Purbeck Stone

1 Introduction

1.1 Purbeck Stone is a natural limestone, used locally and nationally as a building, monumental and ornamental stone and for paving, flooring, walling, architectural masonry and rockery.

1.2 This paper explains the nature and extent of Purbeck Stone and its uses and markets. It then provides justification and further explanation of the strategy for future provision of Purbeck Stone contained within the Minerals Core Strategy, including the level of provision that needs to be made and the how this will be achieved. In preparing this document, use has been made of the book ‘Dorset Stone’ by Jo Thomas (2008) as well as information provided by local operators and the existing Dorset Minerals and Waste Local Plan.

2 National Policy

2.1 Purbeck Stone is a natural building and roofing limestone. It was acknowledged as a principal building stone in England in the Minerals Policy Statement 1 Practice Guide.

2.2 The National Planning Policy Framework, published March 2012, sets out the Government’s objectives and overarching policy for the provision of minerals.

2.3 It requires planning authorities to identify and include policies for extraction of mineral resources of local and national importance in their area. The need for a supply of local minerals of importance to heritage assets and local distinctiveness is recognised within the National Planning Policy Framework.

3 Nature and Extent of Mineral

3.1 ‘Purbeck Stone’ is a limestone found in the Upper Purbeck, Middle Purbeck and Lower Purbeck geological formations.

3.2 The Lower Purbeck limestones were dug from quarries from Portesham to Upwey and in the Poxwell area of Dorset, whilst the building stone quarries located in the Isle of Purbeck are in the Middle Purbeck, generally confined to an area of about 10km² within the coastal zone south and west of Swanage. Most of the quarrying on Purbeck from the seventeenth century to the present day has been carried out on the plateau from Worth Matravers to Swanage, although geologically, the outcrop extends along the ridge past Kingston. The Upper Purbeck also occurs in thick beds that outcrop on the north facing slope of the valley between Swanage and Corfe Castle, where it was quarried historically.

3.3 In this document, ‘Purbeck Stone’ refers to that found within the Isle of Purbeck.

4 Middle Purbeck

4.1 The Middle Purbeck Beds provide a natural limestone, typically used for building stone, dimensional block and bespoke products including monumental and ornamental. Most of the vernacular buildings in the Isle of Purbeck used

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the Middle Purbeck building stones. Locally Purbeck limestone has been extensively used in the construction of the pre-1900s buildings and nationally in many civic buildings.²

4.2 The Middle Purbeck consists of two sequences – the ‘Upper Building Stones’ and the ‘Lower Building Stones’, separated by the Cinder Bed. The Cinder Bed is not of use for building. Within the Upper and Lower Building Stones, groups of useful beds are referred to as veins. The Upper Building Stones are comprised of (in descending order) the ‘Laning Vein’, the ‘Freestone Vein’ and the ‘Downs Vein’. The Lower Building Stones include, in descending order, the button bed, feather bed and cap bed and the New Vein (Figure 1 shows a simplified section of the beds: the button, feather and cap lie between the Cinder and the New Vein). Each vein has different properties and thicknesses and can be used for different purposes. About a dozen different seams have been worked at various times. Each bed contains different shell fossils and is either cream or grey.²

4.3 The local geology is such that not all beds are found at each site, with different veins being found at the surface depending on the location. Additionally, Purbeck Stone is variable in nature and individual beds may thin out and disappear or may be of different qualities depending on their location.

4.4 This can cause operational difficulties where the marketable stone beds within permitted sites lie at some depth. This can result in large volumes of overburden with increased landscape impacts, as well as safety and viability concerns.

Figure 1: Purbeck Stone Geological Sequence

4.5 Purbeck Stone is used locally and nationally for a wide range of purposes. As well as restoration and repair of vernacular buildings, many listed and located in conservation areas in the Isle of Purbeck, the material is used for new build. Most of the Middle Purbeck beds, excluding the rag, can be cut for dimension
stone work. This is used for a range of products, from paving to polished stone and fine architectural detailing. Some beds are used for roofing tiles and interior products are also produced, including fireplaces and kitchen worktops to name a few. Furthermore, ornamental and monumental stone are produced from the many seams of the Middle Purbeck Beds.

4.6 At the top of many quarries in the Middle Purbeck is the Laning Vein, a cream or blue coloured limestone used for building stone and flooring where block size permits.

4.7 The Freestone Vein includes many named beds, which are, in descending order, the Rag, Grub, Roach, Grey Bed, Thornback, Whetson, Freestone and Blue Bed. The lowest beds are cream coloured changing through to grey. Freestone is a thick bed which can be cut as ashlar as well as roughly dressed stone. The Thornback and Whetson have been used for flooring and paving as well as architectural masonry and monumental stone. The Grey bed can be used for natural paving and the Roach is predominantly used for a buff coloured building stone.

