-date information on imports and exports of primary aggregate minerals is provided from the results of the 2014 national aggregate minerals survey undertaken by British Geological Survey on behalf of the Department of Communities and Local Government and the Welsh Government.

Destination of sales from quarries and wharves in the Joint LAA area

4.35 Table 4.18 shows the sales of primary aggregates from the quarries and wharves in each sub-region within the Joint LAA area and the principal destinations of these sales. For both crushed rock and land-won sand and gravel it highlights that for both County Durham and Northumberland there are significant levels of sales to other parts of North East England. For County Durham and for Northumberland, but to a lesser extent, it also highlights that there are significant levels of sales which are recorded as to 'elsewhere'. The majority of these sales were to the adjoining regions in England,

in particular to the Yorkshire and Humber region (namely North Yorkshire). The destination of the majority of sales from the sites within Tyne and Wear were recorded as being within Tyne and Wear rather than to other areas.

Table 4.18 Sales of primary aggregates by sub-region and principal destination sub-region, 2014 (thousand tonnes)

Source sub-region	Destination	Land won sand and gravel	MPA %	Marine sand and gravel	MPA %	Crushed rock	MPA %
County Durham	County Durham	39	14%	-	-	1,102	41%
	Northumberland	3	1%	-		129	5%
	Tees Valley	84	30%	-		506	19%
	Tyne and Wear	125	45%	-		470	18%
	Unknown North East	0	0%	-		31	1%
	Elsewhere	25	9%	-	-	417	16%
Total for County Durham sub-region		276		-	-	2,655	
Northumberland	County Durham	21	6%	1	6%	90	8%
	Northumberland	84	23%	0	0%	678	58%
	Tees Valley	0	0%	1	6%	2	<1%
	Tyne and Wear	96	27%	17	87%	255	22%
	Unknown North East	157	43%	0	0%	60	5%
	Elsewhere	3	1%	0	0%	88	7%
Total for Northumberland sub-region		361		20	-	1,174	
Tyne and Wear	County Durham	Confidential figure	21%	139	45%	8	3%
	Northumberland	Confidential figure	<1%	9	3%	8	3%
	Tees Valley	Confidential figure	8%	0	0%	0	0%
	Tyne and Wear	Confidential figure	16%	109	35%	257	94%
	Unknown North East	Confidential figure	13%	42	14%	0	0%
	Elsewhere	Confidential figure	42%	9	3%	0	0%
Total for Tyne and Wear sub-region		Confidential figure		308		274	

Source: Table 9i Sales of primary aggregates by MPA and principal destination sub-region in 2014: North East. Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales.

Imports and exports of aggregate minerals

4.36 The imports of primary aggregates by sub-region and for North East England (includes the Joint LAA area and Tees Valley) in 2014 are shown in Table 4.19. It includes not only imports from other regions (inter-regional flows) but also flows from sub-region to sub-region within North East England. In the case of sales of marine sand and gravel and crushed rock, imports are only shown where material has been moved outside the home sub-region where the wharf is located. Table 4.19 below does not however show exports from North East England to other regions. In total in 2014 128,000 tonnes of land won sand and gravel, 9,000 tonnes of marine sand and gravel and 507,000 tonnes of crushed rock were exported from the North East of England.

Table 4.19 Imports of primary aggregates by sub-region in 2014 (thousand tonnes)

Sub-region	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel	Crushed rock	Total primary aggregates
County Durham	248	141	389	399	787
Northumberland	16	9	26	218	243
Tees Valley	175	1	176	668	844
Tyne and Wear	251	31	282	964	1,246
Unknown North East	247	42	289	159	448
Total	937	225	1,162	2,407	3,569

4.37 The consumption of crushed rock in County Durham, Northumberland and Tyne and Wear is shown in Tables 4.20. The table categorises for each destination sub-region the percentage of overall consumption that is received from source MPAs. The main points for each of the sub-regions in the Joint LAA area are summarised as follows:

- County Durham - A large proportion of consumption (70% to 80%) is supplied from quarries within County Durham itself. There are also some notable movements from the adjoining areas of North Yorkshire (10 to 20% of consumption), Cumbria and Northumberland (each 1% to 10% of consumption).
- Northumberland - A large proportion of consumption (60% to 70%) is supplied from quarries within Northumberland itself. There are also some notable movements from the adjoining areas of County Durham and Cumbria (each 1% to 10% of consumption).
- Tyne and Wear - A significant level of supply is recorded from the adjoining areas of County Durham (30% to 40% of consumption) and Northumberland (20% to 30% of consumption). Notwithstanding this, supply from South Tyneside and Sunderland (including crushed rock landed at the Port of Sunderland) make an important contribution to supply.

Table 4.20 Consumption of crushed rock for aggregate use in 2014 identifying for each sub-region the principal supplying MPAs

Source region	Source MPA	Destination sub-region		
		County Durham	Northumberland	Tyne and Wear
North East England	Durham County Council	70 - 80%	10 - 20%	30 - 40%
	Northumberland County Council	1 - 10 %	60 - 70%	20 - 30%
	Northumberland National Park Authority	<1%	1 - 10%	<1%
	South Tyneside Council	<1%	<1%	10 - 20%
	Sunderland City Council	-	-	1 - 10%
	Hartlepool Borough Council	<1%	<1%	<1%
Yorkshire and the Humber	North Yorkshire County Council	10 - 20%	<1%	<1%
	Yorkshire Dales National Park	<1%	<1%	<1%
North West England	Cumbria County Council	1 - 10%	1 - 10%	<1%
East Midlands	Derbyshire County Council	<1%	-	-
	Leicestershire County Council	<1%	<1%	<1%
	Peak District National Park Authority	<1%	<1%	<1%
East of England	Cambridgeshire County Council	-	<1%	-
South West England	South Gloucestershire Council	-	<1%	-
Wales	Ceredigion	<1%	-	-
	Rhondda Cynon Taf	-	<1%	-
	Powys	-	<1%	-
	Outside England and Wales	<1%	1 - 10%	1 - 10%
Total consumption		1,500	898	1,221

4.38 Consumption of sand and gravel for aggregate uses from quarries and wharfs in County Durham, Northumberland and Tyne and Wear is shown in Table 4.21. The table categorises for each destination sub-region the percentage of overall consumption that is received from source MPAs. The main points for each of the sub-regions in the Joint LAA area are summarised as follows:

- County Durham - A significant level of supply is recorded from quarries in North Yorkshire (40 to 50% of consumption), a quarry in Sunderland (10 to 20% of consumption) and marine dredged material landed at a wharf in South Tyneside (30 to 40% of consumption).
- Northumberland - A significant level of sand and gravel consumption is supplied from quarries and the wharfs located within Northumberland (70 to 80% of consumption). There are some notable cross boundary movements from the neighbouring MPA areas of County Durham and

Cumbria and from South Tyneside and Sunderland with each recorded as supplying between 1% and 10% of consumption.

- Tyne and Wear - Marine dredged material landed in South Tyneside (20% to 30% of consumption) and both marine-dredged and quarried material from Sunderland (10% to 20% of consumption) make a significant contribution to supply. However, a significant level of supply is also recorded from the adjoining areas of County Durham and Northumberland (each accounting for 20% to 30% of consumption).

Table 4.21 Consumption of sand and gravel for aggregate use in 2014 identifying for each sub-region the principal supplying MPAs

Source region	Source MPA	Destination sub-region		
		County Durham	Northumberland	Tyne and Wear
North East England	Durham County Council	1 - 10%	1 - 10%	20 - 30%
	Northumberland County Council	1 - 10%	70 - 80%	20 - 30%
	South Tyneside Council	30 - 40%	1 - 10%	20 - 30%
	Sunderland City Council	10 - 20%	1 - 10%	10 - 20%
	Middlesbrough Borough Council	<1%	<1%	1 - 10%
Yorkshire and the Humber	North Yorkshire County Council	40 - 50%	<1%	1 - 10%
	Yorkshire Dales National Park	-	-	-
North West England	Cumbria County Council	-	1 - 10%	<1%
West Midlands	Staffordshire County Council	<1%	<1%	-
East Midlands	Nottinghamshire County Council	<1%	-	-
	Lincolnshire County Council	-	<1%	-
East of England	Cambridgeshire County Council	-	-	<1%
	Essex County Council	-	<1%	-
Total consumption		428	109	429

Comparison between sales, imports and consumption

4.39 A comparison between sales, imports and consumption of primary by sub-region in 2014 is shown in Table 4.22. This table usefully shows that while some sub-regions import a significant proportion of their consumption (see Table 4.19 and Table 4.20), a significant portion of sales from quarries and wharves in their areas is exported to other sub regions (see Table 4.18). In respect to sand and gravel consumption in County Durham, for example, it shows while imports account for 90% of sand and gravel consumption this sub-region actually produces 60% of its consumption with a significant proportion being exported to other sub-regions in North East England.

Table 4.22 Comparison between sales and consumption in 2014 (thousand tonnes)

Sub-area	Crushed rock			Sand and gravel (land won and marine)		
	Sales	Imports	Consumption	Sales	Imports	Consumption
County Durham	2,770	399	1,500	257	389	428
Northumberland	1,473	218	898	440	218	109
Tyne and Wear	226*	964	1,221	566*	964	429

Analysis

4.40 Flows of aggregate minerals between MPA areas are complex but it has been possible to identify those movements that are considered to be of significance. Movements generally occur between those areas where suitable resources are found and those areas where there is demand but suitable resources are less abundant. This can be seen within the Joint LAA where County Durham and Northumberland supply significant amounts of material to the Tyne and Wear sub-region and from County Durham to the Tees Valley sub-region. These movements are significant and ongoing discussions between the Joint LAA authorities, particularly through the preparation of this document, are essential.

4.41 The complexity of the movements is also illustrated through some areas that are apparent significant importers of primary aggregates from other sub-regions also being significant exporters from quarries and wharves in these areas.

4.42 The figures also recognise the relationship between North Yorkshire and North East England, which reflects the proximity of the resource areas in North Yorkshire to North East England and historic patterns of supply. Previous and ongoing discussions and liaison with North Yorkshire County Council during the preparation of this LAA have indicated that this pattern of supply is expected to continue. It has, however, also been highlighted that there has been some reduction in the tonnages supplied northwards over the last 10 years or so. A declining level of permitted reserves in the northern part of North Yorkshire may also have an impact on supply in the medium to long-term and the implications of this will be kept under review through the LAA process.

4.43 A less significant relationship with Cumbria is also identified from the figures. Again this is likely to be where sites are located in close proximity to parts of Northumberland and Cumbria. Movements to and from Scotland into North East England are not significant. Sites in the adjoining Scottish Borders, for example, tend to supply minerals north to the Edinburgh city region and central Scotland rather than south to the Joint LAA area.

4.44 Movements from and to other regions of England and Wales, other than Yorkshire and Humber (namely North Yorkshire) and North West England (namely Cumbria) that are discussed separately above, are very small and are considered to be of little significance in terms of supply patterns to the Joint LAA area.

Sales of recycled and secondary aggregates

4.45 Recycled and secondary aggregates play an important role in the total supply of aggregates from County Durham, Northumberland and Tyne and Wear. Various types of recycled and secondary aggregate materials suitable for aggregate use are produced from the Joint LAA area. Recycled aggregates are those derived from construction, demolition and excavation work that have been reprocessed to provide materials or a product suitable for aggregate uses. It includes materials such as stone, concrete, brick or asphalt for re-use. A significant amount of recycled aggregates are produced on development and construction sites, but a large amount is also processed at dedicated freestanding sites or at facilities located within existing minerals and waste sites such as active quarries, waste transfer sites and landfill sites (see Appendix B). Secondary aggregates are different to recycled aggregates and are usually by-products of other construction or industrial processes, for example the production of furnace bottom ash. The use of recycled and secondary aggregates has both environmental and economic benefits, driving the more sustainable use of resources by maximising the re-use of materials, minimising new extraction of mineral and diverting waste from landfill.

4.46 Within the Joint LAA area, recycled aggregates are produced principally from construction and demolition projects and secondary aggregates are principally produced from pulverised fuel ash and furnace bottom ash from the Lynemouth Power Station in Northumberland and from colliery spoil. Materials derived from spent railway ballast and recovered asphalt planings also make a significant contribution to supply.

4.47 Information on the arisings of secondary and recycled aggregates is not as comprehensive or robust as the information available on the production of primary aggregates. The most up-to-date information on the sales of recycled and materials for aggregate use is provided through an annual survey of surveyed operators of fixed construction and demolition recycling sites and recycling producers in North East England by the North East AWP. The information provided through this should be treated with some degree of caution as not all producers in North East England responded to the survey and have thus not been included in the figures. In addition, the survey does not include mobile crushers and screens which are known to make an important contribution in terms of the quantities of construction and demolition waste recycled for aggregate uses.

4.48 Details of the quantities of materials produced is provided in Table 4.22. Due to the limitations of the survey, information for each Mineral Planning Authority is not available and is presented at a sub-regional level. In addition, and as stated above, the information provided through this survey should be treated with some degree of caution as not all producers in these areas have responded to the survey and the survey does not include mobile crushers and screens which are known to make an important contribution to overall supply.

Table 4.23 Sales of recycled and secondary aggregates in County Durham, Northumberland and Tyne and Wear, 2015 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear
Construction and demolition waste	7.9	62.7	255.6
Road planings	1.5	5.0	36.2
Spent railway ballast	0	0	20
Furnace Bottom Ash (Power stations)	0	50.7	0
Pulverised Fuel Ash (Power stations)	0	20.6	0
Incinerator Bottom Ash (Energy from Waste)	0	0	0
Waste glass	0	0	0
Colliery spoil	0	0	45
Mineral waste	0	0	0
Other	0	0	0
Total recycled and secondary aggregates	59.5	139.0	356.8

Source: North East Aggregates Working Party.

5 Forecasting demand

5.1 The National Planning Policy Framework (NPPF) states that mineral planning authorities should plan for a steady and adequate supply of aggregates by preparing a LAA based on a rolling average of 10 years sales data plus other relevant local information^(xviii). Relevant local information that could influence future aggregates provision includes future house building rates, population forecasts and major infrastructure projects. There is also a need to consider resource availability and other supply options in identifying the relevant level of provision.

5.2 This section sets out the calculation of the ten year sales average, an analysis of the local information that could influence demand and a forecast of demand.

