Carew Quarry
ROMP Review

Non Technical Summary
Volume 4

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NON TECHNICAL SUMMARY

VOLUME 1

Carew Quarry ROMP Review

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1.0 INTRODUCTION

1.1 Background

An Environmental Impact Assessment (EIA) has been undertaken to consider the effects of quarrying and related activities at Carew Quarry. The results are set out in an Environmental Statement (ES). The location of Carew Quarry is illustrated on Figure 1.01.

The EIA has been undertaken as part of an exercise carried out on behalf of Thomas Scourfield & Sons, the owners and operators of Carew Quarry, designed to update and modernise the planning conditions which control and regulate activities at the Quarry. The primary purpose of the EIA has been to consider the environmental effects of continuing the existing permitted quarrying activities, and to use those defined effects as a basis for drafting updated planning conditions to control those activities.

The process of modernising old mineral permissions is a requirement of the Environment Act 1995, which place an obligation on mineral operators to periodically submit, for approval by the relevant Mineral Planning Authority (MPA), updated schedules of planning conditions controlling ongoing quarrying operations. This is designed to ensure that planning conditions do not become outdated with the passage of time, and to provide for operations to continue in accordance with the most up to date environmental standards. The exercise of a 'review of old mineral permissions' is commonly referred to by the acronym 'ROMP Review'.

In August 1997, a planning application was submitted to 'consolidate' the historic planning permission for quarrying at Carew a single permission. The application was approved on 17th December 1997 (reference NP/319/97), and it is this permission which now forms the subject of the ROMP Review, which needs to be undertaken 15 years from the date of the 1997 planning permission i.e. by 17th December 2012.

The purpose of the EIA and ES has been to identify environmental effects, and to highlight modern standards of environmental controls, and to use that information to draft up dated planning conditions. The procedure places the onus on the Applicant to propose updated conditions, which are then considered by Mineral Planning Authority (Pembrokeshire Coast National Park Authority [NPA]) who can impose revised or additional conditions if they deem this to be necessary control. The Review application is thus accompanied by a schedule of new conditions, which revise the current conditions to reflect updated proposals and standards.

In this context, it is important to recognise that planning permission for quarrying at Carew already exists. The principle of quarrying is therefore not an issue for reconsideration as part of the Review application.

1.2 The Non Technical Summary

This document is a non technical summary (NTS) of the ES, and presents the main findings of the EIA and ES in non technical language. The NTS, as the title suggests, provides only a brief summarised account of a large amount of technical data. However, it is hoped that it will provide a sufficient overview of the ongoing development, and the environmental issues, to allow the reader to gain an understanding of the key issues, and the way in which the EIA and ES have informed the preparation of an updated quarry development scheme and schedule of planning conditions.

The NTS comprises Volume 4 of a comprehensive submission which consists of:

- Volume 1: Environmental Statement (ES);
- Volume 2: Technical Appendices;
- Volume 3: Application plans and ES figures; and
- Volume 4: Non Technical Summary of the ES (this document).

1.3 Technical Studies

The content of the EIA and respective technical studies has been informed by informal discussions held with the NPA, by the Applicants experience of operating the quarry, and by the external consultancy services employed by Thomas Scourfield & Sons, many of whom have longstanding background knowledge of the quarry.

Specific technical studies have been undertaken to deal with:

- Hydrology and Hydrogeology: Parsons Brinckerhoff Limited
- Landscape and Visual Effects: SLR Consulting Limited
- Ecology: SLR Consulting Limited
- Noise: SLR Consulting Limited

Inputs on other technical issues have been prepared by other specialists within SLR, supplemented by technical inputs on the phased quarry development, working practices, quarry blast design, and operational mitigation measures provided by in-house expertise available to the Applicant.

The EIA and preparation of the ES has been coordinated by SLR Consulting Limited. SLR are members of the Institute of Environmental Assessment and Management, with specialist capability in minerals planning.

The reports produced by the project team have been incorporated into the ES and its supporting appendices, and the key issues are summarised in this document.

1.4 Planning Conditions

The purpose of the Review is to formulate a schedule of updated planning conditions which reflect modern standards and controls, and which provide (i) detailed controls over on-going operations for the 15 year Review period; and (ii) a context for subsequent Periodic Reviews by confirming the longer term intentions for the development of the quarry, and the final restoration strategy.

The initial onus is on the Applicant to propose an updated schedule of planning conditions. The purpose of the EIA and this ES is to facilitate that exercise by providing an environmental context for the development scheme and environmental and amenity conditions which should logically be associated with the scheme. The ES also includes a review of planning policy guidance which recommends specific criteria levels for e.g. blast vibration which are more stringent than the limits prescribed in the current planning conditions.

The NPA are not obliged to accept the planning conditions proposed by the Applicant, and they are entitled to impose different conditions or additional conditions. However, where a Mineral Planning Authority (MPA) determines conditions different from those submitted by the Applicant and the effect of the new conditions, other than restoration or aftercare, as compared with the effect of the existing conditions is to impose a restriction on working rights, then Applicants whose interests have been adversely affected by the restrictions will be entitled to claim compensation.

The conditions proposed by the Applicant are produced as Annex 1 to the ES, and the rationale behind the conditions is summarised in Chapter 4.0 of this NTS. The proposed updated conditions are considered to represent a positive and constructive approach to devising an environmentally sensitive operation and to regulating the development by modern, up to date planning controls. In those terms, the exercise associated with the EIA has been of positive value in

preparing specific conditions which reflect the conclusions and recommendations of the EIA.