4.8 These beds are highly marketable, however the rag, which stratigraphically overlies them, is of poor quality from a masonry point of view and can cause operational problems where it is found in large volumes above the rest of the upper building stones. It is not considered marketable by all operators, however it can be of use for rockery.

4.9 The lowest bed of the upper building stones comprises the Downs Vein (a cream limestone). This can be split into slabs 8-10cm thick and has been used mainly for paving. Thinner slabs up to 2cm have been used as roofing tiles.

4.10 The lower building stones are typically used for dimension stone, squared paving and roof tiles.

5 Upper Purbeck

5.1 In the Upper Purbeck, broken shell limestone, or Burr, can be found. This was quarried in medieval times from Peverill Point along the northern slope of the Purbeck hill, from Swanage through Crack Lane, Quarr and Dunshay to Lynch. It was traditionally cut as ashlar and can be seen in the remains of many medieval buildings in Dorset (including Corfe Castle and many of the churches).

5.2 The three Marble beds (blue, red and green) are the highest beds in the Upper Purbeck and have been used mostly for interior work. The marbles have also been quarried along the northern slope as described above. The Purbeck Marbles are limestone with a crystalline cement that can be polished and can be seen in interior church columns and monuments all over England, including in Salisbury Cathedral, Exeter Cathedral and Westminster Abbey.

6 Purbeck Portland Beds

6.1 At St Aldhelm’s Head, the Portland Freestone, a shell-sand limestone with occasional oolitic layers, is found. The highest bed at St Aldhelm’s is the Shrimp Bed, underneath is the Titanites or Blue Bed (used for ornamental work) and the Spangle is underneath again (which has often been used for window surrounds and sills in Purbeck and Poole). The stone is used for new build and restoration, including ashlar, architectural work and monumental
work. Much of the market lies outside of Purbeck, with architectural projects including for St George’s Chapel, Windsor and Salisbury Cathedral. There is also a continuing market within Purbeck.

6.2 During 2011, dimension stone of the Purbeck Portland beds was also extracted from Swanworth Quarry. Swanworth is an aggregates quarry which has produced crushed rock since the 1950s. It is expected that dimension stone will continue to be worked at Swanworth over the next five years.

7 The Purbeck Stone Industry

7.1 The quarrying of Purbeck Stone is a long established, traditional industry.

7.2 Prior to the Second World War, stone was worked by shallow outcrop quarries, or the deeper beds by underground quarries. Open cast quarrying has been carried out in Purbeck since the war, with deeper pits cut through the limestone and several veins of building stone dug from the same pit. The depth of each quarry will depend on which bed(s) are being sought. By the early 1980s a step change in the scale of workings was being experienced with increasing levels of mechanisation and increasing depths.

7.3 The Purbeck Stone industry has arguably shaped the villages of Purbeck which display a character attributed to the use of the local stone. Many are designated as conservation areas and require the continued supply of Purbeck Stone in restoration and repair work to maintain their special character. This is reflected in Purbeck District Council’s Design Guidance, published in 2010.

7.4 The industry is established as part of Purbeck’s heritage, and has indeed shaped the local landscape that it is part of. The Dorset AONB Landscape Character Assessment (2008) recognises that ‘although the area is littered with small stone quarries, these are intrinsic to the surrounding stone walls and villages and strong cultural associations of past landuse.’ An objective of the Dorset AONB Management Plan is to support appropriate extraction in the AONB for the supply of building stone to maintain local landscape character.

7.5 Past quarrying has in some cases contributed positively to biodiversity with a number of Sites of Nature Conservation Interest designated at worked out sites. There are additionally four quarries which have been designated as Regionally Important Geological Sites, which are Keates’ Quarry, Queensground, Crack Lane and California Farm.

7.6 The industry has declined overall over the last thirty years or so with the number of individual companies diminishing from about 15 in the 1970s to six in 2010. This is due to a number of reasons, including changes in the way buildings are constructed with tighter budgets and fast track construction and the competition from alternative markets.

7.7 However, natural building stones are increasingly required not only for restoration or repair but also for new building where the poorer performance of alternative materials such as concrete is now recognised and where building in the vernacular material is necessary to maintain local character. The need for a supply of local minerals of importance to heritage assets and local distinctiveness is recognised within the National Planning Policy Framework. The continued demand for Purbeck Stone for the uses detailed in sections 4 to 6 shows that there is a need for a continued supply.
7.8 Quarrying on Purbeck is typically small scale in nature, with quarries visible across the arable and pastoral landscape. Extraction generally takes place over the Spring/Summer period.