Ten year sales average and three year sales average

5.3 The sales information presented below covers a ten year period from 2006 to 2015. This time period incorporates years of both higher (2005 to 2007) and lower (2008 to 2014) economic activity.

Sand and gravel

5.4 Sales of land-won sand and gravel over the period from 2006 to 2015 and the calculation of the ten years sales averages are shown in Table 5.1 below. The ten year sales averages can be summarised as follows:

- County Durham - 230,400 tonnes
- Northumberland - 432,000 tonnes
- Tyne and Wear - 210,800 tonnes

5.5 Using a ten years sales based approach over the 16 year period 2016 to 2031 this would require provision for 3,686,400 tonnes of sand and gravel from County Durham, 6,912,000 tonnes of sand and gravel from Northumberland and 3,372,800 tonnes of sand and gravel from Tyne and Wear.

5.6 Table 5.1 also shows that the average sales in the last three years (2013 to 2015) are only slightly below the ten years sales averages (2006 to 2015). Sales of sand and gravel in 2015 being at the highest level since 2008.

xviii Paragraph 064 of National Planning Practice Guide (ID: 27-064-20140306) states, "Local Aggregate Assessments must also consider other relevant local information in addition to the ten year rolling supply, which seeks to look ahead at possible future demand, rather than rely solely on past sales. Such information may include, for example, levels of planned construction and housebuilding in their area and throughout the country. Mineral Planning Authorities should also look at average sales over the last three years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply".

Table 5.1 Sand and gravel sales and the ten year sales averages for the period 2006 to 2015 (thousand tonnes).

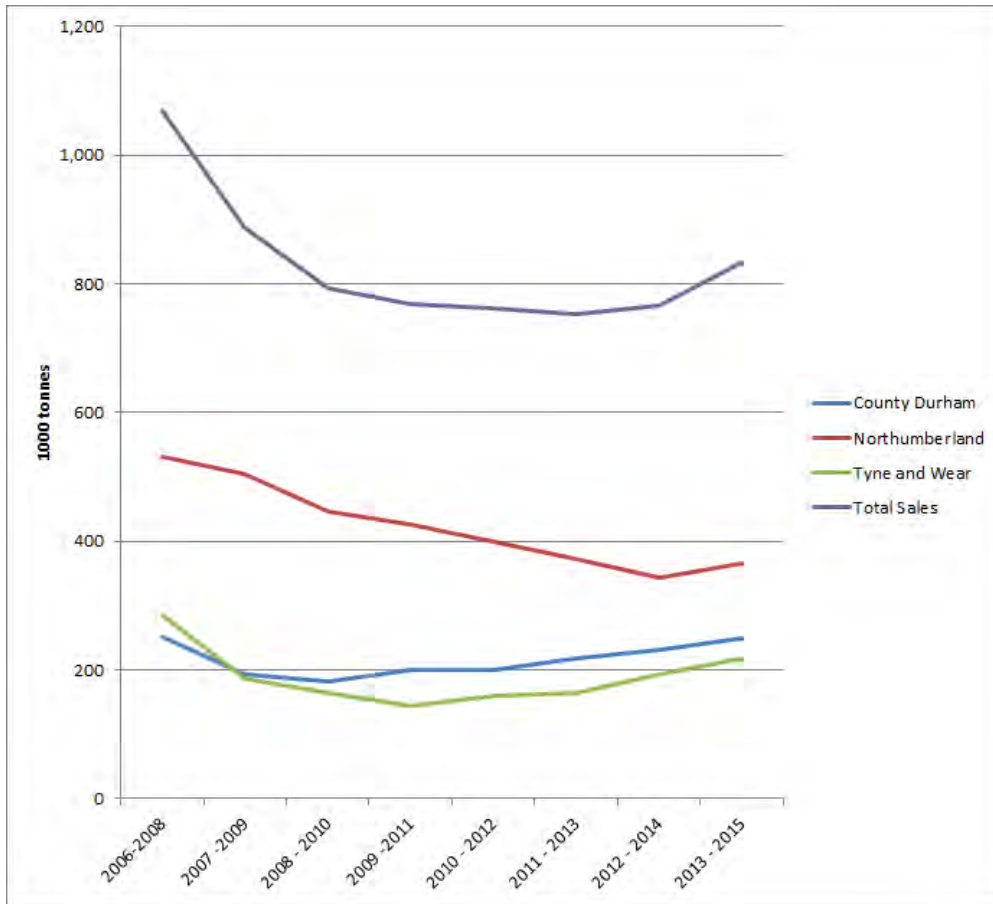
	County Durham	Northumberland	Tyne and Wear	Total Sales
2006	371	505	409	1,285
2007	201	574	241	1,016
2008	183	515	208	906
2009	199	425	113	737
2010	164	402	171	737
2011	237	450	148	835
2012	199	349	164	712
2013	218	319	178	715
2014	276	361	236	873
2015	256	420	240	916
Total sales 2006 to 2015	2,304	4,320	2,108	8,732
Percentage of Joint LAA area sales 2006 to 2015	24.0%	45.1%	22.0%	91.1%
Ten year average sales for 2006 to 2015	230.40	432.00	210.80	873.20
Three year average sales for 2013 to 2015	250.000	366.667	218.000	834.667

Source of information: North East Aggregate Working Party Annual Monitoring Reports and Mineral Planning Authority best estimates.

Table 5.2 Sand and gravel three year sales averages 2006/08 to 2013/15 for County Durham, Northumberland and Tyne and Wear (thousand tonnes)

Three year period	County Durham	Northumberland	Tyne and Wear	Total Sales
2006-2008	252	531	286	1,069
2007-2009	194	505	187	886
2008-2010	182	447	164	793
2009-2011	200	426	144	770
2010-2012	200	400	161	761
2011-2013	218	373	163	754
2012-2014	231	343	193	767
2013-2015	250	367	218	835

Figure 1 Three Year Sales Averages 2006/08 to 2013/15 for County Durham, Northumberland and Tyne and Wear



5.7 The above table and graph shows the three year sales average for sand and gravel from 2006/08 to 2013/15. For County Durham the current three years sales average 2013/15 i.e. 250,000 tonnes is only marginally higher than ten year sales average i.e. 230,400 tonnes. This is the first time the three year sales average has been higher than the ten year sales average since 2006/08 and is suggestive that sales may be now starting to recover. However, given the fall in sales in 2015 with respect to 2014, it is considered that it is too early to draw any significant conclusions from this data as to longer term trends. For Northumberland the current three year sales average 2013/15 i.e. 367,000 tonnes is significantly lower than the ten year sales average i.e. 432,000 tonnes, and the three year sales average has been lower than the ten year sales average every year since 2009/11 reflecting the recession since 2008. For Tyne and Wear the current three years sales average 2013/15 i.e. 218,000 tonnes is only slightly higher than ten year sales average i.e. 210,800 tonnes and the three year sales average is below the ten year sales average every year since 2007/2009 reflecting the recession since 2008. Across the Joint LAA area these three year sales averages indicate that generally demand for sand and gravel is still depressed over levels prior to the recession.

Crushed rock

5.8 Sales of crushed rock over the period from 2006 to 2015 and the calculation of the ten years sales averages are shown in Table 5.2 below. The ten year sales averages can be summarised as follows:

- County Durham - 2,527,600 tonnes per annum
- Northumberland - 1,364,400 tonnes per annum
- Tyne and Wear - 275,000 tonnes per annum

5.9 Using a ten years sales based approach over the 16 year period -2016 to 2031 this would require provision of 40,441,600 tonnes of crushed rock from County Durham, provision of 21,824,000 tonnes of crushed rock from Northumberland and provision for 4,400,000 tonnes of crushed rock from the Tyne and Wear authorities.

5.10 Table 5.2 also shows that the three year average sales of crushed rock (2013 to 2015 are now just below the ten years sales averages (2006 to 2015). Sales of crushed rock in 2015 being at the highest level since 2008.

Table 5.3 Crushed rock sales and average of ten years sales for the period 2006 to 2015 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear	Total Sales
2006	3,384	1,796	393	5,573
2007	3,559	1,676	375	5,610
2008	3,036	1,664	300	5,000
2009	1,920	1,153	282	3,355
2010	2,056	1,188	194	3,438
2011	1,955	1,230	224	3,409
2012	1,696	1,233	212	3,141
2013	2,245	1,060	236	3,541
2014	2,655	1,171	309	4,135
2015	2,770	1,473	225	4,468
Total sales 2006 to 2015	25,276	13,644	2,750	41,670
Percentage of Joint LAA area sales 2006 to 2015	60.7	32.7	6.6	100.0
Ten year average sales for 2006 to 2015	2527.60	1364.40	275.00	4,167.00
Three year average sales for 2013 to 2015	2,556.667	1,234.667	256.667	4,048.000

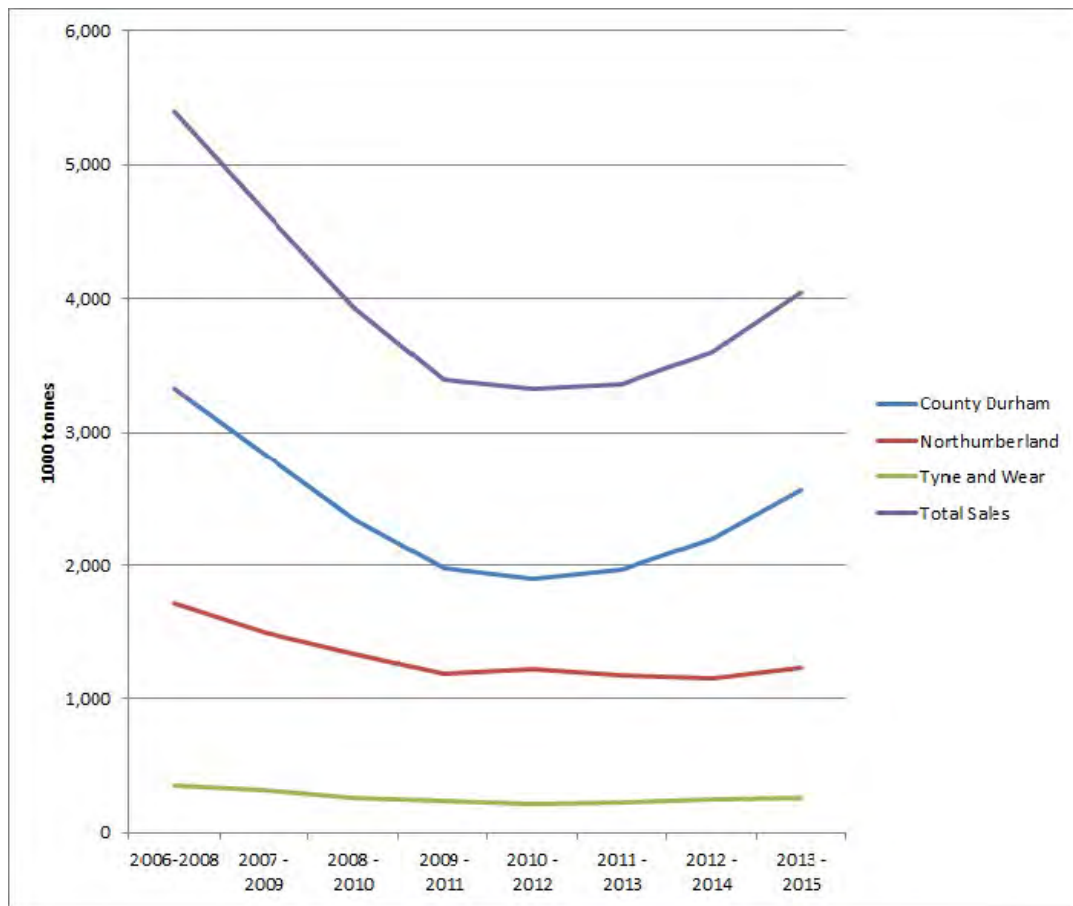
Source of information: North East Aggregate Working Party Annual Monitoring Reports and Mineral Planning Authority best estimates.

Table 5.4 Crushed rock three year sales averages 2006/08 to 2013/15 for County Durham, Northumberland and Tyne and Wear (thousand tonnes)

Three year period	County Durham	Northumberland	Tyne and Wear	Total Sales
2006-2008	3,326	1,712	356	5,394
2007-2009	2,838	1,498	319	4,655
2008-2010	2,337	1,335	259	3,931

Three year period	County Durham	Northumberland	Tyne and Wear	Total Sales
2009-2011	1,977	1,190	233	3,401
2010-2012	1,902	1,217	210	3,329
2011-2013	1,965	1,174	224	3,364
2012-2014	2,199	1,155	252	3,606
2013-2015	2,557	1,235	257	4,048

Figure 2 Crushed Rock three year sales averages 2006/08 to 2013/15 for County Durham, Northumberland and Tyne and Wear.



5.11 The above table and graph shows the three year sales average for crushed rock from 2006/08 to 2013/15. For County Durham the current three years sales average 2013/15 is only very marginally higher than the 10 year sales average and is lower than all three year sales averages with the exception of 2006-2008 and 2007-2009 both of which included years prior to the recession. For Northumberland the current three year sales average is lower than the ten year sales average and lower than all other three year sales averages with the exception of 2006-2008, 2007-2009 and 2008-2010. For Tyne and Wear the current ten year sales average is lower than the ten year sales average and lower than all other three year sales averages with the exception of 2006-2008, 2007-2009 and 2008-2010. Across the Joint LAA area these three year sales averages indicate that generally demand for crushed rock is still depressed over levels prior to the recession.

Local factors influencing demand

5.12 The following factors that could influence demand have been identified through the preparation of this LAA:

- Demand from house building
- Major infrastructure projects
- Population growth
- General economic growth

5.13 Further issues that need to be considered relating to supply include:

- The availability of suitable resources for aggregate use: and
- The presence of environmental considerations.

House building

5.14 A comparison of historic housing completions and the proposed future delivery of housing, based on the provision made in adopted and emerging Local Plan documents, is shown in Table 5.3.