1.5 Document Availability

All of the documents are available for viewing at the offices of Pembrokeshire Coast National Park during normal office hours at:

Llanion Park

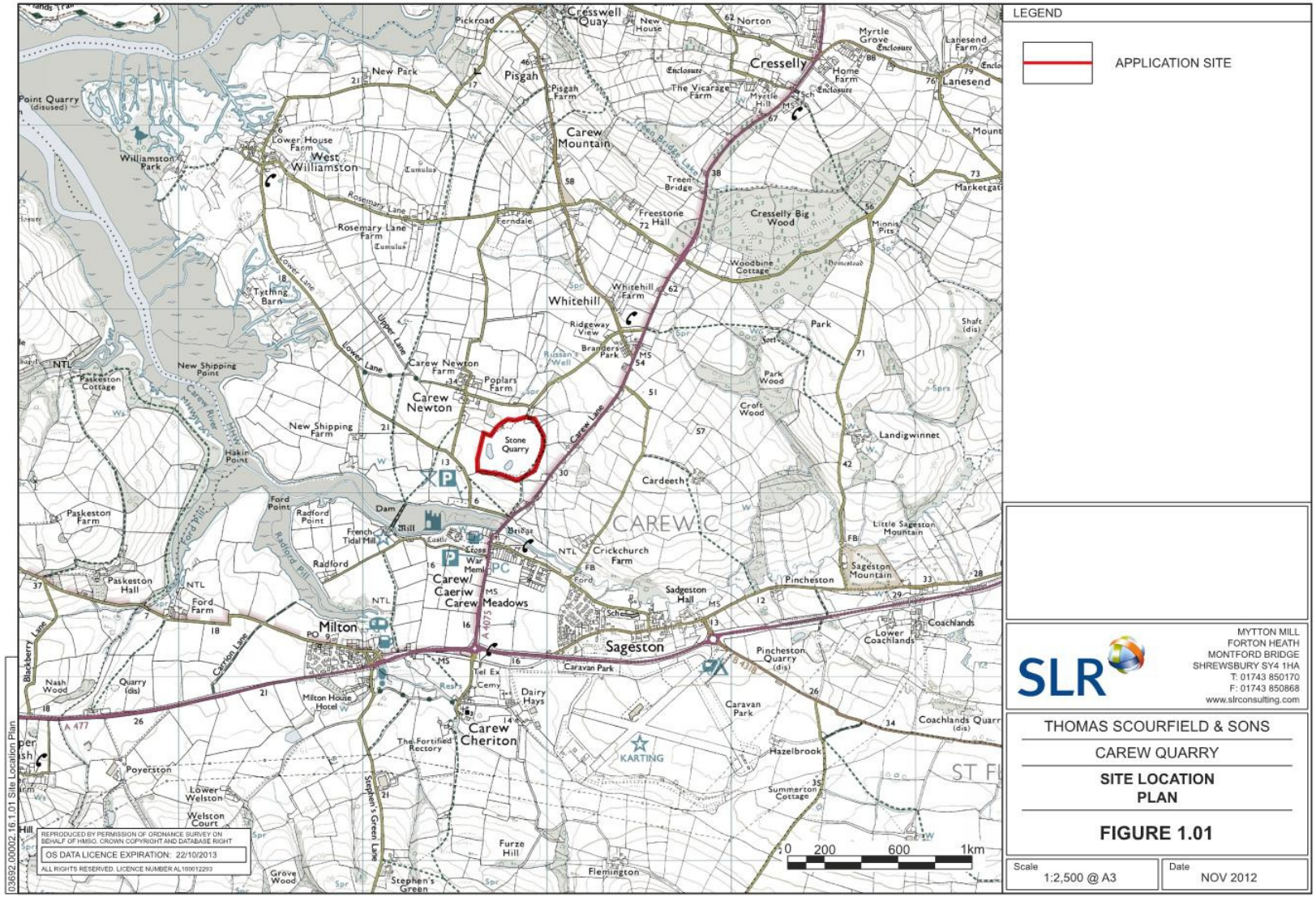
Pembroke Dock,

Pembrokeshire

SA72 CDY

A full set of documents to include the ES, Appendices, Plans and NTS is available for purchase at a cost of £75.00 (+VAT and postage and packaging), or on a CDROM (which is available for £5.00) via the Applicants Agents at SLR Consulting, Fulmar House, Beignon Close, Ocean Way, Cardiff CF24 5HF.

Figure 1 - Site Location Plan



2.0 THE SITE

2.1 Location

Carew Quarry is a long established quarry which extracts Carboniferous Limestone. The quarry is centred on National Grid Reference SN048043, within south westerly facing ground on the northern side of the Carew River, south east of the village of Carew Newton in Pembrokeshire.

Ground elevations around the quarry perimeter vary between 20-30 metres AOD, rising to 57 metres AOD at Whitehill, approximately 1 kilometre to the north east.

2.2 The Quarry Site

The site extends to some 9.48 hectares, and comprises an operational quarry void with quarry faces and benches; areas of historic quarry tips; existing and redundant internal quarry haul roads; area of standing water at the base of the void; a fixed crushing and screening plant; ancillary mobile plant; aggregate stock piles; a concrete blockworks and associated ready mix concrete plant; site offices and workshop buildings; a car park and HGV lorry park; and associated access road and circulation space.

The quarry has been worked to its lateral limits, and its operations are now focused on developing the quarry faces and deepening he quarry within the existing footprint.

2.3 Landscape

The quarry has been developed within a gentle ridgeline, with the site boundaries defined to retain the outer edges of the ridgeline. As a result, the quarry is very well contained and screened in the landscape. The visual impact assessment discussed in chapter 5.0 of the ES highlights the limited viewpoints of the quarry which are available, and the very limited visual effects associated with the quarrying operations.

2.4 Ecology

The site is not subject to any statutory or non statutory nature conservation designations. There are however, a number of statutory designations in the vicinity of the site, comprising the Millford Haven Waterway SSSI and Carew Castle SSSI to the south of the site, and components of the Pembrokeshire marine SAC and the Pembrokeshire Bat Sites and Bosherton Lakes SAC, also situated to the south of the site.

A detailed Phase 1 habitat survey has not identified any important habitat, flora or fauna at the site. Peregrine falcons have successfully nested at the site, apparently undisturbed by the operations continuing in other parts of the quarry.

2.5 Ground and Surface Water

The main water features in the area are the Carew River and Mill Pond to the south, with surface water drainage in the form of small streams in the vicinity of the quarry.

The site lies outside the boundary of a Groundwater Source Protection Zone for Milton Springs, and is separated from the defined zone by the Carew River. There are no ground or surface water abstraction sites in the immediate vicinity of the quarry.

