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HANSON QUARRY PRODUCTS

ISLES QUARRY EAST, BOROUGH GREEN, PERMISSION REF TM/94/155

REVISED RESTORATION AND AFTERCARE SCHEME

1. Introduction

- Conditions 2, 5 and 6 of Planning Permission TM/94/155 relating to Isles Quarry East are outstanding and require submission of details.
- This scheme, accompanied by compartment plan B24m/93, has been drawn up to amend the restoration and aftercare concept for the site to reflect the status and management requirements of vegetation on the site in 2013, as no active restoration and aftercare had been carried out since operations ceased on the site in the early 1990s, and previously submitted restoration scheme (plan AR/ST/3-97/6837) had not in fact been implemented.
- New restoration and aftercare proposals reflect the fact that the site is now owned by Crest Nicholson and, in association with development schemes for adjacent land, is proposed for quiet recreation and amenity use, in accordance with the original concept on the approved plan of "restoration for informal amenity".

2. Description and Assessment

- 20 years+ of natural regeneration on infertile quarry waste substrate and minimal intervention since then, has produced an interesting mix of wooded and open habitats likely to support interesting ground flora and good populations of invertebrates, birds and reptiles.
- The whole of Isles Quarry East sits within the Bourne Valley Woods Local Wildlife Site, designated for its important stands of ancient woodland with up to 35 species of indicator species; important lower plants, bryophytes and lichens, and likely populations of European Protected Species of bat and dormouse
- Habitats within the property range from virgin Ancient Semi-Natural Woodland on the steep natural valley side to the South East of the quarry (approx. 0.9ha); other long-established semi-natural woodland on steep slopes of historic quarry tipping on W and SW valley sides (1.3ha) and NE waste tips (0.49ha); more recent natural regeneration on eroded quarry faces and re-graded quarry waste tips within the previously excavated area (1.89ha and 0.49ha); tall herbaceous vegetation with considerable scrub encroachment (0.17ha); and finally short calcareous wildflower grassland on remaining open areas of shallow and infertile substrate towards the centre of the site (1.81ha).
- Ground flora species noted within the ASN woodland (visited in early June 2013), were bluebell, wood anemone, dogs mercury and butchers broom, under a canopy of a number of virtually "veteran" oak and beech with younger wych elm, hornbeam, yew and field maple and shrub layer of dogwood, spindle, hazel and privet.
- Well established valley-side secondary woodland had a similar range of tree and shrub species with often dense wayfaring tree shrub layer, and some patches of common twayblade orchid.
- More recent closed canopy woodland regeneration on S, E and N inner slopes comprised 20-40 year old dense pole-stage regeneration of alder, birch and goat

willow over dense ash seedlings and saplings, with occasional suppressed common spotted orchid and twayblade.

- Younger tree and scrub regeneration <20 years old of mainly birch, willow, dogwood and wayfaring tree on stonier quarry waste substrates included numerous oak and ash seedlings/saplings with occasional hornbeam and sweet chestnut in the understorey, and considerable common spotted orchids on the fringes of open ground.
- Remaining central areas of open herbaceous wildflower grassland comprised species-rich short turf including abundant birdsfoot trefoil, oxeye daisy and common knapweed, occasional common spotted orchid and pyramidal orchid, but large quantities of young oak, birch, wayfaring tree, dogwood and willow seedlings.
- While current mosaic of woody and non-woody habitats offer an attractive and balanced mix, continued non-intervention will inevitably lead to a decline in habitat and species diversity as open habitats are lost as they become fully colonised by woody vegetation.
- The priority therefore needs to be maintenance of the remaining zones of open grassland habitat
- Recent secondary woodland will continue to develop, but management intervention would still be beneficial to manipulate the tree canopy of predominantly short-lived pioneer species, to promote more desirable long-lived native species that should be expected to dominate the long-term tree canopy.
- Some areas of younger woody growth should be maintained without allowing full succession to high forest, to maintain a range of age classes including a proportion in the pole-stage/scrub coppice age range.
- The recent discovery of Chalara ash die-back in SE England and its almost inevitable wider spread, casts some doubt over the reliability of ash as a main canopy species, and reinforces the need to favour and promote alternative long-lived canopy species by cleaning and early thinning around young seedlings, saplings and pole-stage trees of preferred target species other than ash.

3. Management Proposals

The mineral planning permission requires reclamation, restoration and landscaping to be carried out in accordance with approved details. However, as no further landforming earthworks are required (other than bridge removal) and appropriate vegetation for the “informal amenity” and nature conservation afteruse has already been achieved through natural regeneration, the schemes will relate simply to the management of the existing vegetation over the 5-Year statutory Aftercare period following approval of this scheme.