Table 5.5 Summary of past and projected future housing completions

	County Durham	Northumberland	Tyne and Wear
Average annual completions in previous years (2006/07 to 2015/16) ^(a)	1,432	725	1,911
Proposed future provision	1626 ^(b)	1,216	3,403

a. Table 253 Housebuilding: permanent dwellings started and completed, by tenure and district, 2006/07 to 2014/15. DCLG <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building> (Note DCC figures amended)

b. To note, this figure has not been adopted by the Council. The County Durham Plan Issues and Options included for consideration three scenarios for future housing growth. Specifically, a Population Growth Short Term Scenario which results in a dwelling figure of 1,533 per annum, a Population Growth Combination Scenario which resulted in a dwelling figure of 1,629 per annum and a Population Growth Long Term Scenario which results in a dwelling figure of 1,717 per annum. For the purposes of the LAA an average has been taken of the three alternatives; the 1,626 figure has no formal status.

5.15 The rate of house building is forecast to be higher than over the previous period, which reflects that the local plans are generally aspirational and are planning for significant levels of housing growth.

5.16 While it is acknowledged that the achievement of such a level of completions will be largely dependent on future circumstances related to the national and local economy, it is nonetheless recognised that growth needs to be reflected in the provision for aggregates recommended by this LAA as this is over and above the levels of housing recommended in the ten year sales figures.

Population forecasts

5.17 Population forecasts for the Joint LAA areas are shown in Table 5.4. Over the period to 2031 an increase in population is expected to take place in County Durham, Northumberland and Tyne and Wear. These increases are considered to be slow and steady ranging from an increase of 2.5% in Northumberland to 5.3% in Tyne and Wear and 9.3% in County Durham.

Table 5.6 Population forecasts, 2012 to 2031 (figures in thousands)

Year	County Durham	Northumberland	Tyne and Wear
2012	514	316	1,108
2013	516	316	1,111

Year	County Durham	Northumberland	Tyne and Wear
2014	517	317	1,114
2015	520	317	1,117
2016	522	318	1,121
2017	524	318	1,124
2018	526	319	1,128
2019	528	320	1,131
2020	530	320	1,134
2021	532	321	1,137
2022	534	321	1,140
2023	536	322	1,143
2024	540	322	1,146
2025	540	323	1,149
2026	541	323	1,152
2027	543	323	1,156
2028	545	324	1,159
2029	547	324	1,161
2030	548	324	1,164
2031	549	324	1,167

Source: Durham County, Tyne & Wear and Northumberland data, Office for National Statistics, Sub-national population projections for England - Interim 2012-based.

5.18 The population projections show that the population is expected to grow over the period to 2031, albeit at a significantly smaller rate than other parts of England (over the same period the population in England is expected to be 12.9%). The population could grow at an increase through policy interventions, in particular through the growth in housing delivery.

5.19 Population growth provides only an indication of overall growth. It does not provide a direct indication of demand for aggregate minerals as consumption per head of population can vary significantly.

Major infrastructure projects

5.20 Major projects or developments have the potential to have an impact on the supply of aggregate minerals over and above the levels experienced in previous years. Table 5.5 provides details of major schemes both within the Joint LAA area and in adjoining areas.

Table 5.7 Major development projects of note in the Joint LAA area and surrounding areas

Project	Location	Details	Timeframe
A1 upgrade at Lobley Hill	Gateshead, Tyne and Wear	Upgrade of two junctions to include new parallel road links between the junctions and three lanes in each direction.	Construction summer 2014 to summer 2016.
Morpeth Northern Bypass	Morpeth, Northumberland	3.8 km of new single carriageway road.	Construction commenced in 2015 and be complete by the end of March 2017.
A1 Leeming to Barton	North Yorkshire	12 mile section of dual carriageway to be replaced with a new three lane motorway.	Construction 2014 to mid-2017
Waverley Line re-opening	Scottish Borders	Re-opening of a 30 mile section of the Waverley Line between Tweedbank and Newcraighall near Edinburgh.	Major construction works commenced in spring 2013 and were completed in summer 2015.
A1 dualling in Northumberland	Northumberland	Upgrade 13 miles of existing single carriageway to dual carriageway between Morpeth and Felton and Alnwick and North Charlton.	Construction to start in 2020 (subject to funding and completion of the relevant statutory procedures)
A19 Testos Junction improvements	South Tyneside, Tyne and Wear	It is planned to raise the A19 above the A184 on a flyover.	Construction could start in 2018 and be complete by late 2020.
A19 Silverlink Junction improvements	North Tyneside, Tyne and Wear	Improvements to the A19/A1058 Coast Road junction by upgrading the existing grade separated roundabout to a three level interchange.	Construction to start in 2016 (subject to decision on Development Consent Order)
International Advanced Manufacturing Park (IAMP)	South Tyneside and Sunderland, Tyne and Wear.	Development of manufacturing site targeting the automotive and advanced low carbon manufacturing sectors on 100 hectares of land to the north of the Nissan car manufacturing plant alongside the A19.	Currently under consideration. No dates available.

5.21 The road scheme identified in North Yorkshire is a major scheme and this could have an influence on supply from quarries in the south of County Durham that are geographically close to North Yorkshire. The Waverley Line Project in the Scottish Borders could have an influence on supply from the quarries in North Northumberland. It is however anticipated that the supply of materials to the project will come from sites within the Scottish Borders and central Scotland and from materials recycled from other elements of the project. In addition, the closest quarries in North Northumberland are 40 to 50 miles by road from the project at the nearest point.

5.22 It is considered that that current projects identified that could place additional demand on aggregate minerals are limited and are unlikely to place significant additional demand for aggregate minerals over and above the levels experienced in the years prior to the economic downturn. The exception is the A1 dualling project in Northumberland, which is expected to place additional demand from sites in North Northumberland.

General economic growth

5.23 General growth in the economy can be measured through projected growth in Gross Value Added (GVA). Projections for GVA growth over the longer-term are not widely available. UK Commission for Employment and Skills Working Futures 2012-2022 forecasts that GVA will grow by 1.5% per year in North East England over the period from 2012 to 2022.

5.24 This provides a useful indication of general growth in the economy but the link between GVA growth and the demand for aggregate minerals is not clear. In isolation it is unlikely to provide a sound basis for projected demand for aggregate minerals.

Recommended method and provision

5.25 The information presented in this LAA indicates that the ten year sales average should not be solely used to identify the requirements for future provision in the Joint LAA area.

5.26 Adopted and emerging Local Plans, both within the Joint LAA area and the Tees Valley sub-region, show that the Local Planning Authorities are planning for a significant increase in housing growth. In comparison with the period between 2002/03 and 2012/13, the number of annual housing completions is expected to increase by nearly 44% if the aspirations in these adopted and emerging Local Plans are to be achieved.

5.27 It is considered that this planned growth in housing will result in an increase in demand for aggregate minerals in the Joint LAA area over and above that identified through the ten year sales average. It is, therefore, considered important that this planned growth in housing is captured in the level of provision that this LAA identifies. There is an obvious direct link between house building and the requirements for aggregate minerals, particularly sand and gravel, and also a link between house building and requirements for other built infrastructure.

5.28 In terms of the other local factors that were explored above, it is concluded that the information does not indicate that additional provision over and above the ten year sales average is required. Taking major infrastructure and construction projects as an example, there are no schemes identified that would result in a level of demand that are not reflected in the ten year sales average where similar projects have taken place.

Preferred method for calculating provision

5.29 Consistent with the approach outlined in the Planning Practice Guidance, the preferred method is to make an upward adjustment to the ten year sales average to take into account a planned growth in house building. In order to take account of the planned growth in housing the difference between housing completions over the period between 2006/07 and 2015/16 and those planned over the period to 2031 has been calculated. This allowed for the identification of a growth rate as presented in Table 5.6.

Table 5.8 Comparison between previous annual housing completions and those proposed in adopted and emerging local plans

Sub area	Actual completions (2006/07 to 2015/16) ^(a)	Proposed completions ^(b)	Change (%)
County Durham	1,432	1,626 ^(c)	+13.54%
Northumberland	725	1,216	+67.72%
Tees Valley	1,685	2,102 ^(d)	+27.74%
Tyne and Wear	1,911	3,403	+78.07%
North East England	5,753	8,347	45.08%

- a. Data from completions derived from table 253, 'Housebuilding: permanent dwellings started and completed, by tenure and district 2006/07 to 2015/16), DCLG. Available at: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>. (Note DCC figures amended).
- b. Proposed housing completions have been sourced from a variety of documents including adopted Local Plans, Core Strategies, emerging Local Plans and Annual Monitoring Reports. Details of the figures used for each local authority are available on request.
- c. To note, this figure has not been adopted by the Council. The County Durham Plan Issues and Options included for consideration three scenarios for future housing growth. Specifically, a Population Growth Short Term Scenario which results in a dwelling figure of 1,533 per annum, a Population Growth Combination Scenario which resulted in a dwelling figure of 1,629 per annum and a Population Growth Long Term Scenario which results in a dwelling figure of 1,717 per annum. For the purposes of the LAA an average has been taken of the three alternatives; the 1,626 figure has no formal status.
- d. Source of Tees Valley future completions table 14 of Tees Valley LAA June 2016. Given figure was 21019 for 15/16 to 2024/25.

5.30 Acknowledging that there are cross-boundary movements in the supply of aggregate minerals and that the majority of sales from quarries within North East England AWP cluster are also consumed within this cluster (see Table 4.19) the growth rate used has taken into account proposed house building across the Joint LAA area and Tees Valley.

5.31 In addition, as housing represents only a portion of demand it is not considered appropriate to apply this growth rate to 100% of sales. Recognising that it is estimated that house building makes up around 15% of construction activity^(xix) the growth factor calculated that has been applied to 15% of the 10 year sales average and then added to the 10 year sales average to identify the level of provision that is recommended. The recommended figures are identified in Table 5.7.

Proposed scale of provision

5.32 Based upon the method outlined above, Table 5.7 sets out the scale of provision recommended. The figures in Table 5.7 will be used to inform the scale of provision in local plans. These figures will be revisited each year through the preparation of the LAA to take account of the most up-to-date information on sales and changes to demand based on the local factors identified such as planned house building and major infrastructure and construction projects.

Table 5.9 Proposed annual provision for land-won sand and gravel and crushed rock based upon the ten year sales average and an uplift to take account of house building aspirations (tonnes)

Sub area	Crushed rock	Sand and gravel
County Durham	3,078,000	281,000
Northumberland	1,661,000	526,000
Tyne and Wear	335,000	257,000

xix Construction Products Association Press Release, Monday 14 April 2014:
<http://www.constructionproducts.org.uk/news/press-releases/display/view/associations-spring-forecasts-show-construction-activity-is/>

6 Assessment of supply options

Land-won primary aggregates - County Durham

Crushed rock

6.1 County Durham is a regionally important source of crushed rock aggregate^(xx) from the North East AWP cluster of MPAs, producing 60.66% of crushed rock from this cluster of MPAs over the period 2006 to 2015.

6.2 The ten year sales average for crushed rock from quarries in County Durham (over the period 2006 to 2015) is 2,527,600 tonnes (see Table 5.2)^(xxi). The average annual sales over the three year period between 2013 to 2015 is 2,556,667 tonnes which is 1.1% higher than the ten year average sales. The last three years sales all being higher than all previous years since 2008 reflecting growth in the economy in recent years following the significant decline in sales between 2009 and 2012.

6.3 As at 31 December 2015, 138.32 million tonnes of permitted reserves of crushed rock for aggregate use remained to be worked in County Durham. Based on a recommended annual provision from County Durham of 3.07 million tonnes, this equates to a landbank of permitted reserves of ~~43.3~~ 45 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 52.6 years at 31 December 2014. A quantitative assessment of the balance between supply and demand is set out below. Two time periods have been chosen, to ensure consistency with both Northumberland and Tyne and Wear and enable a Joint LAA position to produced 2031 has been used and secondly to provide the basis for forecasts to the emerging County Durham Plan which runs to 2033 this date has also been used. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that County Durham has sufficient permitted reserves of crushed rock to meet this identified demand over the period to 2031 and 2033.

Table 6.1 Assessment of the balance between supply and demand for crushed rock from County Durham

Permitted reserves at 31 December 2015	Annual demand forecast	Demand forecast 2016 to 2031	Balance between supply and demand (2016 to 2031)	Demand forecast 2016 to 2033	Balance between supply and demand (2016 to 2033)
138,326,200 tonnes	3,078,000 tonnes	49,243,000 tonnes	+89,083,000 tonnes	55,398,000	82,928,000

6.4 This analysis indicates that in quantitative terms County Durham does not need to seek to make any additional provision for crushed rock over the period to 2031 or 2033 as there are sufficient reserves with planning permission to deliver supply over the period to 2031 or 2033. However, this joint LAA has highlighted the following issues that need to be taken into account:

- A large part of the permitted reserves of crushed rock, in the region of 112.2 million tonnes on 31 December 2015 81.26% are located within County Durham's nine magnesian limestone quarries. It is understood that a significant proportion of these permitted reserves are contained within six sites (Old Quarrington and Cold Knuckles Quarry, Thrislington Quarry West, Thrislington Quarry East, Cornforth West Quarry, Cornforth East Quarry, and Coxhoe Quarry). The remaining permitted reserves being located within the four remaining quarries (Crime Rigg Quarry, Witch Hill Quarry, Running Waters Quarry and Bishop Middleham Quarry). On 31 December 2015 it is estimated that only 7.9 million tonnes, 5.72% of the permitted reserves of crushed rock in

xx Prior to the recession in 2008 it is understood that County Durham produced approximately 2 to 2.5 million tonnes of magnesian limestone aggregate, approximately 900,000 tonnes of carboniferous limestone and approximately 250,000 tonnes of dolerite every year.

xxi The ten year sales average 2006 to 2015 has fallen from that of 2005 to 2014 because of the significant difference between crushed rock production in 2005 which was 3.77 million tonnes to that in 2015 which was 2.77 million tonnes.

County Durham are located within the County's four carboniferous limestone sites, (Hulands Quarry, Heights Quarry, Broadwood Quarry and Kilmond Wood Quarry) and it is estimated that only 17.98 million tonnes, 13.01% of the the permitted reserves of crushed rock in County Durham are located within the County's one dolerite site (Force Garth Quarry)^(xxii). In addition it is also understood that further permitted reserves (which are not included within the landbank) also exist at a number of other dormant/Interim Development Order quarries which require a new schedule of working and restoration conditions to be issued by the Mineral Planning Authority before working could resume and permitted reserves could be included within the landbank.