7.9 The nature of the industry has evolved from what was historically a cottage industry. There are now fewer operators, although the size of individual operators has grown. Several of the operators are now larger scale businesses which have seen significant investment in recent years. There are still several family-run quarries on Purbeck. These have also invested in more modern extraction and processing equipment both in order to try and stay competitive and due to the difficulty in obtaining skilled labour.

7.10 Additionally, there has been a move away from a large number of shallow outcrops scattered across the Purbeck limestone plateau to more intensive open extraction areas. Land south-west of Acton and at Quarry Field are examples of where this non-traditional clustering of workings has occurred, which has caused adverse impacts on landscape character relative to the traditional more scattered approach. At Quarry Field, this issue has been intensified by the depth of the marketable stone, resulting in large amounts of overburden that needs to be removed and stockpiled, as well as viability and safety concerns.

7.11 This intensification of workings in particular areas was largely a result of the current Minerals and Waste Local Plan (1999) which identified concentrated preferred areas within which sites should be located. The Purbeck Stone industry is generally keen to move away from this non-traditional approach, with the larger operators preferring to work several quarries, in varying areas, on a small scale in order to be able to access a range of beds.

7.12 Additionally, the National Trust owns a large proportion of the land where the Purbeck Stone resource is located and leases areas of land to local operators for extraction. Its strategy is to support small scale, traditional quarry operations on its land as an important part of the local heritage. The National Trust is taking steps to ensure that the Purbeck Stone worked on its land is on a small, traditional scale, including restricting the number of quarry operators to no more than present levels (five operators), preventing the acquisition of a number of plots by one operator and restricting the area available to each operator. This means that the maximum annual output from National Trust presently can be assumed to be 9,250tpa.

7.13 The National Trust’s approach has benefits from a landscape point of view, however does mean that the stone companies are constrained to relatively small plots within National Trust land and are unable to access different areas (and potentially beds of stone) at the same time. This is an issue of concern for at least one of the larger scale companies.

8 Landscape and Environment

8.1 As well as being renowned for its stone working, the Isle of Purbeck is an area of highly valued environmental quality. The stone resource is located wholly within the Dorset AONB and partially within the designated Heritage Coast. This highlights the importance of the area historically and culturally, with its beautiful and varied landscapes and vibrant towns and villages (as referred to in the Purbeck Heritage Strategy). Those quarries located to the south of Swanage are also in close proximity to the Jurassic Coast World Heritage Site and to the South West Coast Path. The Minerals Core Strategy must take
account of the management plans for the Dorset AONB and the Jurassic Coast.

8.2 In terms of landscape character, the majority of Purbeck Stone workings lie within the Purbeck Plateau landscape character area, part of the character of which is the small limestone quarries located on the exposed plateau of limestone grasslands and arable fields. Sites to the north of Kingston Road (including two of the largest service areas) lie within the transitional area between the Purbeck Plateau and the Corfe Valley to the north, characterised by a sweeping and secluded clay valley.

8.3 The area is also popular for walkers with many public footpaths traversing the area, some of which form the traditional routes by which the stone from the quarries was transported.

8.4 The small scale nature of Purbeck Stone quarrying arguably makes a positive contribution to the landscape, although lying within the AONB means that it must be carefully managed in terms of its impact visually and on landscape character and its potential impact on the tranquillity of the area. It is particularly important to consider the scale and distribution of workings (see paragraph 7.10) and particularly bearing in mind the sensitive location of Purbeck Stone within the Dorset AONB and close to the Jurassic Coast.

8.5 An assessment of potential landscape and visual impacts of Purbeck Stone extraction has been carried out by the Dorset AONB team with input from Dorset County Council's Senior Landscape Officer. This assessment provided a comparison of the relative benefits and disbenefits of a more scattered approach to quarry sites on the Purbeck Plateau as opposed to the concentrated approach promoted within the Minerals and Waste Local Plan. In addition, a landscape and visual impact assessment of a potential scattered approach, whereby individual sites are identified across the plateau, was carried out. Overall the paper concluded that a scattered approach had less negative landscape and visual impacts and provided the most effective opportunities for landscape and visual mitigation during the operation of the sites, and the greatest benefits on their restoration. The full assessment comprises Background Paper 09.

