

Planning for brownfield land regeneration to woodland and wider green infrastructure



Practice Note

Gail Atkinson and Kieron Doick

March 2014

The regeneration of brownfield land to green space can deliver multiple benefits to society and the environment through improvements in the quality of a site and its surrounding landscape. Successful delivery of regeneration projects is dependent on the planning of project delivery and on good project management. This Practice Note describes the process of brownfield regeneration to woodland in order to inform project planning, raise awareness of lessons learnt from past projects, and provide guidance to practitioners so that they avoid common pitfalls. It may also be used in the regeneration of brownfield land to other green and open space. The Note details each of the main stages of the regeneration process and the tasks associated with each stage. It also describes the role of the project delivery team and the disciplines needed for project delivery. Where a project has already started, guidance in this Note can help consolidate and refine existing project plans to improve project delivery and the likelihood of producing sustainable woodland. Aimed at those who plan and deliver brownfield regeneration to woodland projects, this Note supports project delivery planning and should be used by all members of the project delivery team.

Introduction

By transforming places for local people and wildlife, regeneration projects can deliver many social and environmental benefits. Delivered well, these projects lead to improvement in the quality of a site and its surrounding landscape, and demonstrate competence and expertise in brownfield land regeneration. However, successful delivery of brownfield regeneration is dependent on good project delivery planning and good project management.

Experience shows that the planning processes are similar for different regeneration sites and that familiarity with a good planning procedure improves project delivery at regeneration sites. Yet research shows that projects are often planned in isolation or on an ad hoc basis and without consideration of the lessons learnt from previous regeneration projects.

Aim and scope

This Practice Note describes the process of brownfield regeneration to woodland in order to inform project delivery planning, raise awareness of lessons learnt from past projects and guide practitioners to help them avoid common pitfalls. The guidance may also be used in the regeneration of brownfield land to other green and open space.

The Note details each of the main stages of the regeneration process and details the tasks associated with each stage of the whole process. The Note is written for those who plan and deliver brownfield regeneration to woodland projects and supports project delivery planning.

Where a project has already started, guidance in the Note can help consolidate and refine existing project plans to improve the delivery and likelihood of producing sustainable woodland. It should be read by all members of the project delivery team so that they become aware of each task in the wider process of delivery. The information presented here should be used alongside formal project management systems (see Useful sources of information for further reading).

Overview

This section provides an overview of regeneration projects, provides an introduction to the brownfield regeneration process and sets out the role of the project delivery team.

Regeneration projects and programmes

A regeneration project is a distinct piece of work that begins with site selection and ends with site establishment; it is undertaken within defined time and cost constraints in order to deliver the project objectives. A programme is a collection of projects that are managed together and share a group of common resources to accomplish the core programme objectives (i.e. simultaneous or sequential regeneration across multiple sites which may or may not be physically connected).

The process

The process of brownfield regeneration to woodland consists of six main stages: site selection, project initiation, design draft, master planning, site delivery and site establishment (Figure 1).

Figure 1 The process of brownfield regeneration to woodland has six main stages, each containing multiple tasks, as well as six ongoing tasks.



In addition, there are six ongoing tasks: administration, project management, health and safety, communication and engagement, sustainability analysis, and monitoring and evaluation. These ongoing tasks are active within each stage as shown in Figure 1. Each of the six main stages and ongoing tasks are required for regeneration and should be conducted appropriate to the scale of the project. Each stage contains multiple tasks. Tasks are activities undertaken during the process of regeneration and are site dependent: some are statutory, others are optional. Tasks are presented in an idealised order in this Note, while recognising that sequencing can vary between projects. Further information on delivery of tasks is available at www.forestry.gov.uk/fr/regenguidance.

The project delivery team

A multidisciplinary approach is required when regenerating brownfield land to woodland, and while a minimum complement can be defined (i.e. project manager, landscape architect, land agent, soil scientist and civil engineer) the members of a project team will vary between projects. The disciplines and competencies listed in Table 1 will be essential to deliver the project; other areas of expertise are listed under each of the six main stages set out on pages 5–10.

The project manager, landscape architect and civil engineer are involved in each stage and most tasks within the regeneration process, while other team members are involved only in specific tasks. The project team should be co-ordinated by a dedicated project manager, meaning that managing the project should be their primary responsibility. There should also be a programme manager where a collection of projects are being managed together and share a group of common resources.