- A number of the crushed rock aggregate sites in County Durham are currently inactive and some have not been worked for some years. The following magnesian limestone quarries are currently inactive Witch Hill Quarry, Running Waters Quarry, Cornforth West Quarry and Cornforth East Quarry. In addition Broadwood Quarry, which is a carboniferous limestone quarry was also inactive in 2014.
- The current planning permission for mineral extraction at a number of the magnesian limestone quarries in County Durham have end dates before 2030^(xxiii). These are Thrislington Quarry, West of the A1(M) in 2015, Coxhoe Quarry in 2018 and Crime Rigg Quarry in 2022. It is recognised that the reserves within some of these sites will not be exhausted before the end date of the current planning permissions. .
- In terms of sales it is also understood that many of County Durham's quarries, in particular a number of the magnesian limestone quarries, have the ability to produce significantly more crushed rock aggregate than that has been achieved over the last ten year's.
- The uncertainty over the future of County Durham's one dolerite quarry, (Force Garth Quarry) is almost resolved. While the periodic review of this site under the Environment Act is ongoing the County Council has now concluded the Regulation 63 Review under the Conservation of the Habitats and Species Regulations 2010 (as amended). It has been concluded that the proposed working will have some affect but no likely significant effect on the integrity of the European designated sites either alone of in combination with other mineral consents.

6.5 While the crushed rock landbank for County Durham is relatively large and does not indicate a requirement for the release of additional reserves, the issues highlighted above must be considered through work to prepare the emerging Local Plan. The future planning policy strategy for County Durham will need to ensure that sufficient permitted reserves of crushed rock of the right type are available to ensure that a steady and adequate supply of crushed rock aggregate is maintained.

6.6 As a rural County located between both Tyne and Wear to the north and the Tees Valley to the south it is recognised that County Durham has traditionally had a role in supplying crushed rock aggregate into areas outside of County Durham where the resources are less abundant and where there is significant demand. In this respect it is recognised that on the basis of the extent of existing permitted reserves and what is understood in relation to the productive capacity of existing sites in the County, County Durham's crushed rock sites will continue to make a significant contribution to meeting the needs of both surrounding sub-regions.

6.7 In order to ensure the long term potential for future provision within County Durham it is recommended that the Council seeks to safeguard economically important crushed rock resources.

xxii The figure which is included within the Joint LAA relating to Force Garth Quarry relates only to the current approved working scheme area.

xxiii It should be noted that in September 2014 members resolved to grant an application by W&M Thompson to extend Bishop Middleham Quarry to enable the extraction of 5.5 million tonnes of magnesian limestone (2.7mt of aggregates and 2.8 million tonnes of non-aggregates) over a 14 year period with the restoration of the void with clay and soils over a 20 year period to reinstate agricultural land. This permission was issued on 2 June 2015 and now permits mineral extraction until 30 June 2029.

Sand and gravel

6.8 County Durham provides a regionally important contribution to the provision of land-won sand and gravel from the North East AWP cluster of MPAs, producing around 26.87% of land-won sand and gravel from this cluster of MPAs over the period 2006 to 2015.

6.9 The ten year sales average for sand and gravel from County Durham is 230,400 tonnes (see Table 5.1). The average annual sales over the three year period between 2013 to 2015 is 250,000 tonnes which is 8.5% higher than the ten year average sales. This reflects that in two of the last three years sales have been higher than all previous years since 2006 reflecting recent growth in the economy.

6.10 As at 31 December 2015, 8.35 million tonnes of permitted reserves remained to be worked in County Durham. Based on a recommended annual provision from County Durham of 281,000 tonnes, this equates to a landbank of permitted reserves of 30 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 36.2 years at 31 December 2015. A quantitative assessment of the balance between supply and demand is set out below. Two time periods have been chosen, to ensure consistency with both Northumberland and Tyne and Wear 2031 has been used and to provide the basis for forecasts to the emerging County Durham Plan which runs to 2033 this date has also been used. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that County Durham has sufficient permitted reserves to meet this identified demand over the period to 2031 and 2033.

Table 6.2 Assessment of the balance between supply and demand for sand and gravel from County Durham

Permitted reserves at 31 December 2015	Annual demand forecast	Demand forecast 2016 to 2031	Balance between supply and demand 2016 to 2031)	Demand forecast 2016 to 2033	Balance between supply and demand (2016 to 2033)
8,353,960 tonnes	281,000 tonnes	4,489,000 tonnes	+3,865,000 tonnes	5,050,000	+3,304,000

6.11 This analysis indicates that in quantitative terms the prospects for maintaining supply over both the period to 2030 and 2033 are very good. It is, therefore, considered that no additional provision for sand and gravel supply from County Durham is required in the short to medium-term. However, the requirement for additional provision in the long term will need to be kept under review through work to review the Joint Local Aggregate Assessment on an annual basis. A variety of factors may influence future provision requirements. For example, it is recognised that two quarries have end dates prior to 2030^(xxiv) and permitted reserves are likely to be remaining within these quarries by their end date. Accordingly, it is recommended that consideration should be given to extend the time period for extraction at Thrislington Quarry to ensure the full recovery of all permitted reserves and if necessary that this may also be required at Crime Rigg Quarry^(xxv). In addition, it is recognised that that extraction only occurred within two of the County's five sand and gravel sites in 2015, with one of the remaining sites being inactive and another two where production has yet to commence^(xxvi). It is also recognised that if production rates significantly increases the permitted reserves in the County would be depleted more rapidly. On this basis it is recommended that local development plan policies incorporate a degree of flexibility to maintain supply and in order to maintain an appropriate landbank

xxiv Planning permission for sand extraction is due to end at Thrislington Quarry on the 18 January 2015 and at Crime Rigg Quarry on 31 December 2022.

xxv As reported in section 3 in January 2015 Tarmac submitted a planning application to extend the time period of working at Thrislington Quarry.

xxvi This position has now changed. In 2016 sand production occurred at three quarries in County Durham, Thrislington West Quarry, Crime Rigg Quarry and Old Quarrington and Cold Knuckles Quarry. Furthermore development commenced at Crime Rigg Quarry in August 2016.

over the long-term. This could be achieved by Durham County Council seeking to allocate land for further long term working in the Council's forthcoming Minerals and Waste Policies and Allocations Document.

6.12 As a rural County located between both Tyne and Wear to the north and the Tees Valley to the south it is recognised that County Durham has traditionally had a role in supplying sand and gravel into areas outside of County Durham where the resources are less abundant and where there is significant demand. In this respect it is recognised that on the basis of the extent of existing permitted reserves and what is understood in relation to the productive capacity of existing sites in the County, County Durham's sand and gravel quarries may be able to make a greater contribution than in the past to the supply of sand and gravel into both surrounding sub-regions. It is also recognised that if this were to occur, this may ensure that the North East Region as a whole becomes more self sufficient and may in combination with some production of sand and gravel from the Tees Valley reduce the level of imports into North East England as a whole from surrounding regions.

6.13 No marine dredged sand and gravel is currently supplied into County Durham from ports in Durham. This is not expected to change given the established role of wharfs on the River Tyne and River Tees.

6.14 In order to ensure the long term potential for future provision within County Durham it is recommended that Durham County Council seeks to safeguard economically important sand and gravel resources.

Land-won primary aggregates - Northumberland

6.15 This section includes the analysis of supply options for both Northumberland County Council and Northumberland National Park Authority.

Crushed rock

6.16 Northumberland is an important source of igneous rock for aggregate use and this represents the most important crushed rock resource extracted in Northumberland. Sales of igneous rock make up about 90% of the annual sales of crushed rock from Northumberland for aggregate use. Within the Joint LAA area and the North East AWP cluster there is currently only one other active quarry extracting this resource (Force Garth Quarry in Teesdale, County Durham). Carboniferous limestone accounts for the remaining 10% of sales and, as a product of Northumberland's geology, a significant proportion of this extracted at quarries alongside igneous rock.

6.17 The ten year sales average for crushed rock from quarries in Northumberland (over the period 2006 to 2015) is 1,364,000 tonnes per year. The average annual sales over the three year period between 2013 and 2015 is 1,234,667 tonnes, which is 9.6% lower than the ten year average sales.

6.18 As at 31 December 2015 it is estimated that 83.99 million tonnes of permitted reserves remained to be worked in Northumberland. Based on the demand forecast and the recommended annual provision from Northumberland of 1.66 million tonnes, this equates to a landbank of permitted reserves of 50.5 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 61.6 years at 31 December 2015. A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Northumberland has sufficient permitted reserves of crushed rock to meet this identified demand over the period to 2031.

Table 6.3 Assessment of the balance between supply and demand for crushed rock from Northumberland

Permitted reserves at 31 December 2015	Annual demand forecast	Demand forecast 2016 to 2031	Balance between supply and demand (2016 to 2031)
83,990,752 tonnes	1,661,000 tonnes	26,574,000 tonnes	+57,417,000 tonnes

6.19 When considered in isolation, the reserve and landbank figures indicate that Northumberland does not need to seek to make any additional provision for crushed rock over the period to 2031 as there are sufficient reserves with planning permission in Northumberland as a whole to deliver supply to meet the level of demand forecast over the plan period. However, this does not consider a number of other matters that need to be taken into account when planning for future aggregates provision to ensure a steady and adequate supply of crushed rock is maintained from Northumberland.

6.20 The issues that this joint LAA has highlighted need to be taken into account are:

- A large part of the permitted reserves of crushed rock in Northumberland, in the region of 65%, are contained within a single site in the south and west of Northumberland;
- The current planning permissions for five of the quarries in Northumberland have end dates before 2031 (but it is recognised that the reserves within these sites may not be exhausted by the current end date of these permissions);
- The permitted reserves within some individual quarries are projected to be exhausted before 2031;
- The desirability to have some balance in supply from resource areas in the north and east of Northumberland and resource areas in the south and west of Northumberland; and
- One site located within the Northumberland National Park produces material that is valued for its red colour.

6.21 While the crushed rock landbank for Northumberland is relatively large and does not indicate a requirement for the release of additional reserves, the issues highlighted above must be considered. The future planning policy strategy for Northumberland and decisions on individual planning applications will need to ensure provision for crushed rock is made to address these issues in order to maintain productive capacity and ensure a steady and adequate supply is maintained. As there are significant reserves with planning permission it would appear appropriate to allow some flexibility in the policy approach for crushed rock in Northumberland to deal with the issues highlighted and maintain supply from a range of sites in both the south and west of Northumberland and the north and east of Northumberland.

6.22 In respect of the Northumberland National Park, it is recommended that future provision for extraction should be made outside the National Park where practical, recognising the resource that is available outside of this area with a large level of permitted reserves. However, it is recognised that the material extracted at Harden Quarry has special characteristics, is valued for its red colour and is not found elsewhere in Northumberland. While there is a large landbank for crushed rock in Northumberland, consideration should be given whether the need for the material found at the site outweighs any potential adverse effects on the purposes and special qualities of the National Park. The current planning permission for the site allows for extraction until 2029 with an anticipated output of up to 150,000 tonnes per annum. Any future proposals for this site would need to consider the balance between the provision of the material from this site, the need for the material and the availability of alternatives in less sensitive locations. To ensure that the crushed rock resource within the Northumberland National Park is not needlessly sterilised by non-mineral development and is protected over the long-term, it is recommended that this resource is safeguarded in the local plan.

Sand and gravel

6.23 Northumberland provides an important contribution to the provision of land-won sand and gravel from the both the Joint LAA area and the North East AWP cluster of MPAs, producing 49.47% of land-won sand and gravel from the Joint LAA area between 2006 to 2015.

6.24 The ten year sales average for sand and gravel from Northumberland is 432,000 tonnes. The average annual sales over the three year period between 2013 to 2015 is 366,667 tonnes, which is 15.2% lower than the ten year average sales. This reflects the economic downturn from 2007 onwards and a resulting reduction in demand for aggregate minerals.

6.25 As at 31 December 2015 it is estimated that 7.3 million tonnes of permitted reserves remained to be worked in Northumberland. Based on the demand forecast and a recommended annual provision from Northumberland of 525,000 tonnes, this equates to a landbank of permitted reserves of 13.9 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 16.9 years at 31 December 2015. A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Northumberland has sufficient permitted reserves of crushed rock to meet this identified demand over the period to 2031.

Table 6.4 Assessment of the balance between supply and demand for sand and gravel from Northumberland

Permitted reserves at 31 December 2015	Annual demand forecast	Demand forecast 2016 to 2031	Balance between supply and demand (2016 to 2031)
7,337,000 tonnes	526,000 tonnes	8,416,000 tonnes	-1,079,000 tonnes

6.26 This indicates that Northumberland needs to make additional provision for sand and gravel in the medium to long-term over the period to 2031. It is therefore recommended that additional provision for sand and gravel from Northumberland is made in the local plan and given appropriate weight when determining individual proposals. There are known resources of sand and gravel within Northumberland that are suitable for aggregate use that could meet this demand, although the environmental acceptability of extracting these resources has yet to be tested. Marine sand and gravel imported via the Port of Blyth will also make a contribution in the future.

6.27 In respect of the Northumberland National Park, it is recommended that provision of sand and gravel should be made outside of this area in line with the NPPF. There are currently no sand and gravel quarries in the Northumberland National Park and no sand and gravel for aggregate use is currently produced from this MPA area. To ensure that the sand and gravel resource within the Northumberland National Park is not needlessly sterilised by non-mineral development and is protected over the long-term, it is recommended that this resource is safeguarded in the local plan. Co-operation with the other MPAs in the North East AWP cluster, particularly Northumberland County Council, will be required to ensure the provision can be made from areas outside the National Park and that do not have a significant adverse effect on the purpose and special qualities of the Northumberland National Park taking account of other relevant factors such as the need for the mineral.

Land-won primary aggregates - Tyne and Wear

Crushed rock

6.28 The Tyne and Wear authorities provide only a relatively small contribution to the provision of crushed rock aggregate from the Joint LAA area, producing around 6.6% of crushed rock aggregate from the Joint LAA area over the ten year period 2006 to 2015.

6.29 The ten year sales average for crushed rock from Tyne and Wear is estimated as 275,000 tonnes. The average annual sales over the three year period between 2013 to 2015 is estimated at 256,667 tonnes, which is 6.7% lower than the ten year average sales. This reflects the economic downturn from 2007 onwards and a resulting reduction in demand for aggregate minerals.

6.30 As at 31 December 2015 it is estimated that approximately 6,700,000 tonnes of permitted reserves remained to be worked in Tyne and Wear. Based on a recommended annual provision from Tyne and Wear of 335,000 tonnes, this equates to a landbank of permitted reserves of 20 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 24.4 years at 31 December 2015.