8.6 It is considered that the Minerals Core Strategy should promote an approach whereby further Purbeck Stone extraction is generally dispersed and scattered and of a reasonable scale, in keeping with the current scale of operations. This is in order that quarrying is as far as possible in keeping with the landscape character within this part of the AONB. This is in line with the aim of the AONB Management Plan to conserve the strong and open character of the area, and reflects the findings of the landscape character assessment, which recognises the small quarries dotted across the exposed plateau as forming part of the character. Avoiding adverse cumulative impacts will be a key consideration.

8.7 Landscape character and other issues have to be carefully balanced against the need to allow the operators to quarry economically and enable them to produce high value products. There is general consensus from the Purbeck Stone industry that the allocation of, or granting of permission for, individual sites in a more dispersed pattern is preferable in principle to concentration in one area, not least because this enables operators to access the range of beds required. It is acknowledged that some clustering may occur due to the presence of the most valuable beds, however sites should be judged on their
merits in this respect. Additionally, the National Trust’s preference is for Purbeck to return to the traditional pattern of individual scattered quarries across the area, with its own strategy for quarries operating on its land supporting this approach.

9 **Current Production & Future Provision of Purbeck Stone**

9.1 There are currently six local companies working Purbeck Stone. These are: W. J. Haysom & Son, Lovell Purbeck Ltd, J Suttle Swanage Quarries, HF Bonfield & Son, Lewis & Son, and Keates’ Quarries. It is estimated that there are over 100 people employed by the industry in Dorset.

9.2 There are currently 10 active Purbeck quarries, of which one produces Purbeck-Portland stone (St Aldhelm’s Quarry). Additionally, Swanworth Quarry, an aggregates quarry, primarily producing both crushed limestone and recycled aggregates, has recently begun to extract dimension stone of the Purbeck-Portland beds since the quarry was bought by Suttles.

9.3 The remaining nine quarries produce Purbeck limestone of the Middle Purbeck Beds. Additionally there has been a recent extension to the north-east of Downs Quarry. Output from individual quarries varies but is in the region of several hundred tonnes per annum to around 3500 tonnes per annum.

9.4 There are also a number of ‘service areas’, where stone is taken for processing. Downs Quarry and Landers Quarry are two of the largest service areas, which sit side by side on Kingston Road and process stone from several quarries. There are two small service areas at Acton (Lewis Service Area and Keates Service Area), each served by one quarry. Masonry works at Blacklands Quarry, St Aldhelm’s Quarry and California Quarry enable stone to be processed on site. There is an additional area at Acton which is defined in its planning permission as a Service Area: the D&P Lovell Service Area. This is essentially used only for storage of stone as processing works for this company (Lovell Purbeck) take place at Downs Quarry.

9.5 Figure 2 shows the distribution of the Purbeck Stone quarries and service areas. Figure 3 shows the operator of each service area with the quarries it serves listed below.

9.6 An option considered for the Minerals Core Strategy was to identify alternative, more suitable, locations for the service areas on the Purbeck plateau, particularly due to the visual impact of service areas on Kingston Road and the impact on residential amenity of service areas close to Acton and Blacklands. On balance this was considered impractical due to the level of investment needed in some of these service areas and masonry works. Improvements to service areas close to sensitive receptors such as dwellings should however be sought through the planning process and policy within the Minerals Core Strategy guides this.
Figure 2: Map of Purbeck Stone Sites

Figure 3: Purbeck Stone Sites by Parish (May 2011)

<table>
<thead>
<tr>
<th>Quarry</th>
<th>Operator</th>
<th>Parish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downs Quarry</td>
<td>Lovell Purbeck Ltd</td>
<td>Worth Matravers</td>
</tr>
<tr>
<td>South Downs Quarry</td>
<td>Lovell Purbeck Ltd</td>
<td>Worth Matravers</td>
</tr>
<tr>
<td>Quarry 4 Acton</td>
<td>Lovell Purbeck Ltd</td>
<td>Langton Matravers</td>
</tr>
<tr>
<td>Landers &amp; Fratton Quarry</td>
<td>W. J. Haysom &amp; Son</td>
<td>Worth Matravers</td>
</tr>
<tr>
<td>Belle Vue</td>
<td>W. J. Haysom</td>
<td>Swanage</td>
</tr>
<tr>
<td>Southard</td>
<td>W. J. Haysom</td>
<td>Swanage</td>
</tr>
<tr>
<td>St Aldhelm’s</td>
<td>W. J. Haysom &amp; Son</td>
<td>Worth Matravers</td>
</tr>
<tr>
<td>California Quarry</td>
<td>J. Suttle Swanage Quarries</td>
<td>Swanage</td>
</tr>
<tr>
<td>Swanworth</td>
<td>J. Suttle Swanage Quarries</td>
<td>Worth Matravers</td>
</tr>
<tr>
<td>Blacklands</td>
<td>HF Bonfield &amp; Sons</td>
<td>Langton Matravers</td>
</tr>
<tr>
<td>Keates Service Area</td>
<td>Keates Quarries</td>
<td>Langton Matravers</td>
</tr>
<tr>
<td>Keates Quarry - Plot 18 (now complete)</td>
<td>Keates Quarries</td>
<td>Langton Matravers</td>
</tr>
<tr>
<td>Lewis Service Area</td>
<td>Lewis &amp; Son</td>
<td>Langton Matravers</td>
</tr>
<tr>
<td>Quarry 3 Acton</td>
<td>Lewis &amp; Son</td>
<td>Langton Matravers</td>
</tr>
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</table>
Total annual production of Purbeck Stone (excluding aggregate from Swanworth) is in the region of 15 - 24,000 tonnes, however demand and production fluctuates from year to year. Figure 4 shows overall production levels of Purbeck Stone for 2004 to 2010.