Water collects in the base of the quarry in a sump, where the main component is surface water. Water is pumped out of the quarry to a catch pit/soakaway located in the field immediately to the south of the quarry. The water from the soakaway infiltrates back into the ground, or partly enters the Mill Pond. The pumping of water is regulated by a Discharge Consent Licence issued by the Environment Agency.

2.6 Cultural Heritage

The site is not affected by any cultural heritage designations, and any buried archaeology which may have been present at the site has been destroyed by historic quarrying operations.

There are 3 Schedule Ancient Monuments, 14 Listed Buildings and a Conservation Area at Carew village and the indirect effects on these features are considered as part of the impact assessment set out in Chapter 12.0 of the ES.

3.0 QUARRY DEVELOPMENT

3.1 Phased Quarry Development Scheme

The quarry development scheme which accompanied the 1997 planning application anticipated the progressive deepening of the quarry, with a series of benches, served by haul roads initially along the western side of the quarry, and then focused along the eastern side. The base of the central and western areas of the quarry were planned to be progressively widened and deepened, with haul roads removed when no longer required for operational purposes, with the faces then worked back to their final positions. The quarry has been developed over the 15 year period consent with the these principles.

The quarry requires de-watering to maintain access to reserves below the water table, and groundwater is discharged off-site via a series of settlement pits located to the south west of the quarry. These de-watering operations are regulated by a discharge consent licence issued by the Environment Agency in 2005.

In order to provide a context for the EIA, the quarry development plans have been updated to reflect current circumstances and the anticipated progress of quarrying for the duration of the 15 year period, together with the final quarry development layout.

Current operations are focused on the development of quarry faces and benches in the extreme south eastern area of the site, together with the extraction of rock from a historic quarry tip in the south eastern area.

Operations will be developed by constructing a new internal haul road ramp in the southern area of the site down to the base of the quarry. The alignment of the new haul road is shown on plan CQ/3, and will enclose an area of the former quarry tip on its western side. Operations will then continue with the excavation of rock from the quarry tip, and the exposure of rock face and benches beneath the tip. These faces will then be worked in an easterly direction towards the haul road ramp. In addition, de-watering of the quarry void would continue to allow access to reserves below the current -16 metre AOD level.

Operations would then progress within the south eastern area of the site, with similar activities associated with the recovery of rock form the historic quarry tip, and the exposure of faces and benches which would be worked in an easterly and south easterly direction to their final positions (Plan CQ/14). The central haul road ramp would be retained during this period, with access off the ramp to the new benches at respective levels along the ramp. Water management would be assisted by the temporary retention of the central ramp/bund, which will allow the south eastern void to be de-watered into the south western void.

The final quarry operations would necessitate the removal of the concrete blockworks to allow access to the reserves currently situated beneath the blocks storage building. The exposed faces at the northern edge of Phase 2 would then be progressively worked in a northerly direction towards the processing plant site. Ultimately, the fixed processing plant would be removed, and the residual reserves beneath the fixed plant site would be excavated and processed using mobile plant. All faces would then be worked back to their final positions, with a ‘retract’ out of the quarry working remaining associate reserves.

In summary, the quarry development scheme is straightforward in developing the quarry within its existing footprint to the approved lateral limits, with 5 main elements of;

(i) The creation of a new central haul road ramp;
(ii) Recovery of rock from the historic south east quarry tip;
(iii) Development of quarry faces and benches in a south easterly direction to the site boundary;
(iv) Deepening of the quarry floor;

(v) The ultimate retreat from the quarry void via the extraction of reserves from beneath the blockworks and processing plants site and development of the quarry faces to the lateral limits.

3.2 Hours of Operation

The limits on hours of working imposed on the most recent planning permission (NP/04/469) restrict quarrying operations and processing to 07.30 and 17.30 Mondays to Fridays, and 07.30 and 16.00 hours on Saturdays. Loading of lorries is restricted to the 07.00 and 19.00 hours on Mondays to Fridays, and 07.30 and 16.00 hours on Saturdays.

No changes to these approved hours are proposed as part of this submission.

3.3 Output and Traffic Movements

There are no output restrictions on the permitted activities at Carew Quarry. Historical production has been in excess of 250,000 tonnes per annum, which, based upon a notional average load of 18 tonnes, and a 275 day working year, equates to some 50 loads per day, or 100 movements.

Permission also exists for the importation of up to 40,000 tonnes per annum of aggregate for use in the concrete blockworks, together with the importation of some 5,000 tonnes per annum of cement and pumice. Based upon similar assumptions regarding load sizes and working days, these activities generate some 8 loads of aggregate per day (16 loads), and some 2-3 loads of cement/pumice per week.

The recycling operation has historically been a relatively low key activity, attracting some 6,000 tonnes per annum, but it is intended to operate at a maximum of some 25,000 tonnes per annum. This equates to an average of 5 loads per day (10 movements). The export of recycled secondary aggregate would generate similar movements per day. In practice, the opportunity to use 'back hauls' for the importation of material reduces the movements associated with importation.

The overall operation is therefore capable of generating up to some 120 movements per day. More recently, as a result of depressed economic conditions, output at the quarry has reduced. For the purposes of the ROMP Review, it has been assumed that the quarry will operate at an average of some 150,000 tonnes per annum. Based upon the same assumptions regarding load sizes etc., this will generate an average of some 30 loads per day (60 movements), plus the small additional movements associated with imports.

3.4 Restoration

The restoration strategy is reflective of the fact that the final quarry layout will create a deep void, where water levels within the void are anticipated to recover to approximately 10 metres AOD. The result will be that the majority of the site will become a lake, with limited terrestrial areas around its margins, and limited exposures of rock faces/benches above the equilibrium water level within the lake.

The restoration strategy is thus focused upon the areas of the site above the water table and outside the rim of the quarry, where landscaping and other restoration/habitat works could be implemented. The strategy is illustrated on plan reference CQL/1.

In summary, the restoration scheme proposes:

(i) Tree and shrub planting blocks within the restored northern area of the site, in the vicinity of the current site offices and workshop buildings (which would be removed);
(ii) Tree planting around the western and eastern sides of the site to provide landscape and ecological linkages to established features beyond the site boundary; and
(iii) Under-storey planting to reinforce the linear woodland belt along the southern side of the quarry.