6.31 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Tyne and Wear has permitted reserves of crushed rock to meet this identified demand over the period to 2031.

Table 6.5 Assessment of the balance between supply and demand for crushed rock from Tyne and Wear

Permitted reserves at 31 December 2015	Annual demand forecast	Demand forecast - 2016 to 2031	Balance between supply and demand (2016 to 2031)
6,700,000 tonnes ¹	335,000 tonnes	5,358,000 tonnes	+1,342,000 tonnes

Note: 1 Crushed rock reserve figure for Tyne and Wear is a Mineral Planning Authority estimate.

6.32 In the short-term it is understood that that Tyne and Wear's two existing crushed rock aggregate quarries will have sufficient productive capacity to meet the meet the annual provision recommended the sales. However, in the medium-term it is anticipated that the permitted reserves at Marsden Quarry will be exhausted and Eppleton Quarry alone does not have the productive capacity to meet the recommended level of provision for Tyne and Wear of 335,000 tonnes per annum. In addition Eppleton Quarry alone would not be able to achieve the scale of sales which has been achieved prior to the recession^(xxvii).

6.33 It is, therefore, recommended that the Tyne and Wear authorities support additional areas for working through the preparation and review of their Local Plan and in decisions on planning applications where environmentally acceptable in order to avoid a reliance on only one crushed rock aggregate quarry for the supply of crushed rock from Tyne and Wear following the exhaustion of permitted reserves at Marsden Quarry as well as ensuring that the Tyne and Wear authorities make an appropriate contribution to local and regional needs and in order to avoid limiting the scale of future production to that below the production capacity of Eppleton Quarry. This is considered necessary in order to avoid the eventual cessation of magnesian limestone extraction in Tyne and Wear and enable the possibility of further working close to the main area of demand within the Joint LAA area. Ideally it is recommended that proposals for additional working should be considered which would allow a scale of sales to be achieved which is consistent with that which was achieved from Tyne and Wear prior to the recession. In making this recommendation it is recognised that if additional environmentally acceptable new or extended crushed rock sites cannot be identified, future demand for crushed rock aggregate from Tyne and Wear will need to be met by intra-regional imports of crushed rock aggregate from both Northumberland and County Durham. Until it can be demonstrated that there are no further environmentally acceptable sites remaining in Tyne and Wear further working should be considered. It is important that the Tyne and Wear authorities give consideration to provision

xxvii Sales of crushed rock aggregate from Tyne and Wear's magnesian limestone quarries exceeded the maximum level of production which is believed to be achievable from Eppleton Quarry i.e. 250,000 tonnes, in 2001, 2002, 2003, 2006, 2007, 2008, 2009, 2014 and 2015.

for the supply of crushed rock given that markets in Tyne and Wear is a major source of demand for crushed rock aggregate from North East quarries, including those in both County Durham and Northumberland.

6.34 In order to ensure the long-term potential for future provision within Tyne and Wear it is recommended that economically important crushed rock resources are safeguarded and given appropriate policy protection.

Sand and gravel

6.35 Tyne and Wear provides a regionally important contribution to the provision of land-won sand and gravel from the Joint LAA area, producing approximately 24.1% of land-won sand and gravel from the Joint LAA area over the period 2006 to 2015.

6.36 The ten year sales average for sand and gravel from Tyne and Wear is 210,800 tonnes. The average annual sales over the three year period between 2013 to 2015 is 218,000 tonnes (see table 5.1), which is 3.41% higher than the ten year average sales. This reflects that in two of the last three years sales have been higher than all previous years since 2007 reflecting recent growth in the economy.

6.37 As at 31 December 2015 6,600,000-tonnes of permitted reserves are estimated to be remaining to be worked in Tyne and Wear. Based on a recommended annual provision from Tyne and Wear of 257,000 tonnes, this equates to a landbank of permitted reserves of 26 years at 31 December 2015. The equivalent landbank based on the ten year sales average is 31.3 years at 31 December 2015. A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Tyne and Wear currently has sufficient permitted reserves of crushed rock to meet this identified demand over the period to 2031.

Table 6.6 Assessment of the balance between supply and demand for sand and gravel from Tyne and Wear

Permitted reserves at 31 December	Annual demand forecast	Demand forecast 2016 to 2031	Balance between supply and demand (2016 to 2031)
6,600,000 tonnes ¹	257,000 tonnes	4,107,000 tonnes	+2,493,000 tonnes

Note: 1 Sand and gravel reserve figure for Tyne and Wear is a Mineral Planning Authority estimate.

6.38 The grant of the permission in October 2015 to extend Eppleton Quarry in Sunderland has transformed the sand and gravel supply position in Tyne and Wear. In quantitative terms this planning permission will allow Tyne and Wear to maintain a ten year sand and gravel landbank beyond 2031. However, following the closure of all other quarries producing sand and gravel in Tyne and Wear (Blaydon Quarry and Crawcrook Quarry in Gateshead) production of sand and gravel in Tyne and Wear will be entirely dependent upon production from Eppleton Quarry in Sunderland. In this respect it is understood that while this quarry could meet the production requirement emanating from both the current three year average sales figure and the ten year average sales figure Eppleton Quarry would not be able to meet the recommended level of provision for Tyne and Wear of 257,000 tonnes per annum. In addition it is also understood that Eppleton Quarry alone would not be able to achieve the scale of sales which has been achieved prior to the 2008 economic downturn^(xxviii).

xxviii Sales of sand and gravel from Tyne and Wear's sand and gravel sites exceeded the maximum level of production which is believed to be achievable from Eppleton Quarry i.e. 250,000 tonnes per annum, in 2003, 2004, 2005, 2006.

6.39 It is, therefore, recommended that the Tyne and Wear authorities support additional areas for working through the preparation and review of their Local Plan and in decisions on planning applications where environmentally acceptable in order avoid reliance upon only one sand and gravel quarry in Tyne and Wear and avoid limiting the scale of future production to that below the production capacity of Eppleton Quarry. Ideally it is recommended that proposals for additional working should be considered which would allow a scale of sales to be achieved which is consistent with that which was achieved from Tyne and Wear prior to the recession. This is considered necessary in order to avoid the eventual cessation of sand and gravel extraction in Tyne and Wear and enable the possibility of further working close to the main area of demand within the Joint LAA area. In making this recommendation it is recognised that if additional environmentally acceptable new or extended sand and gravel sites cannot be identified, future demand for sand and gravel from Tyne and Wear will need to be met by a combination of marine dredged aggregates and from sites outside of Tyne and Wear. However, until it can be demonstrated that there are no further environmentally acceptable sites remaining in Tyne and Wear further working must remain a prospect. It is important that the Tyne and Wear authorities give consideration to provision for the supply of crushed rock given that markets in Tyne and Wear is a major source of demand for sand and gravel from North East quarries, including those in both County Durham and Northumberland.

6.40 Tyne and Wear is a net importer of sand and gravel from other parts of North East England. In order to reduce the extent of intra-regional imports of sand and gravel it is recommended that Tyne and Wear authorities (namely Gateshead, South Tyneside and Sunderland as this is where the resource is found) seek to continue to make provision to ensure that an appropriate contribution is made to meet local and regional needs.

6.41 In order to ensure the long-term potential for future provision within Tyne and Wear, it is recommended that the Tyne and Wear authorities seek to safeguard economically important sand and gravel resources. Also given the importance of marine dredged aggregates to the overall supply of sand and gravel in North East England it is recommended that the Tyne and Wear authorities seek to safeguard existing marine wharfs to ensure the long-term capability and capacity to import marine dredged sand and gravel into North East England.

Marine dredged sand and gravel

6.42 The closest areas licenced for the dredging of marine aggregates from North East England are in the Humber dredging area. Information provided by The Crown Estate shows that within the Humber dredging area 5.05 million tonnes of material is permitted for extraction each year under existing licences. The Crown Estate identify that over the ten year period between 2002 and 2011 an average of 76% of the permitted has been dredged and there is an opportunity to supply approximately 2.1 million tonnes of extra material each year^(xxix). The Crown Estate also identify that there are permits to supply a further 8.46 million tonnes each year from this dredging area.

6.43 The existing wharf infrastructure in North East England is well established and these wharfs have capacity to deal with the tonnages currently delivered there as well as any future increase in the tonnages of marine aggregates delivered. In 2014 the wharf at Howdon was inactive along with the wharf at Gateshead, which has been inactive since 2011. In addition, marine sand and gravel is now being imported via the port of Blyth in Northumberland. The LAA also recognises that the port facilities at Blyth and Berwick-upon-Tweed in Northumberland and Seaham in County Durham have the potential to land marine aggregates.

xxix See The Crown Estate. Minerals Planning Briefing Note: Marine Aggregate Opportunities, Region: Humber. Issue 3. May 2012

6.44 Supply of marine sand and gravel is therefore likely to be maintained and there is also the scope for it to increase. There is capacity at the wharf sites within the Joint LAA area and there is understood to be resource available in the Humber dredging area that could supply the Joint LAA area. These supplies are an important source of concreting sand, particular to main markets in Tyne and Wear where there is a reliance on imports to meet demand.

Recycled and secondary aggregates

6.45 In the Joint LAA area, the main sources of recycled aggregate are from construction and demolition waste. A number of fixed sites that recycle such materials for aggregate uses are found in County Durham, Northumberland and Tyne and Wear (see Appendix B).

6.46 In Northumberland, ash from Lynemouth Power Station is an important source of secondary aggregate. While the power station is now in the process of fully converting to using biomass as its principal fuel and ceased burning coal in December 2015, it is anticipated that ash material stored on the site can be extracted and used as a secondary aggregate in the future. Colliery spoil from Eppleton Quarry in Sunderland is also used as a secondary aggregate.

Imports

6.47 The most significant movements of primary aggregates within the Joint LAA area and to/from the Joint LAA have been identified as:

- Supply of crushed rock and sand and gravel from North Yorkshire northwards to the south of County Durham (and also to Tees Valley, which is outside of the Joint LAA area); and
- Supply of primary aggregates from County Durham and Northumberland to Tyne and Wear and, in respect of County Durham to the Tees Valley.

6.48 Other important and notable cross-boundary movements have also been identified:

- Supply of marine sand and gravel from wharf sites on the River Tyne;
- Movements from Cumbria into the Joint LAA area; and
- Supply of crushed rock from a quarry in the Northumberland National Park to a range of destinations (although the tonnages are not significant in both sub-regional and regional terms).

6.49 The most significant imports of aggregates into the Joint LAA area is recorded as land-won sand and gravel and crushed rock from North Yorkshire in County Durham, reflecting the availability of good quality resources in the northern part of North Yorkshire that are in close proximity to the southern part of County Durham. Previous and ongoing discussions and liaison with North Yorkshire County Council during the preparation of this LAA have indicated that this pattern of supply is expected to continue. It has also been highlighted that there has been a reduction in the tonnages supplied northwards from North Yorkshire over the last 10 years or so. A declining level of permitted reserves in the northern part of North Yorkshire may have an impact on supply in the medium to long-term and the implications of this will be kept under review through the LAA.

6.50 Imports of marine sand and gravel also make an important contribution to the supply of sand and gravel aggregate to the Joint LAA area. Wharfs on the River Tyne and in Sunderland are important for the supply of aggregates to Tyne and Wear. They are also important in terms of supplying material further afield as well.

6.51 Within the Joint LAA it has been identified that there are significant movements between rural areas and the urban areas where a greater demand for these materials exists. As rural counties, County Durham and Northumberland have traditionally had a role of supplying crushed rock and sand and gravel for aggregate use to the Tyne and Wear conurbation where there is significant demand and suitable resources are less abundant. In addition, County Durham has had a role in supplying aggregates south to the Tees Valley sub-region for similar reasons. This pattern of supply is expected to continue but it is recognised that there may be more pressure in the future for the supply of aggregates from County Durham and Northumberland if permitted reserves are not replenished within Tyne and Wear.

7 Conclusions and recommendations

Supply

Crushed rock supply

7.1 Overall this Joint LAA has indicated that there are good prospects of crushed rock supply being maintained over the period to 2030 at levels similar to those over the previous ten monitoring periods for which data is available. The level of provision indicated by recommended annual provision is provided in Table 5.7. However, it must be recognised that the ability to maintain supply of crushed rock at this level is dependent the capability of the quarries in North East England to maintain productive capacity. This will be dependent on some quarries gaining consent to extend the time period for extraction to enable all the permitted reserves to be recovered and/or releasing additional reserves through extensions to the working areas of existing quarries or new quarries where it could be demonstrated that this course of action is necessary to maintain an adequate overall productive capacity.

7.2 In the County Durham sub-regional area, it is recognised that there are significant permitted reserves of crushed rock which will be available to meet future supply requirements, which equates to a landbank of 45 years as calculated using the recommended provision of 3.07 million tonnes^(xxx). This means that the prospects for maintaining supply over the period to 2030 and 2033^(xxxi) are very good. The majority of permitted reserves in County Durham some 81.26% are concentrated in ten magnesian limestone quarries which are well related to the main market areas in County Durham and Tyne and Wear, with remaining permitted reserves concentrated in four carboniferous limestone quarries and one dolerite quarry. It is recognised that there is a potential shortfall in permitted reserves of carboniferous limestone and that further provision is necessary in order to maintain the level of supply of this particular resource to 2033. In addition, in relation to dolerite extraction at Force Garth Quarry the County Council has now concluded the Regulation 63 Review and it has been concluded that the proposed working will have some affect but no likely significant effect on the integrity of European designated sites either alone or in combination with other mineral consents. Accordingly, this will now allow the periodic review to be completed. An extension of time for determination of the ROMP has been agreed until October 2017.

7.3 Of the 15 crushed rock quarries in County Durham it is recognised that approximately 87% of all permitted reserves are concentrated in six quarries. It is also recognised that a significant proportion of permitted reserves are located within sites which are inactive, that a number of sites contain only limited permitted reserves and that three quarries have end dates before 2030 and 2033. It is also recognised that many of the sites in County Durham, where permitted reserves remain have a significant productive capacity, which has not been reflected in past sales. Consideration, therefore, needs to be given through the local development plan process to ensure that a steady and adequate supply of crushed rock can be maintained through the further extraction of carboniferous limestone, by the full recovery of permitted reserves of magnesian limestone and through allowing extraction to continue at existing sites where permitted reserves are expected to remain when planning permission is due to end. It is also recommended that consideration should also be given to whether there is a need to incorporate further flexibility, in particular to reduce reliance upon those quarries where existing permitted reserves are concentrated. A key consideration will be whether further working of magnesian limestone can be justified and found environmentally acceptable given the extent of existing permitted reserves and the significant potential productive capacity of existing sites.