Approximate figures have been gathered from the industry on the annual saleable output of Purbeck Stone. This gives an indication of past trends and guides how much provision needs to be made through the Minerals Core Strategy in order to maintain an adequate and steady supply, since there are no guideline figures set out.

The figures quoted are the best available information and are provided by industry. It should be noted, however, that some operators have provided average output over the 7 year period whereas others have provided specific output figures per quarry, per year. Additionally, where a company has been bought out, earlier figures may only be best estimates. For 2008 there are no records for Quarry 4. For 2009, figures provided for South Downs Quarry and Quarry 1 cover only July to December due to a company being bought out and so the total production figure for these two years will be slightly lower than actual sales.

The graph shows that output has generally been in the region of between 15,000 and 24,000 tonnes. The period from 2005 to 2007 saw higher sales in the region of 20 to 24,000 tonnes. During the period from 2008 to 2010 output was at the lower end of the range, reflecting the economic downturn and some missing figures. The highest annual output over the past seven years was in 2006.

The total production trends are used as a basis for determining the level of provision of Purbeck Stone that should be made for the plan period. Two options have been considered.

The first option is to base level of provision on the average figure for the period 2004 to 2010, which equates to 18,300 tonnes per annum. Whilst this appears
to be a logical method in the absence of any guideline figures, there are several reasons why it is considered that this level may not be sufficient to ensure that an adequate and steady supply of Purbeck Stone is maintained. The average is skewed by the period covering 2008-2010, which is partially because of some missing figures pulling down the average, but mainly as a result of the economic downturn. It is considered necessary to accommodate for the economic cycle and a higher level of demand returning. Furthermore, it is known that average production is likely to increase over the coming years as a result of expected output from several new sites. Extensions to Downs and South Downs Quarries (which act as replacements for existing quarries) will return output levels for these sites to that experienced during the 2004-2008 period. Production of dimension stone at Swanworth Quarry means that there is an additional source of stone (as opposed to a replacement site). This is also expected to contribute to overall output, raising the total production of Purbeck Stone.

9.13 Finally, it is considered that the level of provision should take into account expected future demand and growth in the industry. This is not easy to determine across the industry since some smaller operators state that they will continue at similar levels to current production, some sites are constrained by the National Trust’s limitations and one company states this is impossible to predict due to the nature of fluctuating sales in the industry. However, two of the larger companies have provided information on the annual output that they would ideally like to achieve, which in both cases equates to a level of growth of around 30%.

9.14 The second option is to allow for a higher level of provision, taking into account the above considerations. A level of provision of 20-25,000 tonnes per annum is therefore proposed. This figure allows a return to higher levels of demand and for an element of growth and it is considered that this will enable an adequate and steady supply of Purbeck Stone to be provided.

9.15 This figure is an estimated annual average demand for Purbeck Stone, but it is acknowledged that future annual output will continue to be variable as is the nature of the industry.

10 Provision of further reserves of Purbeck Stone

10.1 The Minerals Core Strategy must determine how much stone needs to be delivered during the plan period, at the level of provision decided (see above), taking into account existing permitted reserves.

10.2 Remaining permitted reserves of Purbeck Stone as at the end of 2010 have been gathered for each quarry. These are best estimates provided by operators, since beds can thin out and disappear and clay pockets can occur.

