

**S GRUNDON (EWELME) LIMITED**  
**FRITHEND QUARRY**  
**LANDSCAPE MANAGEMENT AND AFTERCARE**

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## 1. INTRODUCTION

This Landscape Management and Aftercare plan for Frithend Quarry, Hampshire has been commissioned by S Grundon (Ewelme) Limited.

The scheme has been produced to meet the requirements of Conditions 11, 24 and 25 of Planning Permission F30633/012/CMA approved by Hampshire county Council on 7th February 2007.

### **Landscape**

11. *Within 12 months of development commencing a detailed scheme of landscaping for the site shall be submitted to the Mineral Planning Authority for approval in writing. The scheme shall specify the types, size and species of all trees and shrubs to be planted; details of all trees to be retained; and details of fencing/enclosure of the site, phasing and timescales for carrying out the works, and provision for future maintenance. Any trees or shrubs which, within a period of five years from the date of planting, die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species. The scheme shall be implemented as approved.*

*Reason: In the interests of visual amenity.*

### **Restoration**

24. *The site shall be restored to agriculture/amenity/nature conservation in accordance with Drawing N° 1574/PA011C and a detailed scheme to be agreed by the Mineral Planning Authority in writing. The scheme shall be submitted within six months of the date of this permission and shall include details of:*
- (i) the thickness and quality of subsoil and topsoil to be used and the method of soil handling and spreading, including the machinery to be used;*
  - (ii) the ripping of any compacted layers of final cover to ensure adequate drainage and aeration, such ripping to take place before placing of topsoil;*
  - (iii) measures to be taken to drain the restored land; and*
  - (iv) details of proposed seeding.*

*Reason: To ensure satisfactory restoration.*

### **After-Care**

25. *An aftercare scheme requiring that such steps as may be necessary to bring each phase of the land restored to the required standard for use for agriculture amenity/nature conservation shall be submitted for the approval of the Mineral Planning Authority not later than two years from the date of this permission.*

*Reason: To ensure that the land is satisfactorily restored.*

The quarry area extends to approximately 17ha and will be restored at low level to a mix of uses, including areas of nature conservation interest, including woodlands, hedgerow, grassland and ponds and areas of grazing land. The Quarry approved restoration is shown

on Figure 2.

## 2. OBJECTIVES AND OPERATIONS TIMESCALE

### Objectives

The main objective of the management plan is to ensure a successful restoration of the site with regard to nature conservation and visual amenity.

Management objectives and operations are detailed under the following headings:

1. **Native Woodland and Hedgerows**
2. **Acid Grassland and Scrub**
3. **Rough Pasture**
4. **Water Bodies**

These features are shown on Figure 2.

### Timescale of Operations

Operational Phases are shown on Figure 1. The timescale for restoration is described in Table 1 below.

**Table 1 Restoration Timetable**

Area	Excavation Depth AOD	Soils/Materials placement and/or storage	Restoration Operations	General Strategy
<b>YEARS 1-2</b>				
A1	55.0m	Excavation of area to be extended.	Following extraction partial restoration of area A1 will be undertaken using materials from Area C3.	
C3	64.0m	Materials to be used in restoration Area A1.		Eastern area of C3 to accommodate surface water treatment lagoons and settlement ponds.
B1	64.0m	Topsoils and subsoils to be stripped and taken to Area R1 for use in restoration. Excess soils to be stored along southern boundary of area.		
R1			Restoration of area with soils from Area B1 to final restoration contours including pond area.	Newts to be relocated to R1 pond area from water bodies elsewhere on site.

Area	Excavation Depth AOD	Soils/Materials placement and/or storage	Restoration Operations	General Strategy
<b>YEARS 3-4</b>				
A2	55.0m		Following extraction area will be partially restored using materials from Area C2.	
B2	64.0m	Soils to be stripped and stored on site prior to excavation.		
A1			On site materials and imported inert waste materials to be used to complete restoration of North East corner.	
<b>YEARS 5-6</b>				
B2	Extended to 55.0m		C1 materials used to backfill to 64.0m AOD and form western edge of proposed pond.	
A1			To be soiled and planted in first available season.	
A2			Restoration of northern slope will be ongoing.	
R2			Newt ponds will be created.	There will be no mineral extraction in this area.
C4			Newts will be relocated from area to ponds in R2.	In preparation for mineral extraction in C4.
<b>YEARS 7-8</b>				
A3	64.0m		Base infilled with material from C4.	
C4		Materials used in the restoration of Area A3.		
C1 C2 C3 R3			Restoration of areas with imported inert materials. Newt ponds to be created in R3 Area.	
A2			To be soiled and planted in first available planting season.	
<b>YEARS 9-10</b>				
A4	55.0m		Following extraction area to be restored with material from Area C4.	Plant site to be removed from A4 to A3 prior to extraction.