In addition, there will be natural re-colonisation of exposed quarry faces, particularly in the upper levels of the quarry which will remain undisturbed. This is evident from the re-colonisation which has already taken place, notably on faces to the north east of the processing plant site. The final restoration strategy will thus be refined to reflect circumstances towards the end of the quarry development scheme, when opportunities to retain attractive rock features and re-colonisation can be identified, and other areas requiring interventionist treatment can be agreed.

4.0 SUMMARY OF ENVIRONMENTAL ISSUES

4.1 Introduction

The preceding chapters of the ES have assessed the effects of quarrying under a series of topic headings relating to environmental amenity issues. The exercise has identified a number of elements which require control and mitigation, and has highlighted up to date advice regarding standards and criteria.

As a summary of those issues, and by way of an introduction to schedule of planning conditions proposed in Annex 1, the following key issues have emerged, which are reflected in the schedule of conditions.

4.2 Landscape and Visual Effects

4.2.1 Main Findings

The LVIA has identified the main landscape and visual receptors against which the existing and ongoing landscape and visual impacts can be assessed. The main landscape and visual implications of the development, and the potential impact have been identified, and mitigation measures have been proposed to further reduce the impacts.

The study concludes that further landscape effects associated with the ongoing development of the quarry would be minimal and localised. There would, however, be beneficial landscape effects in the long term following the implementation of the restoration strategy.

The visual impact assessment has focused on five potential viewpoints which are representative of views in the locality. It notes that views from Carew Lane/A4075 are screened by landform and intervening vegetation, and the magnitude of change associated with the ongoing quarry operation hasbeen assessed as negligible. Views from the footpath on the eastern side of the quarry are substantially screened, but there is a one notable gap in the screening which allows direct views into the quarry. In addition, at present, there is surplus plant stored along the eastern edge of the quarry, in proximity to the footpath, which is readily visible from the footpath.

Views from ground level locations in the vicinity of Carew Castle are screened by topography. However, from higher levels within the castle there are glimpse of the upper levels of the north eastern quarry face through a line of boundary trees which runs along the southern edge of the quarry. Continued development of the quarry at lower levels within the quarry would not alter the components which are visible.

Views from Carew Newton are substantially screened, and the changes resulting from the ongoing development are considered to be negligible.

Views from the public highway north of the quarry are similarly substantially screened, but there are glimpses of parked HGVs and quarry buildings from this location.

In summary, the assessment of viewpoints highlights the well screened nature of the existing quarry, and the ongoing development of the quarry will not alter this situation.

4.2.2 Mitigation Measures

The suggested mitigation measures comprise:

(i) This would be undertaken by assisting with the natural recolonisation of the upper faces, by avoiding further works in these areas.

(ii) There would be benefit in removing ancillary equipment from its current location around the periphery of the quarry, but it is recognised that, at present, there are space limitations within the quarry to accommodate such equipment.

(iii) The potential for additional planting along the north west edge of the quarry should be investigated to bulk up existing vegetation and to further minimise screening from the north and north west.

(iv) Planting proposals could be implemented to increase the screening along the southern edge of the quarry, together with management of the existing tree screen to ensure its healthy development.

4.3 Ecology

4.3.1 Main Findings

The ecology study has noted the presence of four statutory designated nature conservation sites within a 2 kilometre search area focused on the quarry, namely the Millford Haven Water Way SSSI and Carew Castle SSSI, which lie to the south of the site, and components of the Pembrokeshire Marine SAC and the Pembrokeshire Bat Sites and Bosherton Lakes SAC, which are also situated to the south of the site. There are no statutory sites of nature conservation importance within a 2 kilometre radius. The site itself is not the subject of any statutory or non statutory ecological site designations.

The study has included an extended Phase 1 Habitat Survey of the quarry which, together with a desk study, has sought to identify the potential for, and presence of, legally protected, rare or notable species of flora and fauna at the quarry.

The study found that the site largely comprises an operational quarry void with significant areas of bare rock, vertical faces, benches and processing equipment, with a pond/sump at the base of the void. Peripheral areas comprise of small areas of retained scrub and secondary woodland along the narrow rim of the quarry and adjacent to roads, buildings and stock pile/storage areas in the north eastern part of the quarry. Small areas of developing calcareous grassland and taller ruderal grassland are present along bunds or on unused ground.

No species of legally protected or notable flora were recorded during the Phase 1 Habitat Surveys.

No otters, water voles, badgers, bats, reptiles or amphibians were recorded at the site. Habitats with the potential to support breeding birds were identified during the Phase 1 Survey, notably those associated with the peripheral scrub woodland habitats. A pair of peregrine falcons have nested on rock ledges within the quarry for a number of years (including 2012). The study has concluded that there would be no direct or indirect impacts upon statutory or non statutory ecologically designated sites. There would no impacts on important habitats. With the exception of peregrine falcons and nesting birds protected species are absent from the quarry.

4.3.2 Mitigation Measures

The key recommendations and conclusions are:

(i) The site contains a number of potential ledge sites where peregrine falcons can nest, and as most of the future quarrying activities will involve the site being developed vertically rather than laterally, these ledges will be retained. The key mitigation measure will thus be a continuation of current practice of a watching brief in respect of noting the presence of breeding peregrine falcon, and avoiding operations within the vicinity of a nest site during the nesting season and after fledging to determine breeding success

(ii) The nests of wild birds, regardless of how common these species are, are protected under the Wildlife and Countryside Act 1991 whilst the nests are occupied or being built. The ongoing quarry development has essentially reached its lateral limits and there will thus be no further effects on perimeter scrub vegetation. However, in the event of the need for any vegetation removal then this should take place outside of the bird breeding season, which typically runs from March to the

end of August, unless the area is the subject of breeding bird surveys beforehand by an appropriately experienced ecologist.

(iii) The implementation of the restoration strategy provides an opportunity to create peripheral habitats around the margin of the resulting lake, in the form of recolonisation/hydroseeding of the quarry faces and benches, and the strengthening and extension of woodland and scrub habitats.