7.4 In the Northumberland sub-regional area, it is recognised that significant reserves are contained within a single quarry in the south and west of Northumberland, four of the current quarries have end dates before 2030 and that the permitted reserves within a number of quarries are likely to be

xxx The equivalent landbank based on the ten year sales average is 54.7 years at 31 December 2015.
xxxi 2033 is referred to as this is the end of the Plan period for the emerging County Durham Plan.

exhausted by 2030. Consideration, therefore, needs to be given to maintaining productive capacity given the issues highlighted and this is deemed to be environmentally acceptable. In addition, it is recognised that Harden Quarry in the Northumberland National Park produces a crushed rock aggregate that is particularly valued for its red colour. The recent granting of planning permission for an extension to the site will provide continuity of supply from this site until 2029. In the longer-term consideration needs to be given through the local plan process as to whether it would be appropriate to allow this site to continue when reserves are exhausted by means an extension to the site or an extension of time if the reserves are not exhausted by the current end date. A key consideration would be whether the need for the material outweighs the potential adverse effects on the purposes and special qualities of the Northumberland National Park.

7.5 In the Tyne and Wear sub-regional area it is recognised that permitted reserves are contained within two quarries. The granting of planning permission to extend Eppleton Quarry in Sunderland in 2015 has transformed the supply situation in Tyne and Wear and will provide a significant boost to the ability of Tyne and Wear to contribute to meeting its own needs for crushed rock. Based on the recommended provision of 335,000 tonnes, permitted reserves on the 31 December 2015 equate to a landbank of 20 years^(xxxii). However, it is recognised that beyond the short term, following the exhaustion of permitted reserves at Marsden Quarry, this quarry alone will not enable Tyne and Wear to maintain sales at a level equivalent to either the three year, ten year sales average or the annual demand forecast. It is recommended that consideration should be given to identifying and releasing additional reserves, where environmentally acceptable, to maintain the level of supply, particular if reserves are exhausted at Marsden Quarry in South Tyneside by around 2020 or earlier.

Sand and gravel supply

7.6 In general terms prospects for supply of land-won sand and gravel in this joint LAA area are relatively good but this is dependent on additional reserves being released to ensure supply over the long-term and capability of the quarries to maintain productive capacity. The level of provision indicated by recommended annual provision is provided in Table 5.7.

7.7 In the County Durham sub-regional area, it is recognised that there are significant permitted reserves of sand and gravel which will be available to meet future supply requirements, which equates to a landbank of 30 years as calculated using the recommended provision of 281,000 tonnes^(xxxiii). This means that the prospects for maintaining supply over the period to 2030 and 2033 are very good. Furthermore following the commencement of working at Low Harperley in August 2016 and a resumption of working at Old Quarrington and Cold Knuckles Quarry in 2016 County Durham should have four working sand and gravel quarries from 2017. It is, therefore, considered that no additional provision for sand and gravel supply from County Durham is required in the short to medium-term. However, this will need to be kept under review through work to review the Joint Local Aggregate Assessment on an annual basis. It is recognised that two quarries have end dates prior to 2030 and 2033 and permitted reserves are likely to be remaining within these quarries by their end date. It is also recognised that if production rates significantly increases the permitted reserves in the County would be depleted more rapidly. It is recommended that local development plan policies incorporate a degree of flexibility to maintain supply and in order to maintain an appropriate landbank over the long-term. This could be achieved by Durham County Council seeking to allocate land for further long term working in the Council's forthcoming Minerals and Waste Policies and Allocations Document. It is also recognised that, on the basis of the extent of permitted reserves and the productive capacity of the quarries, County Durham may be able to make a greater contribution to the supply of land-won sand and gravel to the Tyne and Wear sub-region to the north and the Tees Valley sub-region to the south in addition to being increasingly self-sufficient.

xxxii The equivalent landbank based on the ten year sales average is 24.4 years at 31 December 2015.

xxxiii The equivalent landbank based on the ten year sales average is 36.2 years at 31 December 2015.

7.8 It is recognised that the Northumberland sub-region makes a significant contribution to the supply of land-won sand and gravel in North East England. The analysis has highlighted that permitted reserves are available to maintain supply in the short-term but there is likely to be a shortfall in the medium to long-term. It is also recognised that a number of the existing quarries have end dates prior to 2030. It is therefore recommended that consideration is given to the identifying and releasing additional reserves to maintain supply over the long-term where environmentally acceptable. This will also be necessary to maintain an appropriate landbank of reserves within Northumberland over the long-term. It is also recommended that, in line with national planning policy, additional provision should be sought outside of the Northumberland National Park.

7.9 In the Tyne and Wear sub-regional area, there is now only one site supplying sand following closure of the other sand and gravel quarries in Gateshead. The issue of planning permission to extend Eppleton Quarry in 2015 to extend Eppleton Quarry in Sunderland has transformed the supply situation in Tyne and Wear and will provide a significant boost to the ability of Tyne and Wear to make a greater contribution to meeting its own needs for sand and gravel. Based on the recommended provision of 257,000 tonnes, permitted reserves on the 31 December 2015 equates to a landbank of 26 years^(xxxiv). While it is identified that the area does now have a landbank in excess of seven years, as calculated using the recommended provision for Tyne and Wear, and it is considered that Eppleton Quarry does have reasonable prospects for maintaining a contribution to land-won supply from Tyne and Wear to 2030, it is considered that the reliance on supply from one quarry will limit future supply to the productive supply capacity of this quarry. It is therefore recommended that consideration is given to the identifying and releasing additional areas where environmentally acceptable. This will also be necessary to maintain an appropriate landbank within this sub-region in the long-term.

Marine aggregate supply

7.10 Marine dredged sand and gravel makes a significant contribution to the overall provision of sand and gravel in the Joint LAA area and North East England, particularly in terms of provision to Tyne and Wear where there are active wharf sites on the River Tyne and at Sunderland.

7.11 It is anticipated that supply from these wharf sites is likely to be maintained. These sites also have the capacity to increase supply in order to increase supply in the future, particularly if the currently mothballed sites are brought back into use. It is also recognised that there is expected to be an ongoing resource available from the Humber areas.

7.12 Given the contribution of marine sand and gravel to the overall provision of sand and gravel for aggregate use in the Joint LAA area, it is important that the existing wharfs, including those currently mothballed, are safeguarded in line with national planning policy.

Recycled and secondary aggregate supply

7.13 Comprehensive information on the production and supply of recycled aggregates is not available to inform this LAA. It is assumed that the majority of material that is suitable for use as a recycled aggregate is put to beneficial use. Within the joint LAA area, the materials available for use as recycled aggregate are most commonly construction, demolition and excavation wastes and road planings. It is anticipated that the supply of both recycled and secondary aggregates is likely to continue at similar levels as in recent years, particularly in the short-term.

7.14 In terms of secondary aggregates, the key sources of materials suitable for aggregate use are ash from Lynemouth Power Station in Northumberland and colliery spoil from Eppleton Colliery in Sunderland. Supply from these sources are likely to continue in the short- to medium-term. The power station at Lynemouth ceased burning coal in December 2015 and is now in the process of

xxxiv The equivalent landbank based on the ten year sales average is 31.3 years at 31 December 2015.

being converted to use biomass as its principal fuel. It is, however, anticipated that ash material from the previous burning of coal stored on the site can be extracted and used as a secondary aggregate in the future and therefore continue to contribute to supply.

7.15 Important sources of materials suitable for secondary aggregates are also found in the Tees Valley sub-region to the south of this joint LAA area. This includes incinerator bottom ash for the Energy from Waste facility at Haverton Hill in Stockton on Tees and materials originating from the steelworks at Redcar, although there is uncertainty regarding future supply following the closure of the steelworks in 2015. These sites have the potential to continue to supply secondary aggregates to the Joint LAA area, particularly to County Durham.

Imports of aggregates

7.16 Within the Joint LAA area there are significant movements between the rural areas and the urban areas where there is higher demand. As rural counties, Northumberland and County Durham have traditionally had a role of supplying crushed rock and sand and gravel for aggregate use to the Tyne and Wear conurbation where there is significant demand and suitable resources are less abundant. In addition, County Durham has had a role in supplying aggregates south to the Tees Valley sub-region for similar reasons. This pattern of supply is expected to continue recognising the availability of resources in County Durham and Northumberland. It is also recognised that there could be increased pressure for the supply of resources from County Durham and Northumberland if extracted reserves are not replaced with new permitted reserves within Tyne and Wear and Tees Valley.

7.17 The most significant imports of aggregates into the Joint LAA are land-won sand and gravel and crushed rock from North Yorkshire, reflecting the availability of good quality resources in the northern part of North Yorkshire close to the southern part of the Joint LAA area. It is also recognised that sites in North Yorkshire are likely to also supply markets in County Durham, particularly in the south of the County which is assumed to be as a result of the proximity of the quarries in North Yorkshire to this part of County Durham, but not due to the lack of permitted reserves in County Durham.

7.18 In addition, it is recognised that imports of marine sand and gravel make an important contribution to the supply of sand and gravel aggregate to the Joint LAA area.

Key issues for local plan preparation

Key matters identified

7.19 The key matters to arise from this Joint LAA are summarised below. These matters are relevant to the preparation and review of local plans by the MPAs with the joint LAA area. The key matters identified are as follows:

- The use of the ten year sales average is not seen as being appropriate as the basis for assessing future supply requirements with the Joint LAA area. In order to accord with the NPPF and Planning Practice Guide it is recommended that an alternative figure which takes into account other relevant information is used. In this regard the implications of this requirement is set out in table 5.9 and addressed by each sub-region in section 6 of this report.
- In general terms the prospects for the supply of land-won sand and gravel in this joint LAA area over the period to 2030^(xxxv) are positive but this is dependent on additional reserves being released to ensure supply over the long-term and capability of the quarries to maintain productive capacity (particularly relevant to the Northumberland and Tyne and Wear sub-regions). Where

xxxv 2033 for County Durham.

necessary local plans, therefore, need to consider releasing additional reserves to maintain supply into the long-term and maintain landbanks of sand and gravel above the 7 year minimum specified by the NPPF.

- There are good prospects of crushed rock supply being maintained across this joint LAA area over the period to 2030^(xxxvi). However, this will be dependent on some quarries gaining consent to extend the time period for extraction to enable all the permitted reserves to be recovered and/or releasing additional reserves through extensions to the working areas of existing quarries or new quarries where it could be demonstrated that this will help to maintain an adequate overall productive capacity and a steady and adequate supply of aggregates and landbanks of crushed rock over the ten year minimum specified by the NPPF. Local development plans, therefore, need to consider how to address this.
- Supply of recycled and secondary is assumed to continue at similar levels to those previously experienced. However, there is uncertainty regarding the future supply of secondary aggregate from Lynemouth Power Station in Northumberland over the longer-term.
- MPAs to safeguard aggregates resources through their local plans to ensure these resources are not needlessly sterilised by non-mineral development. Mineral Safeguarding Areas should be identified in line with the NPPF.
- MPAs to safeguard of wharf sites, which are important for the supply of marine sand and gravel. This issue is particularly relevant to Tyne and Wear.
- MPAs to safeguard infrastructure for the transport of aggregate minerals as well as coating facilities and concrete batching facilities.

Cross boundary issues

7.20 This Joint LAA has identified a number of important cross-boundary movements in terms of aggregates supply both within the area covered by the joint LAA and to/from the Joint LAA area. These are the key cross boundary issues that the MPAs should give consideration to in the preparation of their local plans.

7.21 The most significant movements have been identified as:

- Supply of primary aggregates from County Durham and Northumberland to Tyne and Wear and, in respect of County Durham, the Tees Valley.
- Supply of crushed rock from County Durham to North Yorkshire.
- Supply of primary aggregates from North Yorkshire to the south of County Durham (although there are also significant movements to the Tees Valley).

7.22 Other important cross-boundary movements that have been identified and need to be considered are:

- Supply of marine sand and gravel from the wharf sites on the River Tyne.

xxxvi 2033 for County Durham.

- Supply of crushed rock from a quarry in the Northumberland National Park to a range of destinations (although the tonnages are not significant in both sub-regional and regional terms).
- Movements of sand and gravel from Cumbria into the Joint LAA area.

Issues requiring further consideration or future review

7.23 A number of issues have also been identified that need to be reviewed in the future or which require further consideration. Some of these issues are ongoing. The issues include:

- The potential for an increase in demand for crushed rock and sand and gravel supply from County Durham and Northumberland as a result of reserves not being replenished within Tyne and Wear. This may particularly be an issue in respect of sand and gravel.
- The potential for increased demand for aggregates should there be an increase in construction activity resulting from more favourably economic conditions or from any major infrastructure projects. Changes in demand will be reviewed on an annual basis with the three year sales average used as a tool to identify changes in the patterns of supply.
- Understanding the level of provision made through the ten years sales average approach and how this compares to level of sales from the North East AWP cluster of MPAs set out in the national and sub-national guidelines.
- The potential change in the availability in the supply of secondary aggregate as a result of the proposed conversion of the Lynemouth Power station in Northumberland from a coal burning power station to a biomass burning power station.

7.24 In terms of the data and information used to inform this LAA, a number of issues have been identified in respect of its availability and how comprehensive some of the information is. It is acknowledged that the MPAs will not realistically be able to address some of these issues. This includes some acceptance of the commercially confidential nature of some of the data on aggregate sales and reserves supplied and that accurate information on sales and reserves will not always be available for individual sites. The main issues identified include:

- A lack of comprehensive information on the production and supply of recycled aggregates.
- A lack of comprehensive information on the cross-boundary movements of aggregates at the level of the Mineral Planning Authorities. The availability of this information would be helpful in understanding more fully the cross boundary issues and the reasons for particular patterns of cross boundary movements.
- Limited primary data available on sales and reserves of aggregates at individual quarries and wharf sites. The use of the ten year sales average as the basis for assessing supply requirements depends on the ability of MPAs to have access to up to date, consistent and accurate data on sales for individual sub-regions and preferably individual quarries. Unfortunately, due to the way information has been collected and presented in the past this Joint LAA has had to draw upon a number of sources of data and assumptions have needed to be made on the extent of past sales in both County Durham and in particular Tyne and Wear. Ideally information on historic sales provided to the North East AWP by mineral operators should be made available to the MPAs in order to ensure that accurate ten year sales averages are able to be calculated. Similarly, in order to assess the balance between supply and demand, information on permitted reserves by sub-region and preferably individual quarries should be made available to the MPAs. It is

considered that such information will also be of great value to MPAs in preparing their Local Plans. Accordingly, the industry are invited to agree to the provision to the MPAs of both historic and current sales and permitted reserve information.