Area	Excavation Depth AOD	Soils/Materials placement and/or storage	Restoration Operations	General Strategy
C4		Materials continue to be extracted to be used in restoration of Area A4.		
C1 C2 C3 R3			Continued restoration with imported inert materials.	
B1			Completion of lake formation and soiling of area for planting and fencing works to be carried out in the next available season.	
<b>YEARS 11-12</b>				
C4			Inert materials to be imported to achieve final restoration levels along north western flank.	Temporary noise attenuation bund to be located on north western restored levels (or equivalent) before subsequent restoration operations take place.
C4 A4 R4			Inert materials to be imported to complete restoration of areas.	

### 3. SOIL PLACEMENT AND INITIAL CULTIVATIONS

Prior to the placement of topsoils, fill, subsoils and soil forming materials will be ripped in 5m wide strips to 0.5m depth to relieve compaction.

Topsoils will then be placed in windrows and spread over the loosened surface in such a manner so as to avoid compaction. No topsoil to be placed in areas of acid grassland or ponds (Figure 2).

Plant and vehicles will not cross any area of placed and loosened ground or placed topsoil except where essential and unavoidable for purposes of spreading soils or beneficially treating such areas. Wherever practicable, soils will be lifted into position and levelled by equipment standing on the surface of the prepared ground.

Final cultivations will be carried out in areas of grass seeding in Spring or late Summer depending on the time of completion of the final soil replacement operations (i.e. from the beginning of April to mid-May or from the beginning of September to mid-October).

Where operations, after soil placement and initial cultivations, are delayed prior to final bed preparation the ground will be kept weed free by application of a herbicide (such as Roundup or similar approved).

Required depths of soils and soil forming materials are shown in the following table.

**Table 2** Depths of Restoration Soils

Restoration	Total Area m <sup>2</sup>	Depth of Subsoils m	Volume of Subsoils m <sup>3</sup>	Depth of Topsoils m	Volume of Topsoils m <sup>3</sup>
Rough Grazing: areas C1, C2, C3 and C4 North of Footpath, over inert fill	34,010	0.9	30,609	0.3	10,203
Rough Grazing: South of Footpath	36,713	0.4	14,685	0.3	11,014
Woodland and Hedgerow	18,500	0.5	9,250	0.2	3,700
Acid Grassland	28,930	0.5	14,465	0	0
Scrub	3,754	0.25	938	0.15	563
<b>TOTAL</b>			<b>69,947</b>		<b>25,667</b>

#### 4. 5 YEAR MANAGEMENT AND AFTERCARE PLAN

##### 4.1 Category 1. Native Woodland and Hedgerows

###### Existing Mature Woodland

###### Management Objectives

1. Facilitate the establishment and succession of native woodland cover.
2. Manage woodland as a high canopy forest.

###### Management Operations

A significant area of mature woodland exists on the site (shown immediately below area R3 on the Phasing Plan, Figure 1) and several individual trees of merit are to be retained in the extension area, these are indicated on Figure 2. Management operations are summarised below in Table 3.

**Table 3** Existing Mature Woodland Management Operations

Item	Operation	Timing
1.	Fell or thin as appropriate to maintain variation in the structure of the woodland. Leave dead wood where appropriate to provide additional habitat.	Annually between August-February
2.	Encourage natural regeneration by seed or stump growth of native species.	N/A
3.	Control invasive weeds.	Annually between May-August

## Woodland planting

### Management Objectives

To facilitate the establishment and promote the long term health of new native woodland planting.

### Woodland planting mix

Species	Common Name	Size cm	Age Pot size	%
Acer campestre	Field Maple	45/60	1+1	10
Castanea sativa	Sweet Chestnut	45/60	1+1	15
Crataegus monogyna	Hawthorn	45/60	1+1	15
Fraxinus excelsior	Ash	45/60	1+1	25
Ilex aquifolium	Holly	45/60	2L	07
Malus sylvestris	Crab Apple	45/60	1+1	05
Quercus robur	Oak	45/60	1+1	20
Rosa canina	Dog Rose	45/60	1+1	03

To be planted on a 2.0m grid, in random groups of between 3 and 9 of the same species. Plant stock should be of local provenance wherever possible. Each plant to be provided with a suitable rabbit proof guard and bitumen mulch mat.

**Table 4 Woodland Planting Management Operations.**

Item	Operation	Timing
1.	Plants will be watered to maintain healthy growth during establishment.	As necessary
2.	Following planting the area around the tree stem will be kept free of weeds. Tree shelters will be checked and replaced if necessary.	As necessary
3.	Dead or dying plants will be replaced with good quality plants of the same specification.	Annually during November.
4.	Ties and stakes will be removed once tree has established	N/A

## Hedgerow planting

### Management Objectives

To facilitate the establishment and promote the long term health of a new native, mixed species hedgerow.