(iv) These measures will contribute to BAP objectives, and provide new or enhanced habitats for a range of BAP fauna such as bats, birds and invertebrates

4.4 Hydrology and Hydrogeology

4.4.1 Main Findings

The study draws upon the results of a detailed water feature survey which identifies the principal surface and groundwater features in the vicinity of the site. The study notes the presence of the tidal Carew River and Mill Pond to the south of the site, and the surface water drainage systems in proximity to the quarry. It also records the presence of a surface water abstraction point to the south east of the quarry.

It highlights the classification by the Environment Agency of the Carboniferous Limestone as a 'Principal Aquifer', and it notes the large spring source which emerges from the limestone at Milton, which was historically used as a Public Water Supply. The site is separated from the Aquifer contributing to the Milton springs by the Carew River.

At Carew Quarry, water collects in the base of the quarry in a sump in the south-westerly area. The majority of water which collects is derived from surface water. The water is pumped from the sump to a series of catch pits / soakaways located in the field immediately to the south of the quarry. From the soakaway, the water dissipates via three routes of:

(i) Infiltration into the Carboniferous Limestone, with seepage back into the quarry;

(ii) Infiltration into the Carboniferous Limestone, and then lateral groundwater flow away from the quarry; and

(iii) Indirect discharge into the Mill Pond.

Pumping from the quarry is regulated by a Discharge Consent Licence issued by the Environment Agency in 2005, which specifies a maximum daily discharge of 10,000 cubic metres per day.

The key conclusions of the study are:

(i) Provided that water pumped from the quarry sump continues to be discharged in accordance with the requirements of the existing Discharge Licence, then the Mill Pond and Pembrokeshire Coast SAC will be unaffected by the ongoing operations;

(ii) The single licenced surface water abstraction is up gradient of the quarry and will be unaffected;

(iii) The quarry lies outside the catchment to the Milton Springs source and is hydraulically isolated from it. The Milton Springs will therefore be unaffected by continued operations.

(iv) De-watering operations within the quarry have lowered groundwater levels within the Carboniferous Limestone with the effects extending beyond the quarry boundary. However, any increase in the 'cone of depression' associated with ongoing quarrying is anticipated to be incremental and limited;

(v) The exposure of the water table at the quarry sump means that there is potential for direct contamination of the ground water source in the event of spillage of fuel etc.;

(vi) Historic monitoring has detected salinity in the quarry water sump which is seasonal and reflective of variations in surface water inflow. Recent monitoring has indicated no material change in these circumstances.

4.4.2 Mitigation Measures

The recommended mitigation measures comprise:

(i) The imposition of a planning condition requiring best practice for refuelling operations, and the storage of fuel and chemicals at the quarry, designed to protect groundwater quality;
(ii) Continued weekly monitoring of the quarry discharge (as required by the Discharge Consent Licence); and
(iii) Monitoring of the water quality in the quarry sump, to allow the water levels and water quality in the sump to be managed, and to allow offsite discharge to be regulated in a way which reflects water quality requirements.

4.5 Noise

4.5.1 Main Findings

The current planning permission imposes a limit on noise attributable to operations at the quarry, as measured at Carew Newton House of 50dB L_{Aeq} , and 53 dB L_{Aeq} for temporary periods when operations are taking place at high levels within the quarry.

The noise study has included monitoring to establish whether the noise levels are being adhered to. Monitoring undertaken in October 2012, when the quarry was working normally confirmed a noise level of 44.8 dB L_{Aeq}, measure at Carew Newton House. The operation is thus preceding in accordance with the current noise limits.

4.5.2 Mitigation Measures

In these circumstances, no specific additional mitigation measures are proposed, other than;

(i) Continued adherence to good practice measures which aim to minimise nosie impact; and
(ii) The re-imposition of the current noise limits, and adherence to those limits

4.6 Blast Vibration

4.6.1 Main Findings

Ground vibration resulting from blasting operations on quarry faces is calculated in terms of peak particle velocity (PPV) and is measured in millimetres per second (mms). Detailed research has determined that vibration levels well in excess of 50 mms are necessary to produced structural damage to residential type properties. For human perception, government advice is that levels should be set in the range of 6-12 mms, as discussed further below.

Vibration is also generated within the atmosphere, where the term ‘air over pressure’ is used.

It is important to emphasise that for any given blast it is very much in the interest of the operators to reduce vibration, both ground and air borne to the minimum possible, in that this substantially increases efficiency and hence the economy of blasting operations.

Current planning conditions at Carew Quarry impose restrictions on ground vibration which should not exceed 8.5 mms in 95% of all blasts and no individual blast should exceed a ppv of 12 mms as measured at vibration sensitive buildings. Additional conditions impose limits on air over pressure.

More recent government guidance set out in Minerals Technical Advice Note 1 (MTAN1) 2004, suggests a limit of 6mms in 95% of blasts, and upper limit of 10 mms. The guidance does not recommend imposing limits on air over pressure, noting that this is affected by meteorological

conditions, but it suggests that best practice should be employed in blast design and detonation in order to minimise air over pressure.

All blasts are monitored at Carew Quarry, and in the last 12 months, the ground vibration has averaged 5 mms, with one instance at 9.14mms.

4.6.2 Mitigation Measures

In view of adherence to current blast vibration limits, no specific additional mitigation measures are considered to be necessary. However, in the context of the underlying objective of a ROMP Review to improve environmental performance, and to update planning conditions to accord with current standards, it is considered appropriate to revise the blasting conditions at Carew Quarry to introduce more stringent blast vibration criteria. This would reduce the 95% limit from 8.5 mms to 6mms, and the upper limit from 12mms to 10 mms.

Condition have thus been recommended to reflect the above, and other requirements relating to times of blasting and the need for ongoing monitoring of individual blasts.

4.7 Dust

4.7.1 Main Findings

The study cross refers to the Pollution Prevention and Control Act 1999, and the permit for Carew Quarry issued pursuant to the Act which imposes detailed controls on emissions from the plant, stockpiles, haul road and aggregate handling operations. Advice set out in MTAN1 is that these controls should not be duplicated as part of the planning regime.

The study thus assumes that the existing permit controls will continue in force, and the assessment accordingly focuses on the wider potential for dust generation arising from soil and overburden handling, shot hole drilling and blasting, mineral extraction and transportation and offsite distribution of products.