Table 1 Disciplines and competencies essential to deliver the project.

Disciplines	Competencies
Ecology	Conflict resolution
Environmental science	Contaminated land assessment
Finance	Contaminated land remediation
Forestry	Contract management
Geographic information systems (GIS)	Decision making
Health and safety	Monitoring and evaluation
Hydrology	Multi-criteria assessment
Law	Problem solving
Soil science	Risk assessment
Sustainability analysis	Stakeholder engagement

The process of brownfield regeneration to woodland

How to get started

Planning is defined here as the process by which the means, resources and actions necessary to regenerate a site are identified along with the likely duration of each action and site-specific order of events. Although it may be unclear when planning should start, it should be considered as soon as there is the prospect of a regeneration project and site selection begins. The site may be selected as part of a regional strategy or a programme of regeneration, or as a discrete individual regeneration project.

Planning for each stage is essential, even if in outline with detail added as the project develops. Planning should be undertaken by the project manager, who will report to the project board governing the overall direction of the project. Alternatively, an interim member of the project delivery team may manage the project until the project manager is appointed. Those likely to form the project team should be made aware of developments so that their input can be secured at the appropriate time. Personnel new to the brownfield regeneration process will benefit from visiting other regeneration teams with relevant experience, to learn about the intricacies of establishing woodland on regenerated land.

Planning helps the project manager to think through the project in its entirety and identify time-dependent tasks to prevent costly delays later on, essential given the timescales involved in establishing woodland. While some might suggest it is possible to 'fast-track' regeneration, the importance of creating a site that is fit for purpose cannot be underestimated. Too much emphasis on a speedy regeneration at the expense of quality can detrimentally affect the site's legacy.

Project delivery planning will identify the project's critical path or minimum project duration by illustrating the activities with the least scheduling flexibility. Some tasks require advance preparation before they can be executed – referred to as lead-in time. Others have specific dependencies, meaning they cannot commence before these preceding tasks are satisfactorily completed.

It is as important to define the end of the project as it is the project start. The end of a regeneration project is the point at which the site establishment stage completes and management of the site for long-term social and environmental benefit begins.

Ongoing tasks

Ongoing tasks run for the duration of the project and include:

Administration

Day-to-day administration is the responsibility of the project manager, which may be delegated to a project administrator. Project administrators are often employed on projects where there is a large amount of documentation and formal communications, such as project meetings. Their role is to co-ordinate resources and maintain a project documentation library. They may also ensure project compliance against organisational requirements, provide guidance to team members, track and report project progress, and perform quality reviews.

Project management

This task is central to planning, organising, managing and controlling all aspects of the project. Ultimately, project management will steer the project towards its objectives, within the time available. Project management will help to manage and make effective use of the resources required for delivery and ensure value for money.

Health and safety

This is a legal requirement and can require significant resource at key points in the project, for example during site investigation, remediation and civil engineering works. You will need to consider various health and safety requirements such as the HSE Construction (Design and Management) Regulations 2007.

Communication and engagement

These tasks are important to guide what messages are communicated about the project, when they are communicated and to whom. Proactive internal communication can help keep members of the project team informed of progress and better prepared to play their part. Early engagement with consultees (statutory and non-statutory) will help identify issues that may impact on the feasibility of the project or site design. Engaging potential users of the regenerated site is equally important, particularly where people may be reluctant to use a site due to history of contamination or anti-social behaviour.

Sustainability analysis

This task involves the identification and enacting of effective interventions at each stage of a project to mitigate negative impacts and optimise delivery of long-term social, environmental and economic benefits. For example, one

project arranged for some materials to be brought onto site by barge to minimise carbon emissions and local traffic disruption.

Sustainable project delivery needs to be considered during project initiation and recognised in the project plan. The project manager should engage with the project team and wider stakeholders to identify and act on all appropriate opportunities. They should take account of requirements for sustainable forest management as detailed in *The UK Forestry Standard*.

Monitoring and evaluation

This task requires a list of what will be monitored, how often, by whom and for how long. While the exact monitoring requirements will depend on the project's objectives and site history, the project manager should ensure the collection of 'baseline' and 'monitoring' data, to effectively demonstrate delivery. Baseline data may include site surveys and photographs (e.g. fixed point photography).