Appendix A Aggregate mineral sites

A.1 This appendix supports Chapter 3 of the joint Local Aggregate Assessment and provides details of all active aggregate mineral sites in County Durham, Northumberland and Tyne & Wear. In addition this appendix also provides details of all aggregate mineral sites in County Durham, Northumberland and Tyne & Wear upon which new schemes of conditions for working and restoration are required under the Environment Act 1995 prior to the winning and working of aggregate minerals being resumed.

County Durham

Magnesian limestone

Table A.1 Quarries with planning permission for magnesian limestone extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2015	Expiry date for extraction	Designations
Aycliffe Quarry East	Aycliffe NZ 290 222	Stonegrave Aggregates	Closed	12/05/2014	
Bishop Middleham Quarry	Ferryhill NZ 328 326	W & M Thompson Quarries	Active	30/06/2015	SSSI
Cornforth East	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042	
Cornforth West	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042	
Coxhoe (Raisby) Quarry	Coxhoe NZ 347 352	Breedon	Active	01/09/2018	SSSI
Crime Rigg Quarry	Sherburn NZ 346 416	Sherburn Stone	Active	31/12/2022	SSSI
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042	
Running Waters Quarry	Bowburn NZ 334 403	Sherburn Stone	Inactive	21/02/2042	
Thrislington Quarry East	Cornforth NZ 317 322	Tarmac	Active	01/07/2045	
Thrislington Quarry West	Cornforth NZ 317 322	Tarmac	Active	18/01/2015	
Witch Hill Quarry	Sherburn NZ 345 397	Sherburn Stone	Inactive	21/02/2042	

Table A.2 Dormant Sites (Magnesian Limestone)

Site name	Location and Grid Reference	Designations
Tuthill Quarry	Haswell 390442	

Site name	Location and Grid Reference	Designations
Coxhoe (Joint Stocks)	Coxhoe 325366 & 330364	
John O'Tooles (Leasingthorn) Quarry	Bishop Auckland	

Table A.3 Interim Development Orders (Magnesian Limestone)

Site name	Location and Grid Reference	Designations
Hawthorn Quarry	Seaham 438462	SSSI
Chilton Quarry	Ferryhill Station 298325	

Carboniferous limestone**Table A.4 Quarries with planning permission for Carboniferous limestone extraction in County Durham**

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2015	Expiry Date for Extraction	Designations
Broadwood Quarry	Frosterley NZ 035 365	Sherburn Stone Co.	Inactive	21/02/2042	AONB
Heights Quarry	Westgate NY 925 388	Aggregate Industries UK	Active	21/02/2042	AONB
Hulands Quarry	Bowes NZ 016 140	Aggregate Industries UK	Active	31/12/2026	
Kilmond Wood Quarry	Bowes NZ 024 134	Kearnton Farms	Active	21/02/2042	

Table A.5 Dormant Sites (Carboniferous Limestone)

Site name	Location and Grid Reference	Expiry date for extraction	Designations
Bollihope (Jopler Sykes)	Frosterley 988 352	21/02/2042	AONB, SPA, SAC, SSSI
Bollihope L20	Frosterley 987349	21/02/2042	AONB, SPA, SAC, SSSI
Bollihope L21	Frosterley 995355	21/02/2042	AONB, SPA, SAC, SSSI
Carriers Hill	Killhope 825435	21/02/2042	AONB
Greenfield	Lanehead 852421	21/02/2042	AONB
Parson Byers	Stanhope 005370	21/02/2042	AONB

Site name	Location and Grid Reference	Expiry date for extraction	Designations
Puddingthorn.	Lanehead 840425	21/02/2042	AONB
Scutterhill	Westgate 911389	21/02/2042	AONB
Side Head	Westgate 890389	21/02/2042	AONB
White Hills	Ireshopeburn 855389	21/02/2042	AONB

Table A.6 Interim Development Order Sites (Carboniferous Limestone)

Site Name	Location and Grid Reference	Expiry date for extraction	Designations
Harrowbank and Ashby Bank Quarry ^(a)			SSSI

- a. Harrowbank and Ashby Bank Quarry is currently inactive and has not been worked for many years. However, in May 2007 Tarmac Northern Ltd submitted an Environmental Statement and a revised schedule of working and restoration conditions to the Council, proposing to work part of this site in order to extract 3,750,000 tonnes of carboniferous limestone from 30 ha of the 76.4 ha permission area over a 15 year period.

Dolerite (also known as Whinstone)

Table A.7 Sites with planning permission for Dolerite extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning Status on 31 December 2015	Expiry Date for Extraction	Designations
Force Garth Quarry	Middleton-in- Teesdale NY 872 282	CEMEX	Active	21/02/2042	AONB, SPA, SCA, SSSI

Table A.8 Dormant Sites (Dolerite)

Quarry	Location and Grid Reference	Expiry date for extraction	Designations
Cockfield	Teesdale 130248	21/02/2042	
Crossthaite	Holwick 925253	21/02/2042	AONB
Greenfoot	Stanhope	21/02/2042	AONB
Middleton	Holwick 949245	21/02/2042	AONB
Park End	Holwick 921258	21/02/2042	AONB

Sand and gravel

Table A.9 Quarries with planning permission for sand and gravel working in County Durham

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2015	Expiry date for extraction	Designations
Crime Rigg Quarry	Sherburn NZ 346 416	Sherburn Stone	Active	31/12/2022	SSSI
Hummerbeck Quarry	West Auckland NZ 187 254	Hall Construction	Inactive ^(a)	21/02/2042	
Low Harperley Quarry	Wolsingham NZ 112 356	Sherburn Stone	Inactive ^(b)	08/08/2032	
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042	
Thrislington Quarry	Ferryhill NZ 317 322	Tarmac	Active	18/01/2015	

- a. Hummerbeck Quarry - Yet to commence. Planning permission was issued on 25 November 2011. Period of working would be 8 years. However, the site actually has permission to 2042.
- b. Low Harperley Quarry - Development commenced in August 2016 following the grant of planning permission on 19 August 2013. Production has yet to begin.

Table A.10 Dormant Sites (Sand and Gravel)

Quarry	Location and Grid Reference	Expiry Date for Extraction	Designations
Page Bank	Byers Green, Wear Valley	21/02/2042	
Roger Hill	Derwent Bridge Wear Valley	21/02/2042	
Wolsingham	Wear Valley	21/02/2042	

Table A.11 Interim Development Order Sites (Sand and Gravel)

Quarry	Location and Grid Reference	Expiry Date for Extraction	Designations
Gypsy Lane Quarry ^(a)	Nunstainton East 313295	21/02/2042	

- a. Gypsy Lane - One extant planning permission exists at this quarry. This is an Interim Development Order (IDO) permission and no working of the site can take place until there has been a determination of new conditions by the Minerals Planning Authority under the requirements of the Planning and Compensation Act 1991.

Northumberland

Table A.12 Sites with planning permission for crushed rock extraction in Northumberland

Quarry	Location and grid reference	Operator ^(a)	Mineral	Planning status on 31 December 2015	Expiry date for extraction	Relevant environmental designations
Barrasford Quarry	Barrasford NY 913 743	Tarmac	Igneous rock and Carboniferous limestone	Active	31/12/2038	
Belford (Easington) Quarry	Belford NU 130 343	Tarmac	Igneous rock	Inactive	02/02/2016	
Cocklaw Quarry	Wall NZ 931 701	Tynedale Roadstone	Carboniferous limestone	Inactive (yet to commence)	21/02/2042	
Cragmill Quarry	Belford NY 108 346	CEMEX	Igneous rock	Active	22/08/2040	
Divethill Quarry	Great Bavington NY 978 795	CEMEX	Igneous rock	Active	31/12/2018	
Harden Quarry	Biddlestone NY 959 086	Tarmac	Igneous rock	Active	31/10/2029	National Park
Howick Quarry	Longhoughton NU 238 169	Tarmac	Igneous rock	Active	21/12/2020	
Keepersshield Quarry	Humshaugh NY 895 727	Hanson	Igneous rock and Carboniferous limestone	Active	21/02/2042	SSSI
Longhoughton (Ratcheugh) Quarry	Longhoughton NU 232 153	Purvis	Igneous rock	Active	21/02/2042	SSSI
Mootlaw Quarry	Mafren NZ 018 755	North Tyne Roadstone	Carboniferous limestone	Inactive	31/12/2025	
Swinburne Quarry	Colwell NZ 021 791	Hanson	Igneous rock	Inactive	31/12/2036	

a. During 2015 the operator of Barrasford, Belford, Harden and Howick quarries changed from Lafarge Tarmac to Tarmac.

Table A.13 'Dormant' quarries (as defined in the Environment Act 1995) for crushed rock extraction in Northumberland

Site	Location and grid reference	Mineral	Relevant environmental designations	Comments on potential future supply
Ayle Quarry	Alston NY 729 499	Carboniferous limestone	-	Not known
Barmoor Mill Quarry	Lowick NT 992 405	Carboniferous limestone	-	Not known

Site	Location and grid reference	Mineral	Relevant environmental designations	Comments on potential future supply
Burton Quarry	Bamburgh NU 179 327	Carboniferous limestone	-	Not known
Crindledykes Quarry	Bardon Mill NY 780 671	Carboniferous limestone	National Park, SSSI	Not known
Earle Quarry	Wooler NT 988 270	Igneous rock	-	Not known
Fell End Quarry	Slaggyford NY 666 516	Carboniferous limestone	AONB	Not known
Fontburn Quarry	Netherwitton NZ 047 941	Igneous rock	-	Not known
Kyloe Quarry	Lowick NU 042 406	Igneous rock	-	Not known
Holburn Quarry	Holburn NU 050 377	Igneous rock	-	Not known
Littlemill West Quarry	Howick NU 227 173	Carboniferous limestone	-	Not known
Wards Hill Quarry	Longframlington NZ 079 966	Igneous rock	-	Not known

Sand and gravel

Table A.14 Quarries with planning permission for sand and gravel extraction in Northumberland

Quarry	Location and grid reference	Operator ^(a)	Planning Status on 31 December 2015	Expiry date for extraction
Ebchester (Broadoak) Quarry	Ebchester NZ 098 547	Tarmac	Active	31/12/2023
Caistron Quarry	Thropton NU 007 016	North East Concrete	Closed. Reserves exhausted	31/03/2016
Haughton Strother Quarry	Humshaugh NY 978 795	W & M Thompson (Quarries)	Active	31/08/2022
Hedgeley Quarry	Powburn NZ 068 180	North East Concrete	Active	31/12/2018
Hemscott Hill Beach	Widdrington NZ 931 703	W Bell	Active	31/12/2020
Lanton (Cheviot) Quarry	Milfield NT 954 311	Tarmac	Active	31/12/2020
Merryshields Quarry	Stocksfield NZ 063 617	W & M Thompson (Quarries)	Inactive	21/02/2042
Wooperton Quarry	Wooperton NU 048 204	North East Concrete	Inactive	31/12/2022

a. During 2015 the operator of Ebchester and Lanton quarries changed from Lafarge Tarmac to Tarmac, the operator Merryshields Quarry changed from SITA UK to Thompsons of Prudhoe and the operator of Wooperton Quarry changed to North East Concrete.

Table A.15 'Dormant' quarries (as defined in the Environment Act 1995) for sand and gravel extraction in Northumberland

Site	Location and grid reference	Mineral	Designations	Comments on potential future supply
Blakemoor Burn Beach	Cresswell NZ 287 944	Sand	SSSI	Not known
Blakemoor Sand Pit	Cresswell NZ 228 940	Sand		Not known
Cresswell Sand Pit	Cresswell NZ 291 923	Sand		Not known
Hauxley Links	Low Hauxley NU 280 038	Sand		Not known
The Hermitage	Hexham NY 934 653	Sand and gravel		Not known
Mouldshaugh Farm	Felton NU 203 008	Sand and gravel		Not known
Red Barns Links	Bamburgh NU 193 347	Sand	AONB, SSSI, SPA/SAC	Not known
Scremerston Sand Pit	Scremerston NU 036 476	Sand and gravel	AONB, SSSI, SAC/SPA	Not known
Tyne Green	Hexham NZ 932 651	Sand and gravel		Not known
Yeaverling Quarry	Kirknewton NT 924 305	Sand and gravel		Not known

Tyne and Wear

Table A.16 Quarries with planning permission for crushed rock and sand and gravel extraction in Tyne & Wear

Mineral Planning Authority	Quarry	Location and grid reference	Operator	Planning Status in 2015	Expiry date for extraction
Sunderland	Eppleton Quarry	Hetton-le-Hole NZ 260 482	Eppleton Quarry Products	Active	To be confirmed ^(a) .
South Tyneside	Marsden Quarry	Whitburn NZ 406 642	Owen Pugh	Active	2027

a. On 20 October 2015 planning permission was granted to extend Eppleton Quarry. This permission allows the extraction of additional quantities of sand and limestone with the importation of soils for restoration. Condition 7 of the permission requires that all mineral extraction shall cease no later than 25 years from commencement of the development, unless as otherwise agreed in writing by the Mineral Planning Authority.

A.2 Note: It is understood that permitted reserves were included in the North East Region Aggregates Working Party Annual Monitoring Report 2010 at Blaydon Quarry and at Crawcrook Quarry. However, more recent information provided by Gateshead Council in 2012 indicates that extraction at Blaydon Quarry has now finished. In terms of Crawcrook Quarry, sand and gravel extraction has been ongoing at Crawcrook Quarry since the 1940's when the site was given consent under the Interim Development Order Consents (IDO) in 1947. However this permission was not registered under the Planning and Compensation Act 1991 and has effectively lapsed. Planning permission as an extension to this IDO consent was granted in 1950 for sand and gravel extraction (ref : CA4551). The Council until recently took the view that the current sand and gravel extraction on the site was working under this consent.