The study notes the standard good practice measures which are in place, which ensure that soils and overburden are not moved in extreme dry conditions; drilling is undertaken by an air flushed drilling rig which is fitted with a fabric filter bag which allows collection and removal of dust; dust control measures on haul roads are continued, in particular, the maintenance and use of existing water sprays on the access road; and the surfaced quarry access road and sprays continue to be maintained to ensure that mud is not carried onto the public highway.

4.7.2 Mitigation Measures

The good practice management and mitigation measures which are already in place at the quarry could appropriately form the basis of a ‘dust control’ protocol to be included as a planning condition. These issues are reflected in the schedule of planning conditions produced an Annex 1.

4.8 Traffic

4.8.1 Main Findings

The pattern of traffic movements at Carew Quarry is well established, with vehicles utilising the unclassified highway from the site entrance at Hillgate to travel in a north westerly direction to the crossroads at Whitehill, from where vehicles utilise the short lengths of highway to join the A4045 at Whitehill. Vehicles then travel either north or south bound along the A4045 primary road to their respective market destinations. The unclassified highway serving the quarry is well maintained, and quarry vehicles are accustomed to using the highway with no highway safety difficulties.

Planning permission reference NP/319/97 imposed a series of requirements relating to improvements to the site access, including the surfacing of the access bellmouth and internal access road (condition 20), and the erection of 'stop' / 'give way' signs and white lines at the junction of the quarry entrance with the public highway (condition 27). These works have been implemented, and have been supplemented by additional signage and the installation of dust suppression sprays on the internal access road. The site access is thus well established, and functions well.

There are no restrictions on output or traffic movements from the quarry. Historic output have been in excess of 250,000 tonnes per annum, but more recent output have averaged some 150,000 tonnes per annum. In addition to the marketing of aggregate from the quarry, planning permission exists to import up to 40,000 tonnes per annum of aggregate into the quarry for use in the manufacture of concrete blocks, together with small amounts of cement. There is also a permission for the importation of inert construction and demolition waste , which is processed to produce a recycled aggregate. However, the recycling operation is a relatively low key activity, involving a maximum of 10,000 tonnes of material per annum.

For the purposes of the EIA, it has been assumed that based upon a 275 day working year, and an average load size of 18 tonnes, the above volumes will generate ongoing movements of some 30 aggregate loads per day (60 movements); 8 aggregate imports per day (16 movements); 2-3 loads of cement/ pumice per week; and some 1-2 loads of recycled material per day (2-4 movements).

4.8.2 Mitigation Measures

No additional mitigation measures are deemed to be necessary in terms of the use of the existing site access or vehicle routing. In addition, MPG 14 emphasises that conditions should not place limits on the annual output from active quarry sites.

Mitigation measures therefore relate to the ongoing implementation of existing measures and operational practices which involve the maintaining the surface of the internal quarry access road; maintaining the junction with the public highway; ensuring the sheeting of lorries (required by the Permit); and preventing dust and other debris being carried onto the public highway. These issues are reflected in the proposed schedule of planning conditions.

4.9 Cultural Heritage

4.9.1 Main Findings

Any buried archaeological interest which may have been present within to quarry site boundaries has been removed as a result of historic quarry activities. The quarry has worked to its lateral limits, and there is thus no surviving cultural heritage interest.

There are three Schedule Ancient Monuments at and in the vicinity of Carew Castle, and 14 Listed Buildings within Carew Village, where Carew Village is also a designated Conservation Area. There would be no effect on the setting or character of the Listed Building in Carew Village, or on the Conservation Area, since the quarry is not visible from the village.

Similarly, there would be no effect on the settings of the Scheduled Ancient Monuments since the quarry is not visible from ground level viewpoints, There is one viewpoint from an elevated position with Carew Castle, which is noted in the landscape and visual impact assessment, but the fleeting glimpse of a small part of the north east quarry face does not affect the setting or character of the Carew Castle Schedule Ancient Monument.

4.9.2 Mitigation Measures

In these circumstances, no mitigation measures are deemed to be necessary, other than attention to the mitigation measures recommend

in the landscape and visual impact assessment (reference section 14.2.2 above).

5.0 CONCULSIONS

The Environment Act 1995 sets out procedures to review mineral planning permissions, and places the onus on Operators to propose updated planning conditions. The exercise of a 'review of old mining permissions' is commonly referred to as a ROMP Review.

An EIA has been undertaken to provide a context to, and to inform the required schedule of updated planning conditions relating to Carew Quarry. The resulting ES has considered the environmental effects of the ongoing quarrying and related operations and, where appropriate, has made recommendations for additional controls and safeguards which should be introduced.

The recommendations reflect both the current circumstances at the site and, in certain instances, the introduction of more stringent standards of environmental protection which have been introduced since the date of the 1997 planning permission at Carew Quarry.

The environmental issues have been addressed in depth in Chapters 5.0 – 12.0 of the ES, and a brief summary of the issues requiring attention via planning conditions is set out in Chapter 14.0. The planning policy issues which have further informed the schedule of planning conditions are considered in chapter 13.0

The result is an updated schedule of planning conditions proposed by the Applicants, which is based upon the results of the EIA and content of the ES.

The Schedule is set out in Annex 1, and is considered to represent an appropriate and modern means of controlling ongoing operations at Carew Quarry over the forthcoming 15 year period up to the date of the next Periodic Review of the planning conditions.

The Applicants consider that the EIA has been a helpful and constructive approach to the current Review, and the resulting set of conditions, which are underpinned by the ES, are considered to meet the requirement to secure the proper protection of the environment and amenity of local residents, whilst meeting the needs of the operator in terms of a practical set of controls regulating future quarrying.

However, the Applicant looks forward to receiving responses from the NPA and other interested parties to the proposed conditions and to any further discussions leading towards the issuing of the final decision notice and set of conditions.

6.0 PROPOSED SCHEDULE OF PLANNING CONDITIONS

Time Limit

1. Unless otherwise agreed in writing by with the National Park Authority, planning permission for the winning and working of minerals or the depositing of mineral waste within the site shall cease no later than 28th February 2042.

2. Following the expiry of the mineral permissions all extraction, processing and stockpiling of minerals within the site shall cease.