Use logic models* to demonstrate delivery of wider impacts of the project, beyond statutory requirements and project outputs. These are an effective tool to guide the project manager through the planning and delivery of monitoring and evaluation. Further information on logic models and their use in monitoring and evaluating brownfield regeneration and woodland creation projects is available at www.forestry.gov.uk/fr/regenmonitoring.

Monitoring data may be used for quality control purposes and learning how to improve the delivery of future projects. It may also be used to promote the project and gain support for the next project. Where project objectives are outcome dependent, monitoring will need to last several years. For some previous land uses, ongoing monitoring will be required by the statutory regulator (e.g. leachate monitoring at a landfill site or monitoring as part of the verification plan where remediation has been required as part of the regeneration project). In such cases, retain copies of data in line with your Duty of Care to site visitors.

The six stages of the regeneration process

The six stages in the process of brownfield regeneration to woodland are described on pages 5–10. These are:

- Site selection
- Project initiation
- Design draft
- Master planning
- Site delivery
- Site establishment

* Logic models depict the logical relationships between the inputs, activities, outputs and outcomes of a project or programme.

Stage – Site selection

Tasks

Shortlisting, site regeneration feasibility analysis, funding, establishing partnership.

Description

Potential regeneration sites are identified via a desk-based study, then evaluated and ranked. The sites most suited to the project are then shortlisted before final site selection and progression to the next stage. This stage may include partnership arrangements and development of a funding strategy.

Context and implication

All potential regeneration sites have their challenges so it is prudent to select a site most suited to delivery of the project aims. Multi-criteria decision analysis and GIS mapping tools will aid such selection. Selection may be undertaken at programme level, as a collection of projects selected and delivered in a co-ordinated way, or as a stand-alone project. In the case of programmes with targets for the amount of land to be regenerated, more sites than the target should be considered because property searches, community consultations and site investigations can result in around two-thirds of potential sites being excluded as unsuitable for use as woodland.

Inputs

Project mandate; background documents on programme objectives and intended deliverables; land-use maps; local and regional greenspace policy documents and spatial strategies detailing sites that could be regenerated to greenspace; documentation on the social, environmental and economic attributes of each potential site and its neighbourhood.

Outputs

Decision report on which site(s) to progress to the next stage. Other outputs may include partnership arrangements (such as terms of reference) and funding strategy, as appropriate to the project.

Expertise

Administration, design, ecology, forestry, GIS, law, multi-criteria analysis, programme management, project management.

Further reading

Forestry Commission Information Note:
Greenspace establishment on brownfield land: the site selection and investigation process (FCIN091)

Additional information

At the end of this stage a shortlist of sites is produced. Where a site has been shortlisted through GIS or a similar mapping tool, identifying the landowner may be a time-consuming and protracted exercise.

Stage – Project initiation

Tasks

Project initiation document (PID) production, site investigation (contaminated land risk assessment), surveys (historic environment, flora and fauna, utilities and services).

Description

This stage sees the development of the PID, which sets out the detailed approach to project delivery. The PID is the initial version of the many project documents contained within it (e.g. the initial business case, project plan, risk log and project organisation structure, plan for communication and engagement).

Context and implication

The PID is presented to the project board for approval. The PID ensures the project board have sufficient information upon which to make a decision about the project. The board may sign-off, or stop the project before excessive resource is expended. The PID sign-off is an important milestone in the life cycle of a regeneration project, triggers production of the full business case and is the gateway from project scoping to project delivery.

Inputs

Initial business case, brief, project plan, risk log, organisation structure, communications plan, quality plan (i.e. project quality management and quality assurance) should all be contained within the PID. Inputs may also include any other information required for the board to make an informed decision, such as the funding strategy and partnership arrangements.

Outputs

Decision report on whether to proceed with site to next stage, budget, and short-term management arrangement. Site investigations and surveys including Phase 1 contaminated land risk assessment, historic environment, flora and fauna, utilities and services. PID (including business case, brief, project plan, risk log, organisation structure, communications plan and quality plan).

Expertise

Administration, archaeology, commercial awareness, conflict resolution, ecology, environmental science, GIS, leadership, problem solving, project assurance, project management.

Further reading

For successful project management: think PRINCE2.