3.1 Grassland

- To maintain and secure existing open grassland preventing further over-shading by scrub development, the current “front” of scrub invasion around edges of all grassland patches should initially be pushed back by 2-5m by flailing with tractor and hedge flail, timed for late summer/early autumn, following any preparatory improvements to facilitate tractor access beyond recycling area.
- In subsequent autumn/winter seasons invasive willow/ash/birch/alder scrub in the 2-5m zone around all current grassland areas should be felled to ground level and stumps treated with Glyphosate or other approved herbicide.
- Core areas of short wildflower grassland should be cut annually by tractor and mower or pedestrian-controlled reciprocating bar mower (eg. Allen scythe) in late summer/early autumn when all wildflowers have set seed, and with any

significant arisings raked off where necessary to prevent build-up of thatch or dense swath of cut material (thought unlikely due to sparse density of vegetation in most areas).

- Smaller tree seedling and sapling regeneration and re-growth following flailing within short flower-rich grassland areas, should be controlled by targeted spot-application of Glyphosate or other approved herbicide applied by knapsack sprayer during the growing season but being careful to avoid spray-drift damage onto non-target species.
- Any regrowth from felled stumps not adequately controlled or missed during stump treatment should also be treated by foliar spot-application.
- Taller mesotrophic rough grassland in centre of site may require only periodic cutting by flail mower in late summer, say on a 3-year cycle, to reduce build-up of thatch and reduce dominance of tall herbs, bramble and nettle.
- Arisings from periodic mowing of tall grassland should be raked into piles to act as refugia and hibernacula for the likely population of reptiles and small mammals, or removed off site if compost piles are building up after a number of years of cutting/raking.

3.2 Woodland

- Mature valley-side secondary woodland and SE corner Ancient Semi-Natural Woodland is lowest priority for management, other than any necessary tree safety inspection and maintenance of potentially hazardous roadside trees.
- Areas of young regenerated woodland that are deemed to have gone past the stage at which restoration back to species-rich grassland would be successful, should be subject to selection and marking up/guarding of desirable tree seedlings/saplings for long-term retention, to then be favoured by a one-off “halo” thinning around targeted trees, to remove competing willow and birch scrub and promote long-lived high forest species such as oak/hornbeam/chestnut/cherry etc into the canopy.
- Some areas of alder/birch/sallow-dominated pole stage regeneration should have overstorey selectively thinned to improve stability and vigour of rather spindly drawn-up trees, and at the same time allow in more light to develop the suppressed ash saplings beneath in the understorey.
 - This thinning could either be done on a grid system, cutting out 2-3m wide racks at say 5m centres to retain 50-70% of the overstorey, or alternatively individual stems with well-developed and windfirm canopies could be selected for retention, in which case a larger proportion of weak and suppressed stems could be removed, retaining the 30% of better overstorey trees and removing 70% weaker and less stable overstorey.
 - In either case the increased light penetration would enhance growth and canopy development of the ash sapling understorey, but this is still very dense in most areas and should be allowed to self-thin as necessary.
 - As ash saplings subsequently develop, towards the end of the 5-year Aftercare period, it would be feasible to undertake a one-off cleaning to remove weak suppressed saplings around favoured ash stems, which would not be expected to survive to form a significant part of the canopy.
- However to maintain a range of age class within woody vegetation, rather than allowing all of this middle-aged regeneration to develop into high forest, approx. 50% of the area of pole stage ash/birch/alder/sallow should be managed as mixed scrub coppice:
 - Coppice rotation of say 15-20 years would be appropriate to maintain a younger age class and afford woodland edge foraging opportunities for bats

- Series of small coppice coupes of only 20-25m diameter, would be established over the medium term, but with at least one block cut within the initial 5-year Aftercare period
- Coppice coupes could be targeted on areas with remnant common-spotted-orchid populations or as linear blocks along the edges of the open grassland compartment.
- In the event of increasing deer population, success of coppice regrowth should be reviewed and methods such as manual brash-piling should be considered if necessary.
- All such thinning, cleaning and coppicing operations are unlikely to generate worthwhile quantities of utilisable firewood, so felled material should be cut small and stacked as habitat piles on the forest floor, to increase deadwood resource.
- Should there be a demand locally for arisings to be utilised as firewood, this could be facilitated for community use, provided sufficient deadwood is retained on site to benefit lower plants, bryophytes and fungi.

3.3 Access

- In order to implement tractor flailing and mowing operations, some preparatory tree pruning and felling work may be required to open up main trackways into site from “bottle bank” recycling area, and possibly some re-grading/levelling work by JCB in places to ensure safe and level access.
- Improving management access for tractors etc. however may make the site more attractive and vulnerable to unauthorised vehicular use and fly-tipping, so suitable barriers such as a robust wooden pole-gate should be installed beyond the recycling compound, in conjunction with earthworks by JCB to narrow down possible routes either side of barrier.
- Other areas of site perimeter fencing should be maintained and repaired where necessary to deter and prevent unauthorised access.

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