

Wider application

These results help to confirm the suitability of many landfill sites for the successful establishment of new woodland. There are thousands of hectares of landfill sites in the UK which have been reclaimed to uninspiring amenity grassland and, by definition, this land would be eligible for grant aid through Landfill Tax revenue as a means of financing further improvement. However, assessment needs to be made on a site by site basis, focusing particularly on:

- site history
- content of landfill (if known)
- depth of soil-forming material above the fill
- health, maturity and nature of existing vegetation cover
- evidence of methane pollution

Detailed site assessment is expensive. Once soil depth has been determined, it may be more economical to implement a low cost, robust planting scheme and let the response of the trees provide evidence of soil conditions, methane and other contaminants.

Further information

National Urban Forestry Unit

This leaflet is one of a series produced by the National Urban Forestry Unit. NUFU provides a national focus for the exchange of information and good practice in urban forestry.

If you would like further information on other case studies or their application, or if you have examples of good practice to share with others, please contact:

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Further reading

Bradshaw AD, Hunt B & Walmsley T (1995)

Trees in the Urban Landscape E & FN Spon (Chapman & Hall)

Department of the Environment (1986)

Landfilling Waste Waste Management Paper 26, HMSO, London

Department of the Environment (1995)

Landfill Design, Construction & Operational Practice Waste Management Paper 26B, HMSO, London

Department of the Environment Transport and the Regions (in preparation)

Landfill Restoration and Post Closure Management Waste Management Paper 26E, HMSO, London

Dobson M & Moffat AJ (1993)

The Potential for Woodland Establishment on Landfill Sites HMSO, London

Moffat A & McNeill J (1994)

Reclaiming Disturbed Land for Forestry Bulletin 110 HMSO, London

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Urban Forestry in Practice

New woodland planting on landfill sites



New woodland planting on landfill sites

Introduction

Disposal of domestic and industrial waste through landfill is common practice in the UK. The standard of restoration of completed sites varies enormously. Many of the rural sites are restored to agriculture, but in urban areas the majority are restored to public open space. Until recently, Government advice (*Waste Management Paper 26*) first published in 1986, has cautioned against tree planting on landfill sites due to methane and toxicity problems and fears that tree roots would penetrate the capping layer. However, landfill sites have subsequently proved capable of supporting good tree growth, and concerns over the viability of such schemes and the threats of trees to engineered caps have since been shown to be unfounded. Government advice is currently under review (see *Further reading* section).

Specific example

Project name and location

HAY GREEN, Lye, **STOURBRIDGE**, West Midlands, UK
Grid reference SO 917 8842

Project partners

- National Urban Forestry Unit
- Dudley Metropolitan Borough Council

Project objectives

- To establish new woodland on a former landfill site
- To involve the local community in the planning, design and planting of the woodland
- To enhance an area of public open space for recreation and amenity

Site description

Hay Green is a 4.5 hectare area of public open space in the heart of the metropolitan borough of Dudley. It is adjacent to a local authority housing estate and a primary school. The site was previously a colmine and brickworks, and domestic refuse tipping occurred from 1936 to 1964. Site investigation data from boreholes, showing soil depth and ground formation, was available for most of the site. The site was covered with subsoil, varying in depth from 0.6m to 3.0m. Archive records indicated the presence of five mineshafts, each of 100 metres depth, with unknown stability and no record of them being capped.



Hay Green landfill site, prior to planting

The filled site has been maintained as close-mown amenity grassland and used for informal recreation and casual grazing by untethered horses. Uneven settlement of the landfill has resulted in an undulating surface, unsuitable for formal sports pitches.

There are methane venting trenches around three-quarters of the site perimeter as a barrier to gas migration to adjacent housing.

Project design

Local people were consulted extensively about their preferences for the site. Leaflets were distributed to 1500 households, and there was also a *planning for real* exercise at the local library and a presentation to the pupils of the nearby primary school, followed by a design competition. The feedback from the consultation was incorporated into the final design, which included the removal of a derelict compound, the planting of 1.4 hectares of new woodland and the provision of seating.

Site investigation data enabled the planting to be designed to avoid methane trenches, mineshafts and other unfavourable ground conditions. Tree planting was restricted to those areas which had at least 750mm of surface subsoil.

Implementation



Ripping the site

The areas to be planted were ripped to a depth of 500 mm using a plough with winged tines set at 2 metre centres. Minor difficulties were experienced when buried refuse material was brought to the surface by the ripping operation. This was monitored closely, and the depth of ripping reduced where refuse material was observed.

Eight species of tree (of which 50% were pioneer species) were pit planted at 2 metre spacing in single species groups of 20–50 trees.

Simple fencing (post and three wires) was erected around each planting block to reduce the risk of damage by horses which continued to roam untethered on the site.

A one metre diameter weed free area was maintained around each newly planted tree for a three year period after planting.

Results

The first summer (1995) was exceptionally hot and dry. Growth of the trees was consequently less than average (approximately 200–400mm/ year) but survival rates were well over 90%. Growth and survival in subsequent years has been good and comparable with new woodland planting on non-landfill sites (approximately 400–800mm / year).

In March 1999, the trees were 2–3 metres tall and beginning to close canopy. There were no signs of areas failing due to methane landfill gas.

The site has not experienced any significant levels of vandalism. This is attributed in part to the high level of public involvement.



Local people enjoying woodland at Hay Green, 1998