3. No later than 12 months following the expiry of the planning permissions, or the earlier permanent cessation of winning and working of minerals, as agreed between the mineral operator and the National Park Authority, all plant, machinery and structures shall be dismantled and removed from the site.

4. No later than 12 months following the expiry of the mineral permissions or the earlier permanent cessation of winning and working of minerals, as agreed between the mineral operator and National Park Authority, the sale and transportation of any residual stocks from the site shall cease.

Working Programme, Phasing and Direction of Working

5. Unless otherwise agreed in writing by the National Park Authority the working, restoration and aftercare of the site shall be carried out in accordance with the documents and plans submitted with the ROMP Review application, comprising phased development plan ref numbers CQ3 – CQ6 and CQL/1.

Hours of Working

6. Except in emergencies to maintain safe quarry working (which shall be notified to the National Park Authority as soon as practicable), or with the prior written approval of the National Park Authority:-

   a) no excavation, backfilling or use of plant or machinery (including pre-planned servicing) associated with the extraction and processing of minerals, and no loading of lorries with aggregate shall be carried out except between the hours of 0730 and 1730 hours on Mondays to Fridays, and 0730 and 1600 hours on Saturdays

   b) no loading of lorries with concrete blocks shall take place on the site except between the hours of 0700 and 1900 hours on Mondays to Fridays, and 0730 and 1600 hours on Saturdays

   c) no servicing, or maintenance and testing of plant shall be carried out between the hours of 2100 and 0700 hours Monday to Saturday.

   d) no operations on the periphery of the site or at high levels, or in unscreened locations, such as the formation, removal or alteration of spoil tips, baffle mounds, screening and storage embankments, formation or maintenance of drainage works, and the stripping and replacement of soils shall be carried out except between 0900 hours and 1700 hours Monday to Friday and 0900 hours and 1200 hours on Saturdays.

   e) no operations, other than other than servicing and emergency maintenance, environmental monitoring and water pumping at the site shall take place on Sundays or Public Holidays.

7. Unless otherwise agreed in writing by the National Park Authority, no HGV's (more than 7.5 tonnes gross weight) shall enter or leave the site except between 0700 and 1800 hours Mondays to Fridays, and 0730 to 1600 hours on Saturdays and not at all on Sundays or Public Holidays

Importation of Material

8. No materials shall be imported into the site for sale or processing in any 12 month period other than:

   (a) a maximum of 40,000 tonnes of aggregate **or** 50% of the aggregate used in the manufacture of concrete products, whichever is the greater, **and**
   (b) a maximum of 5,000 tonnes of cement/pumice, **and**
   (c) a maximum of 25,000 tonnes of inert construction and demolition material.

   The operator shall maintain monthly records of the amount of material imported into the site and shall make the records available to the National Park Authority upon request.

Access and Highways

9. The existing quarry access to the public highway shall be maintained during the period of operation of the quarry with the provision of line markings, signage and junction visibility within the operator's highway frontage.

10. No loaded HGV's shall enter or leave the site unsheeted except those only carrying stone in excess of 75mm.

Dust

11. Measures shall be taken to minimise dust emissions from quarrying operations, in accordance with the following protocol:

   (i) Soils and overburden shall not be handled during extreme dry conditions unless the working areas are first dampened down;

   (ii) Drilling of shot holes shall be undertaken using drilling rigs fitted with a suitable dust collection system;

   (iii) The site entrance road shall be dampened down using fixed water sprays.

   (iv) All lorries, once loaded, shall be sheeted prior to leaving the site, with the exception of any load carrying plus 75mm size stone.

   (v) The speed of haulage vehicles at the site will be restricted to 10mph.

   (vi) All site vehicles will be fitted with upswept exhausts and radiator fan shields.

   (vii) Lorries will be loaded so as to avoid spillages.

   (viii) All site traffic will be kept to the designated haul routes

   (ix) Any plant spillages will be cleared to avoid accumulations.

   (x) Drop heights will be minimised at loading and discharge points.

Blasting

12. Unless otherwise agreed in writing by the National Park Authority

   (a) no blasting shall take place at the site except between 1000 and 1600 hours on Mondays to Fridays inclusive
   (b) no drilling or secondary breaking of stone shall take place except between 0800 and 1700 hours Mondays to Fridays and 0800 to 1200 hours on Saturdays
   (c) there shall be no blasting on Saturdays, Sundays, Public Holidays or National Holidays

13. Blasting shall be undertaken in such a manner to ensure that ground vibration, measured as the maximum of three mutually perpendicular directions taken at the ground surface, does not exceed a peak particle velocity (ppv) of 8.5 6mm per second in 95% of all blasts measured over any continuous six month period and no single blast shall exceed a ppv of 12 10mm per second. The measurement is to be taken at or near the foundations of any vibration sensitive building not owned by the quarry owner or operator.

14. No secondary blasting shall be carried out without the prior written agreement of the National Park Authority.

15. All individual blasts shall be designed, managed and implemented to minimise the extent of air overpressure resulting from blasts.

16. Each individual blast shall be monitored by the Operators, to include provision for recording the details and location of the monitoring station; the location of the blast holes within the Quarry Site; weather conditions; specification of the blast in terms of MIC; and total charge weight. Records of blast monitoring shall be made available to the MPA upon request. In the event that monitoring indicates that the vibration levels set out in condition 13 above have been exceeded, then the Operator shall inform the National Park Authority within two working days, with written confirmation of the steps to be taken to ensure compliance with condition 13.

17. Blasting times shall be clearly advertised at the Quarry, and an audible warning shall be sounded prior to any blasting operations taking place, and shall be sounded again immediately after blasting has finished.

Noise

18. Between the hours of 0730 and 1730 Monday to Friday and between 0730 and 1600 hours on Saturdays, the noise level attributable to operations at the site, measured at any noise sensitive property not owned by the quarry owner or operator, shall not exceed 50 dB L_{Aeq} (1 hour) (free field) other than for activities covered by Condition 18 below. Outside these hours the noise level attributable to operations at the site shall not exceed 42 dB L_{Aeq} (1 hour) (freefield). 'Noise sensitive property' means occupied residential property or public buildings.