### Hedgerow planting mix

Species	Common Name	Size cm	Age	%
Acer campestre	Field Maple	45/60	1+1	10
Corylus avellana	Hazel	45/60	1+1	10
Crataegus monogyna	Hawthorn	45/60	1+1	40
Malus sylvestris	Crab Apple	45/60	1+1	07

Rosa canina	Dog Rose	45/60	1+1	03
Prunus spinosa	Blackthorn	45/60	1+1	30

To be planted in 2 rows at 300mm centres with 500mm between rows. Plants to be provided with rabbit proof guards and mulch matting.

**Table 5 Hedgerow Planting Management Operations.**

Item	Operation	Timing
1.	The hedge will be watered to maintain healthy growth during establishment.	As necessary
2.	Following planting the hedgerow will be kept free of weeds. Shelters and mulch matting will be checked and replaced if necessary.	As necessary
3.	Dead or dying plants will be replaced with good quality plants of the same specification.	Annually during November
4.	Ties and stakes will be removed once tree has established	N/A
5.	Following establishment (between 1 to 2 years after planting) the hedge will be cut back to approximately half of its height to promote bushy growth. Thereafter the hedge will be trimmed to promote healthy growth and maintain natural shape.	N/A

#### 4.2 Category 2 Acid Grassland and Scrub

##### Management Objectives

Manage to encourage the development of an area of acid grassland and scrub on ground of low nutrient value.

##### **Acid Grassland Management Operations**

The following management guidance refers to the area marked on Figure 2 as 'area suitable for natural generation of acid grassland'.

- It is expected that colonisation of plant life will be slow and management operations will be minimal.
- No fertilisers or artificial feeds will be used and any cuttings removed from the area.
- If vigorous or undesirable weeds become a problem they will be removed or treated with selective herbicides.
- Seedlings of any tree species appearing in large numbers, before the introduction of grazing, will be controlled by mechanical means.
- Once vegetation appears in sufficient quantity the area will be grazed at a very low stocking rate, with close monitoring of the situation. (A water supply for stock will be made available).

## Scrub

### Scrub planting mix

Species	Common Name	Size cm	Age	%
Crataegus monogyna	Hawthorn	45/60	1+1	20
Calluna vulgaris*	Heather	10/15	1L	25
Prunus spinosa	Blackthorn	45/60	1+1	10
Salix repens	Creeping willow	15/30	2L	10
Rosa canina	Dog Rose	45/60	1+1	05
Ulex europaeus*	Gorse	30/45	2L	30

Gorse and Heather will be grown from seed of local provenance if practicable. To be planted in random pattern with reference to the Restoration Plan (Figure 2) 3-9 plants of the same species to be grouped at 1.0m centres approx (0.5m for Heather) with minimum of 2.0m between groups.

### Scrub Management Operations

- Area of shrub planting will be surrounded by a rabbit proof fence. Refer to Figure 2 for fence detail.
- Scrub planting will be watered to maintain healthy growth during establishment.
- Scrub growth will be checked as necessary to maintain open character by brush cutting or coppicing, selectively as appropriate (at approximate 5 years intervals after initial establishment).

## 4.3 Category 3 Rough Pasture

### Management Objectives

Establish grassland areas suitable for use as pasture.

### Grass Seed Mix

British Seed Houses Meadow Lay or similar (BSH Meadow Lay - product Code: A25).  
Sowing Rate 8g/m<sup>2</sup>.

### Management Operations

When established grass will be cut or grazed on a regular basis sufficient to provide a healthy sward and to prevent seed dispersal onto areas undergoing natural regeneration. Cutting of pasture adjacent to areas of natural regeneration, if necessary, will be based on 2-4 regularly spaced cuts per year as indicated below.

**Table 6 Rough Pasture Grassland Management**

N <sup>o</sup> Cuts	Timing
2	Mid June and mid October
3	Late April, mid June and late September
4	Mid April, mid June, mid August and mid October

#### 4.4 Category 4 Water Bodies

##### Management Objectives

To create water bodies and associated terrestrial habitat, suitable for the relocation of newts and to create a large pond which will provide some protection to an area of north facing sand cliff suitable for habitation by sand martins.

##### Marginal Aquatic Planting

Species	Common Name	Size	%
Phragmites australis	Common Reed	7cm	100

To be planted at a density of 4 plants per m<sup>2</sup>, at a maximum depth of 0.3m.

##### Management Operations

It is expected that management operations for the water bodies will be minimal and that the habitat will establish naturally. If possible suitable plant material will be transferred to the new ponds from existing water bodies on site during the period of newt relocation. Undesirable weed growth will be checked if necessary. Water levels in the large pond are expected to provide a natural check to the spread of the Common Reed.

#### 4.5 Beyond 5 Years

This management plan will be subject to review, subject to the approval of Hampshire County council, at any time during the 5 year initial aftercare period if a change in site management operations is thought necessary in order to achieve the satisfactory restoration of the site.

Following the 5 year maintenance period a formal review of management and aftercare operations will be carried out and a new plan drawn up to reflect prevailing conditions on site and any changes or improvements in practice that may have occurred in the interim.