10.3 Since this time, two significant sites (extensions to Downs and South Downs Quarries) have been granted planning permission. In addition, dimension stone has begun to be extracted from the existing Swanworth Quarry and an estimated figure of available dimension stone at Swanworth has been provided. It is therefore necessary to include these in the remaining permitted reserve figure. Remaining permitted reserves are therefore estimated at between 238,000 and 282,000 tonnes.
Accounting for Waste

10.4 A range in the remaining permitted reserve is calculated due to the need to account for the occurrence of waste material. The higher figure is the gross reserve referring to the availability of good quality stones and excluding waste beds/material, whilst the lower figure is the net reserve and takes account of processing waste. The two categories of waste are explained further below.

10.5 The first category of waste is the layers of poor quality stone which occur and which are not of use (including for example the Cinder bed). These are generally returned to the ground for use in backfilling to aid site restoration. This category of waste is excluded from estimates of remaining permitted reserves.

10.6 The second type of waste is that produced through the processing of Purbeck Stone to make the desired products. Operators advise that waste produced through processing varies substantially depending on the end product. There is little wastage in stones used for purposes such as walling and rockery, whereas guillotine cut building stone encounters higher wastage due to the necessary offcuts, whilst an even higher proportion of waste occurs with sawn stone. Failures through cracked or vented stones also account for waste in cutting and shaping stone.

10.7 Operators generally advise that it is difficult to take account of processing waste when estimating remaining reserves. Some do however use a rough percentage estimate, and this varies between 25% and 60%. This may be partly due to the different machinery used by different companies, and the different range of products each produce. For example, some produce a higher proportion of products from sawn stone. It is therefore difficult to apply an average figure of waste occurring through processing across the industry.

10.8 In order to account for processing waste, the average percentage provided by each operator has been applied to each of their remaining reserve figures where necessary (some reserve figures had already excluded this). The remaining reserve is therefore as below:

Net Reserve: 238,000 tonnes (Figure of estimated saleable reserve, excluding processing waste) to Gross Reserve: 282,000 tonnes (Figure of remaining reserve of usable stone beds).

10.9 The amount of reserve that the Minerals Core Strategy needs to deliver is based on the net reserve and is calculated based on the level of provision as follows:

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\text{17 years (plan period) } \times 20,000 \text{ tonnes (lower end of range)} = 340,000 \text{ tonnes}
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340,000 \text{ tonnes} - 238,000 \text{ tonnes} = 102,000
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\text{17 years (plan period) } \times 25,000 \text{ tonnes (higher end of range)} = 425,000 \text{ tonnes}
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425,000 \text{ tonnes} - 238,000 \text{ tonnes} = 187,000 \text{ tonnes}
\]

10.10 Therefore, between 102,000 and 187,000 needs to be provided for.

10.11 From the information provided by Purbeck Stone operators, it appears that overall there is around nine to twelve years supply remaining (assuming an
10.12 This is theoretical; however, as further reserves may well be needed before this time to ensure that an adequate supply of the full range of beds including from the upper and lower building stones is maintained.

10.13 Nevertheless, this demonstrates that the plan needs to make further provision of Purbeck Stone in terms of total reserve, since the plan period for the Minerals Core Strategy is until 2028. Additionally, the information provided by operators demonstrates that the majority of current Purbeck Stone quarries will run out of permitted reserves within the plan period.

10.14 Work has been undertaken to assess whether there is sufficient resource of Purbeck Stone remaining in the ground to meet this level of provision. A ‘Call for Sites’ exercise was undertaken in 2007, inviting industry, landowners and minerals consultants to put forward specific sites to be considered for inclusion in the Minerals Site Allocations Document (MSAD). These sites were published in the MSAD Discussion Paper in October 2008, including eleven Purbeck Stone sites.

10.15 Two of these sites have since been granted planning permission (PK04 Downs Quarry and PK09 South Downs Quarry). Trial pitting on another site (PK03 California Quarry) has indicated that the stone is not of a good quality.

10.16 Excluding these three sites, there is an estimated 708,500 tonnes in total of Purbeck Stone. Whilst this figure does not account for wastage which may occur during processing, it indicates that there is more than sufficient total stone resource from known sites to contribute to the delivery of 102,000 to 187,000 tonnes of Purbeck Stone. It is acknowledged however that not all of this resource would come forward at the same time due to operational requirements and limitations on the intensification of workings (for example through constraints on access and landscape, and land ownership).

11 Identifying an area of search for Purbeck Stone

11.1 As a result of consultation responses to the Revised Draft MCS, it was considered appropriate to develop an area of search for Purbeck Stone to offer more flexibility to the industry in finding the most appropriate sites. Responses highlighted possible difficulties with a prescriptive approach relying solely on the allocation of individual sites within the Minerals Site Allocations Document, including the variable nature and quality of the resource.