Following the Environment Act 1995 the Council took the view that it was not appropriate for the operators of Crawcrook Quarry to submit an application for the review of the old minerals planning conditions, as the operators were working outside of the application site boundary along the western edge of the site. The Council considered it was more appropriate to submit a consolidating application that would regularise the current operations and various temporary permissions that had been granted on the site for buildings and mineral processing plant. It was intended that this approach would result in everything being reviewed, updated and controlled under one single planning application/ planning permission.

A.3 A consolidating planning application (ref: 1133/97) was submitted in 1997 for mineral extraction, waste disposal and reclamation at Crawcrook Quarry. This planning application is still undetermined 15 years later due to several changes in ownership and insufficient information to assess the application. After several changes of ownership over the past decade SITA and Cemex are now on the site landfill and quarrying operators. These two companies submitted a joint re-edited environmental statement (ES) to Gateshead Council in March 2010. WA Fairhurst reviewed this updated ES on behalf of Gateshead Council. Fairhurst considered that some of the chapters of the ES are difficult to follow and do not fully accord with the EIA Regs. In addition some chapters lack sufficient details to allow Gateshead Council and statutory consultees to fully understand if there are significant effects as a result of the proposed development. In 2010 Gateshead received a legal opinion from a Barrister on the status of the planning permissions and planning applications at Crawcrook Quarry. This legal opinion advises that Cemex can no longer work the site / extract sand and gravel as the old 1950's planning permission has legally ceased to have effect except for the restoration and aftercare conditions.

Table A.17 'Dormant' quarries (as defined in the Environment Act 1995) for sand and gravel extraction in Tyne & Wear

Mineral Planning Authority	Quarry	Location and grid reference	Expiry date for extraction	Relevant environmental designations	Comments on potential future supply
Gateshead	Bog Wood	Blaydon NZ ??? ???	21/02/2042		Not known
	Land west of Barlow Lane	Blaydon NZ ??? ???	21/02/2042		Not known

A.4 Bog Wood lies to the south west of Blaydon Quarry on the southern side of Longridge Road. Bog Wood benefits from the following planning permissions for mineral extraction. CA 2633 (1950) CA6271 (1951) supersedes CA2633 (1950) CA 7073 (1952). Land West of Barlow Lane - This site lies adjacent to western boundary of Burnhills Quarry. This site benefits from the following planning permissions for mineral extraction: CA 2633 (1950) CA 6271 (1951) supersedes CA2633 (1950). At the time of the review, the sites were both in the ownership of Tilcon Ltd. It was indicated that reserves of sand and gravel still remained to be worked at both of these sites. Tilcon Ltd considered that both sites formed part of Burnhills Quarry a single "active" site. However after due consideration the MPA determined the two as separate dormant sites.

Appendix B Secondary and recycled aggregate facilities

B.1 This appendix supports Chapter 3 of the joint Local Aggregate Assessment and provides details of all permanent secondary and recycled aggregate facilities in County Durham, Northumberland and Tyne & Wear.

County Durham

B.2 County Durham contained seven fixed recycled and secondary aggregate sites. Details of these sites are shown in table B1.

Table B.1 Secondary and Recycled Aggregates Facilities in County Durham

Site Name	Location	Operator
Bishop Middleham Quarry	Bishop Middleham	W&M Thomson
Aycliffe Quarry	Aycliffe	Stonegrave Aggregates
Thrislington Quarry	Cornforth	Tarmac
Old Quarrington Quarry	Bowburn	Tarmac
Constantine Farm	Crook	W Marley
Old Brickworks	Tanfield	Ken Thomas
Heights Quarry	Westgate	Aggregate Industries
Hulands Quarry	Near Bowes	Aggregate Industries

Northumberland

B.3 There are six known fixed recycled and secondary aggregate sites in Northumberland. Details of these sites are shown in table B2 below.

Table B.2 Secondary and recycled aggregates facilities in Northumberland

Site Name	Location	Operator
Barrington Industrial Estate	Bedlington	JBT Waste Services
Thornbrough Quarry	Corbridge	W & M Thompson
Lynemouth Power Station	Lynemouth	Lynemouth Power
West Sleekburn Industrial Estate	Bedlington	HFF Civil Engineering
Linton Transfer Station	Linton	Thornton
Longhoughton (Ratcleugh) Quarry	Longhoughton	Purvis

Tyne and Wear

B.4 There are eight known fixed recycled and secondary aggregate sites in Tyne and Wear. Details of these sites are shown in Table B.3.

Table B.3 Recycled and secondary aggregate sites in Tyne and Wear

Site Name	Location	Operator
Deptford Transfer Station	Sunderland	Alex Smiles
Eppleton Quarry	Hetton le Hole	Eppleton Quarry Products
Hayhole Road	North Shields	Owen Pugh
Hudson Dock	Sunderland	Northumbrian Roads
Marsden Quarry	Whitburn	Owen Pugh
Newburn	Newburn, Newcastle upon Tyne	MGL Group
Springwell Quarry	Washington	W & M Thompson
Stephenson Street	Willington Quay	G O'Brien

Appendix C Mineral transport and processing infrastructure

C.1 This appendix provides details of aggregates transport and processing infrastructure in County Durham, Northumberland and Tyne and Wear. Details of secondary and recycled aggregate facilities and marine wharfs are detailed in separate appendices.

County Durham

Table C.1 Infrastructure associated with minerals transportation

Ports	Railheads	Rail Alignments (with potential to transport minerals)
<ul style="list-style-type: none"> Port of Seaham 	<ul style="list-style-type: none"> Thrislington Quarry Ferryhill Station 	<ul style="list-style-type: none"> Thrislington rail line connecting with East Coast Mainline Weardale Railway Line Ferryhill- Cornforth- Coxhoe Quarry Alignment Leamside Line

Table C.2 Coating plants and kilns

Coating plant	Kiln for the production of calcined Material
<ul style="list-style-type: none"> Force Garth Quarry Heights Quarry Hulands Quarry Coxhoe Quarry 	<ul style="list-style-type: none"> Thrislington Quarry

Table C.3 Concrete plants in County Durham

Site	Location	Operator
Consett Plant	Main Street, Crookhall, Consett, Durham, DH8 7NE	Cemex Readymix
Durham Plant	Littleburn Industrial Estate, Langley Moor, Durham, DH7 8HH	Cemex Readymix
Newton Aycliffe Plant	Behind BSC, Off Cumbie Way, Newton Aycliffe, Durham, DL6 6YA	Cemex Readymix
Ferryhill	Thrislington Quarry, West Cornforth, Ferry Hill, DL17 9EY	Tarmac Ready Mix Concrete
Crime Rigg Quarry	Durham Concrete Plant, Crime Rigg Quarry, Shadforth, Sherburn Hill, Durham	Sherburn Stone
Durham	Dragonville Industrial Estate, Rennys Lane, Durham, DH1 2RS	Breedon
Bishop Auckland	Romanway Industrial Estate, Tindale Crescent, Bishop Auckland	Breedon

Site	Location	Operator
Coxhoe	Coxhoe Quarry, off Station Road, Raisby Hill, Coxhoe	Breedon

Northumberland

Table C.4 Infrastructure associated with the transportation of aggregate minerals

Ports	Railheads
<ul style="list-style-type: none"> Battleship Wharf, Cambois Tweed Docks, Berwick-upon-Tweed 	<ul style="list-style-type: none"> Belford (Easington) Quarry

Table C.5 Concrete plants in Northumberland

Site	Location	Operator	Comments
Alnwick Plant	Old Gasworks, South Road, Alnwick, NE66 2PE (NU 196 124)	CEMEX	Stand alone facility
Barrington Road	Barrington Road, Bedlington, NE22 7AL (NZ 272 832)	Breedon	Stand alone facility within industrial area
Battleship Wharf	Battleship Wharf, Blyth, NE24 1SD (NZ 309 827)	Sherburn Group	Stand alone facility within port area
Bebside	Errington Street, Bebside, Blyth, NE24 4HS (NZ 281 813)	Tarmac	Stand alone facility
Belford South Farm	South Farm, Belford, NE70 7DP (NU 114 332)	Gilbert Birdsall	Stand alone facility
Haltwhistle	Townfoot, Haltwhistle, NE49 0ND (NY 711 639)	Ritemix	Stand alone facility within industrial area
Howford Quarry	Acomb, Hexham, NE46 4RY (NY 919 663)	Hanson	Stand alone facility located within a former quarry
Lynemouth	Lynefield Park, Ashington, NE62 9YH (NZ 295 895)	H-Mix	Stand alone facility
Red Row	Red Row, Bedlington, NE22 7AL (NZ 272 833)	CEMEX	Stand alone facility within industrial area
West Sleekburn	Brock Lane, West Sleekburn, Bedlington NE22 7BY (NZ 285 841)	Aggregate Industries	Stand alone facility within industrial area

Table C.6 Coating plants in Northumberland

Site	Location	Operator	Comments
Barrasford Quarry	Barrasford, Hexham, NE48 4AP (NY 913 743)	Tarmac	Within boundary of an active quarry
Cragmill Quarry	Belford, NE70 7EZ (NU 108 346)	CEMEX	Within boundary of an active quarry

Site	Location	Operator	Comments
Divethill Quarry	Great Bavington, NE19 2BG (NY 978 795)	CEMEX	Within boundary of an active quarry
Howick Quarry	Littlehoughton, Alnwick, NE66 3JY (NU 238 169)	Tarmac	Within boundary of an active quarry
Keepersshield Quarry	Humshaugh, Hexham, NE46 4BB (NY 895 727)	Hanson	Within boundary of an active quarry
Swinburne Quarry	Barrasford, Hexham, NE48 4DN (NZ 021 791)	Hanson	Within boundary of an inactive quarry

Table C.7 Sites for the manufacture of concrete products in Northumberland

Site	Location	Operator	Comments
Lynx Precast	Lynefield Park, Ashington, NE63 9YH (NZ 294 897)	Lynx Precast	Stand alone facility within industrial area
Stephenson Way	Stephenson Way, Barrington Industrial Estate, Bedlington, NE22 7DQ (NZ 265 834)	Spancast	Stand alone facility within industrial area
West Sleekburn	Brock Lane, West Sleekburn, Bedlington, NE22 7BY (NZ 285 841)	Aggregate Industries	Stand alone facility within industrial area

Tyne and Wear

C.2 Within Tyne and Wear there are no active rail heads or rail links that are used for the transport of aggregate minerals. Potential exists for the use of the former Wardley Colliery Disposal Point in South Tyneside for the use as a railhead including the distribution by rail of minerals. In August 2012 a planning application was made by Harworth Estates Ltd for the change of use of the former Wardley Colliery Disposal Point (Follingsby Lane, West Boldon) including the demolition of mechanised rail loading bunker and associated structures, retention of rail loading head alteration/extension of rail loading pad to allow use of the site as a rail head for transportation and storage of coal, minerals and other products. South Tyneside Council are minded to approve this planning application subject to the completion of a legal agreement.

C.3 Within Tyne and Wear there are currently four wharf sites. Three of these sites are located on the River Tyne at Gateshead, Howdon (North Tyneside) and Jarrow (South Tyneside) with a fourth located at Greenwells Quay in Sunderland.

Table C.8 Wharfs for the importation of aggregate minerals in Tyne and Wear

Mineral Planning Authority	Site	Location and Grid Reference	Operator	Mineral	Planning Status in 2015
Gateshead	Gateshead Wharf	Gateshead NZ 306 609	Tarmac	Sand and gravel	Inactive
North Tyneside	Howdon Wharf	North Shields NZ 360 482	Tarmac	Sand and gravel	Inactive
South Tyneside	Jarrow Wharf	South Shields NZ 335 657	CEMEX	Sand and gravel	Active

Mineral Planning Authority	Site	Location and Grid Reference	Operator	Mineral	Planning Status in 2015
Sunderland	Sunderland (Greenwells Quay) Wharf	Sunderland NZ 409 579	Northumbrian Roads	Sand and gravel and crushed rock	Active

C.4 Details of the concrete batching and coating plants in Tyne and Wear are provided in Table C.9 below.

Table C.9 Concrete batching and coating plants in Tyne and Wear

Mineral Planning Authority	Site	Location	Operator
Gateshead	Crawcrook	Crawcrook Lane, Ryton, NE40 3UL	CEMEX
	Hawks Road	Hawks Road, Gateshead, NE8 3BN	Hanson
	Longshanks Road	Longshanks Road, Birtley, DH3 1QZ	North East Concrete
	Nest Road	Nest Road, Felling, Gateshead, NE10 0EY	Aggregate Industries
	South Shore Road	South Shore Road, Gateshead, NE8 3AE	Tarmac
Newcastle	Brunswick Plant (CEMEX)	Brunswick Industrial Estate, Brunswick, Newcastle-upon-Tyne, NE13 7BA	CEMEX
	Brunswick Plant (Tarmac)	Brunswick Industrial Estate, Brunswick, Newcastle-upon-Tyne, NE13 7BA	Tarmac
	Newburn	High Street, Newburn, Newcastle upon Tyne, NE15 8LN	North East Concrete
	Newburn Haugh	Riverside Court, Newburn Haugh Industrial Estate, Newcastle upon Tyne, NE15 8SG	Tynedale Roadstone
	Pottery Lane	Pottery Lane, Newcastle upon Tyne, NE1 3SQ	CEMEX
	Scotswood Plant	Low Yard, Scotswood Road, Newcastle upon Tyne, NE15 6XA	Breedon

Mineral Planning Authority	Site	Location	Operator
	Stodart Street	Stodart Street, Newcastle upon Tyne, NE2 1AN	Tyneside Minimix
North Tyneside	Howdon	Willington Quay, Wallsend, NE28 6UR	Breedon
South Tyneside	South Shields Plant	Wilsons Yard, Jarrow Road, South Shields, NE34 9PL	CEMEX
	Tyne Dock	Tyne Dock, South Shields, NE34 9PL	Breedon
Sunderland	Sunderland	Trimdon Street, Sunderland, SR4 6DW	Tarmac
	Houghton le Spring	Market Place Industrial Estate, Market Place, Houghton le Spring, DH5 8AN	Breedon
	Wilden Road	Wilden Road, Washington, NE38 8QB	Hanson
	Low Southwick	Pottery Road, Low Southwick, Sunderland, SR5 2BP	CEMEX