19. The noise level attributable to operations on the periphery of the site or at high levels, or in unscreened locations, such as the formation, removal or alteration of spoil tips, baffle mounds, screening and storage embankments at the site, measured at any noise sensitive property not owned by the quarry owner or operator, shall not exceed 53 dB L_{Aeq} (1 hour) (free field). These noise limits shall only apply for a maximum of 8 weeks in any calendar year unless otherwise agreed in writing by the National Park Authority.

20. The best practical means shall be used to minimise noise from reversing warning devices which are fitted to mobile plant and vehicles on site. This may include the fitting of 'smart' alarms to vehicles.

21. Noise monitoring shall be undertaken in accordance with the scheme approved by the National Park Authority on 24 June 1998 unless otherwise agreed in writing by the National Park Authority.

Water Environment

22. Monthly water quality samples shall be taken from the quarry sump and analysed for chloride. Should the results of the

sampling show a rising trend in chloride levels defined as an increase in chloride concentration of 50% of the previous sample then the developer shall submit appropriate practical mitigation measures for the written agreement of the National Park Authority which shall be implemented within 1 month of such agreement or as may be further agreed in writing by the National Park Authority.

23. Measures shall be taken to minimise the risk of groundwater pollution from quarrying operations, in accordance with the following protocol:

- All fuel and chemicals should be stored in bunded areas in accordance with current Environment Agency guidelines.
- All mobile plant using fuel should be located on hard standing when not in use.
- All immobile plant using fuel should be located on hard standing. Drip trays should also be appropriately placed under all relevant plant.
- All refuelling activities should be undertaken on areas of hard standing, using appropriate care and attention and in accordance with the correct procedures.
- An incident reporting procedure should be maintained for reporting all site incidents, including pollution events. Suitable emergency responses should also be in place in the event of an incident.
- Appropriate spill kits or other means of controlling accidental spills should be made available on site. Adequate training in the use of such equipment should also be provided.
- A maintenance and inspection programme should be followed in order to check the condition of site equipment and provide early warning of any potential leaks or spills.
- Suitable waste management procedures should be followed to prevent surface pollution resulting from any waste products, fuel containers, chemical drums etc.
- During site restoration all hazardous plant and equipment should be removed from the quarry.
- The use of herbicides and other related chemicals should be restricted both during quarry working and post restoration. Chemical applications should be made at appropriate times, in suitable quantities, so to avoid sub surface contamination.

24. Any facilities for the storage of oils, fuels or chemicals on the application site shall be sited on impervious bases and surrounded by impervious bund walls or in proprietary double skinned tanks. The volume of the bunded compound shall be at least equivalent to the capacity of the tank plus 10%. If there is multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses must be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund. *Reason: To prevent pollution of the water environment*

Floodlighting

25. Except in emergencies or where the lamp would be within the quarry void and angled to ensure illumination only below the level of the 'high wall', no lighting or floodlighting, other than that detailed in the agents letter dated 29 August 1997, shall be located on the site without the prior written agreement of the National Park Authority.

Ecology

26. No removal of trees, bushes or hedgerows within or surrounding the quarry working area shall take place between 1 March and 31 August (inclusive) in any year unless otherwise agreed in writing by the National Park Authority.

Landscaping

27. The existing trees, bushes and hedgerows within the site (except those within the area of excavation) or on land within the applicants control, shall be retained and shall not be felled, lopped, topped or removed without the prior written approval of the National Park Authority. Any such vegetation removed without such approval, dying, being severely damaged or becoming seriously diseased as a result of operations at the site shall be replaced with trees or bushes of such size and species, as may be specified by the National Park Authority, in the planting season immediately following any such occurrences

Site Maintenance

28. The topsoil and subsoil dumps shall be kept free of weeds and all necessary steps shall be taken to destroy weeds at an early stage of growth to prevent seeding.

29. There shall be no stocking of materials, soils or mineral waste above original ground level on any areas within the site. All such storage shall take place within the excavated area.

30. The stripping, movement and re-spreading of topsoil and subsoil shall be restricted to occasions when material is friable and the ground is sufficiently dry to allow the passage of heavy machinery and vehicles over it without damage to the soils.

Restoration

31. Not later than 28 February 2041, or the expiry of six months following the permanent cessation of the winning and working of minerals, whichever is the sooner, the Operator shall submit for the written approval of the National Park Authority a detailed final restoration scheme, including drawings to illustrate the proposals for the final restoration of the quarry. The final restoration scheme shall be based upon the concept restoration plan ref CQL-1, and provide for the site to be restored as a nature conservation bias, with restoration treatment of the benches and faces above the water levels within the resulting lake, and subject to ground conditions, the provision of ponds / ephemeral areas in the location of the current offices / workshop area. The remainder of the Quarry Site shall be cleared of all plant, machinery, buildings and apparatus in accordance with the requirements of Condition 3. The restoration scheme shall include details of the final re-profiling works for the site, the soil /soil forming material profiles to be established; tree and shrub planting schedules; seeding, fencing and drainage; and a programme and timetable for the implementation of the works.

Aftercare Management

32. Within 3 months of the date of approval of the restoration scheme referred to in condition 31, a scheme shall be submitted for the approval of the National Park Authority setting out the details of the aftercare management of the site. The aftercare scheme, covering a period of 5 years, shall specify the steps necessary to bring the site to a condition fit for the proposed after uses, and the management programme to be implemented to ensure the successful establishment of the restoration planting.

    The scheme of aftercare shall include details of:-

    a. Planting and landscaping.

b. Cultivations, seeding and management of woodland, shrubs, and grassland, in accordance with the rules of good husbandry.
c. The duration of the aftercare period.
d. Any other agricultural, silvicultural or conservation treatment particularly relevant to the site.
e. The creation, management and maintenance of any paths, tracks, and roads.
f. Maintenance and management of drainage features, ponds and wetlands.

At least once a year the site operators shall arrange a formal review to consider the restoration and aftercare operations which have taken place on the land during the previous year, and the programme of management for the following year.

At least four weeks before the date of each annual review the operator shall provide the National Park Authority with a record of the management and operations carried out on the land during the period covered by the review.