11.2 The identification of the area of search was based on the Purbeck Stone resource area (identified in the Revised Draft MCS). Due to the sensitive location of the Purbeck Stone resource, its environmental sensitivity was assessed in identifying an appropriate area of search in order to minimise potential adverse impacts from quarrying. A strategic landscape and visual sensitivity study was therefore undertaken to inform the development of the area of search, with input from an historic environment perspective. This assessed the significance of impacts on key viewpoints, centred around two zones of sensitivity. The first was the south and western coastal ‘open access’ corridor containing the upper and lower South West Coast Path. The second was the northern part of the resource area which is open to south facing views from the Purbeck Ridge. Key viewpoints around the two settlements of Worth Matravers and Acton and along the edge of the Herston area of Swanage were
also assessed. The study identified a zone of least landscape and visual sensitivity on which a draft area of search was based. This study comprises Background Paper 08. Ecological designations were also considered.

11.3 In December 2011, an informal consultation with the industry was undertaken to consider deliverability within a draft area of search. As a result of this informal consultation, additional areas of potential resource were assessed (see Background Paper 08) and the draft area of search amended. The area of search contained within the Minerals Core Strategy is considered to be the most appropriate, based on the assessment undertaken.

11.4 Restrictions on the availability of land within the area of search are acknowledged. For example a proportion of the area of search is under National Trust ownership. As outlined in paragraph 7.12, the National Trust restricts the annual output of mineral from their land. There are also inevitably areas which have been previously quarried, although the extent of working is not necessarily known. Additionally, parts of the area of search are known to have access issues. These comprise the St Aldhelm’s Head peninsula, which is accessed through the village of Worth Matravers and then via single track; and the area south of Swanage around California and Belle Vue quarries, which is accessed through a residential street in Swanage and then via single track. Notwithstanding this and given that the expectation is that sites will wherever possible be identified through the Minerals Site Allocations Document to meet the need for Purbeck Stone, the area of search is considered to provide adequate opportunity for any shortfall in supply of stone overall to be made.

12 Crushing

12.1 As explained in section 10, the nature of Purbeck Stone extraction gives rise to a large percentage of waste material. The industry has some aspiration to crush waste material for use as aggregate.

12.2 Crushing only occurs in limited circumstances currently. At the majority of permitted sites where processing takes place, the crushing of stone is restricted, whilst some are restricted from crushing stone for resale, through condition, in the interests of protecting amenity. Where conditions allow for crushing, this is restricted to use only for the purpose of forming or maintaining their own on site tracks or hardstanding, subject to notifying the Mineral Planning Authority in advance. One permitted site is conditioned to enable a slightly wider use of any crushed material, restricted to use within the landowner’s estate within local parish areas. There are no tonnage limits currently to indicate acceptable scales, although the uses specified are considered to be self-restricting.

12.3 There are a number of implications of crushing waste stone which need consideration. A key implication is the effect that crushing could have on quarry restoration, which relies on backfilling using waste stone. Should crushing result in the inability to restore sites to an appropriate landform, the landscape character of the AONB may be affected. Additionally, impacts associated with crushing activities may include noise, dust and visual intrusion. This may result in an impact in itself, as well as cumulatively with other quarrying activities.

12.4 The use of surplus stone where this would not have an effect on restoration could provide benefits. Many of the operators would like to crush surplus waste stone to create or maintain tracks and hardstanding within their quarry sites or
service areas. It is accepted that this would be a sustainable use of the material, where it would not result in unacceptable impacts and, as noted above, this already occurs at some sites.

12.5 Additionally, it has been argued that use of crushed stone locally can provide benefits economically to the industry and from an aesthetic point of view. This may also be argued to be more sustainable than bringing in aggregate from elsewhere. Whilst Swanworth Quarry already provides a supply locally, where a specific local need could be demonstrated, it is considered that small-scale, temporary crushing may be acceptable in some cases.

13 Importation

13.1 As set out in the Minerals Core Strategy, the importation of other stones to Purbeck’s service areas can increase adverse impacts of quarrying through increased lorry movements and visual impacts associated with the storage of stone. Given the remote and sensitive location within the Dorset AONB, it is arguable that this is not justifiable.

13.2 On the other hand, this activity can provide economic benefits. Currently, at least two operators import stone for either storage and resale, or for processing and resale, in order to increase product ranges. It can be argued that this enables operators to work at full capacity and maintain local masonry jobs, where other stones are imported for processing.

13.3 For some existing sites, conditions have been used to limit this activity, since the extraction and processing of Purbeck Stone is the primary activity and it is accepted that this can only take place in this location, due to geology. However, it is considered necessary to limit ancillary activities and thereby the intensity of use of the sites in order to preserve the amenity of the local area and the Dorset AONB. There is also concern that without restrictions limiting importation of other stones to the lifetime of the quarry, the activity could become an established use.

13.4 Several sites are restricted by condition from being able to store stone from outside Purbeck, unless permission is first agreed in writing by the MPA. One service area has a limit through condition on the amount of imported material (not including that which is imported from its Purbeck quarries) that can be stored at any one time of 600 tonnes.

14 Existing Local Plan Policies

14.1 Until superseded by the Minerals Core Strategy and Minerals Site Allocations Document, the adopted Minerals and Waste Local Plan (1999) contains the local policy framework for considering the working of Purbeck Stone. In general terms, the continued support for the quarrying of Purbeck Stone was a key theme running through the strategy of the Local Plan, subject to this operating largely in its traditional, small-scale fashion and for traditional uses.

14.2 The adopted Plan contains four policies (see below) directly relevant to the extraction of Purbeck Stone. An analysis of these policies and how they are working is carried out regularly as part of the MWDF Annual Monitoring Report.

- Policy 30 – Presumption in favour of Extraction in Preferred Areas
  (Policy to permit applications for new or extended operations within two preferred areas at Acton and Swanage subject to a series of criteria)
Policy used on two occasions between 1 April 2006 and 31 March 2009. As the majority of land within both preferred areas has now been permitted, the policy needs reviewing.

- **Policy 31 – Presumption Against Extraction Outside Preferred Areas**
  (Policy to refuse applications outside preferred areas unless in exceptional circumstances)
  Policy used on three occasions during 1 April 2006 to 31 March 2009 and permission has been granted outside of preferred areas.

- **Policy 32 – Discouragement of Non-traditional Uses**
  (Policy to refuse proposals for the use of stone for aggregate and other non-traditional uses). Policy used on three occasions during 1 April 2006 to 31 March 2009. This is considered an important policy to safeguard resources, however there is a need to define non-traditional uses more specifically.

- **Policy 33 – Imposition of Conditions**
  (Policy to allow the MPA to impose conditions relating to minimising visual intrusion, the restoration of sites and seeks to minimise the requirement to import waste and maximise benefits of nature conservation.)
  Policy used on 10 occasions during 1 April 2006 to 31 March 2009.

15 **Review of sites in the Adopted Minerals and Waste Local Plan**

15.1 Policy 30 of the adopted Plan contains two preferred areas for Purbeck Stone extraction at Acton and Swanage.

15.2 The first preferred area at Acton (Inset 6) was allocated for the phased extraction of stone with restoration at a lower level to nature conservation/agriculture. The land allocated was an area of 24 hectares (ha), of which 6ha was, at the time of adoption, already being worked. The area was divided into two parts: Acton Field, which adjoined and included existing quarry units, and Quarry Field, a “greenfield” site that was, on adoption, in agricultural usage.

15.3 Acton Field comprised a number of small quarries worked by different operators, as well as a number of service areas. The majority of these quarries have been restored and the area is now largely reinstated. Planning permission to develop four Purbeck Limestone quarries in Quarry Field, with ancillary temporary overburden and soil storage areas, together with the construction and use of an access road was granted, subject to a series of conditions, on 4 March 2005. This approval ensured the continued supply of Purbeck Stone in the Acton area. A review of currently operating quarries has, however, highlighted operational problems with the sites in this preferred area, where the marketable upper building stones lie at a significant depth making operations potentially unsafe and uneconomical.

15.4 In summary, planning permission has now been granted for the majority of the adopted Plan allocation at Acton (Inset 6).

15.5 The second preferred area at Swanage (Inset 7) was also allocated for the phased extraction of stone with restoration at a lower level to nature conservation/agriculture. The 7 hectare area adjoined existing quarry units found to the south of Swanage and was proposed to be worked progressively in a westerly direction linking the existing California Farm complex with Belle Vue Quarry.
15.6 Again, planning permission has been granted for extraction covering almost all the preferred area shown through an extension to California Farm in a westerly direction.

**Departures from the adopted Plan**

11.7 Permission has been granted for extraction in areas outside the preferred area both at Downs Quarry and Acton Quarry operated by WJ Haysom & Son.
Sources

- Dorset Area of Outstanding Natural Beauty Landscape Character Assessment (2008)
- Dorset Area of Outstanding Natural Beauty Management Plan 2009-2014
- MPS1: Annex 3
- MPS1 Practice Guide
- National Planning Policy Framework
- The National Trust: Quarrying on Purbeck
- Figures and information on operations provided by Purbeck Stone companies