Additional information

Typically an outline business case is produced at some point before the PID, often at a programme level. Sign-off of the PID then triggers production of a full business case. It is not unusual in smaller projects to combine the PID and the business case within a single document. Surveys of flora and fauna will identify whether the site should be designated for conservation value (e.g. 'open mosaic habitat', the Biodiversity Action Plan (BAP) habitat associated with brownfield land). Such designations can affect project feasibility and influence the scheduling of specific tasks and operations. The requirement for repeat visits to produce comprehensive ecological surveys must be appropriately factored into the project planning to prevent delays later on.

Similarly, the contaminated land risk assessment process should assess whether the cost and time requirements to remediate any contamination will impact the feasibility of regeneration to woodland and whether the remediation process will lead to additional requirements to ensure the soil is suitable for vegetation establishment. Although an appropriate planting medium is not required until after remediation, consider what materials will be needed to ensure these are included and that the site is reclaimed so it can support vegetation growth. Where a soil amendment is required it may take time to arrange waste management licences and ensure there is sufficient volume of material available; scope suppliers and material availability during the project initiation stage and put final arrangements into place once the project progresses to the design draft stage. Remember to consider storage requirements for soil and materials ahead of final placement on site.

For woodland establishment, the importance of soil quality, depth and topography cannot be understated and these should be clearly communicated to the site owner. Where the site is subject to planning conditions, the landowner may need to seek a revision, for example to a forestry end use. Keeping abreast of the negotiations between the local authority and site owner can enable the project manager to factor in timescales and manage business risk. Through effective communication make it explicit that the site conditions must be suitable to support seedlings and that planting seasons are adhered to. Inadequate ground preparation can cause lengthy, costly delays.

Stage – Design draft
Tasks
Design, consultation, permissions and licences, design refinement, second phase of consultation.
Description
The iterative design process involving brief, survey, appraisal and consultation to generate ideas about the future function and look of the site and how to accommodate site constraints.
Context and implication
Good design contributes to the success of any woodland. Constraints posed by the site’s history or the regeneration process can limit design options because of the need to manage ongoing risks or because of prohibitive cost (e.g. anti-social behaviour, buried infrastructure, soil contamination or ground instability). A landscape architect with forestry experience is therefore essential to this stage, with collaboration from the civil engineer and soil scientist and (where a history of contamination exists) the skills of an environmental or remediation consultant. Consultation is with those stakeholders identified in the documents for communication and engagement. Care must be given to managing expectations as it is rare for a site to fulfil all the functions desired by the broad range of stakeholders with an interest in brownfield regeneration and woodland creation.
Inputs
PID and project plan (including the brief, risk log, organisation structure, communications plan, quality plan, budget, short-term management arrangement). Site investigations and surveys including contaminated land risk assessment, historic environment, flora and fauna, utilities and services, maps and reports.
Outputs
Final draft site design, consultation reports.
Expertise
Administration, facilitation, landscape architecture, project management, civil engineering.
Further reading
-
Additional information
Where the site will form part of a wider forest estate (such as the public forest estate) ensure this stage links into the wider forest design planning process, a process of decision making by which a framework for long-term management is agreed.

Stage – Master planning

Tasks

Specification of works, tender and contracts, baseline monitoring.

Description

Linking design draft to site delivery, this stage sees the production of the definitive site plan (the masterplan), which informs the specification of hard and soft works, baseline monitoring needs and planting specification (including species lists).

Context and implication

The masterplan is produced by the landscape architect and submitted to the project board by the project manager. Once signed off, the masterplan is circulated to all the project team but is owned by the project manager. Strict version control of the masterplan and other project documents must be implemented through the use of a 'change request log', as uncontrolled revisions can result in spiralling costs and reduced quality control.

Inputs

PID, project reports (for all surveys and assessments), draft plans, draft site design, consultation reports.

Outputs

Masterplan, specification of works, monitoring programme (including baseline data), permissions and licences (where required) for works.

Expertise

Administration, design, ecology, forestry, landscape architecture, land regeneration, project management.

Further reading

Forestry Commission staff are referred to OGB3c Contracts and Contract Management.

Additional information

When compiling a planting list note that not all native species of trees, shrubs and grasses are suitable for planting on brownfield land. Species tolerance and suitability are discussed in supporting documents (Best practice guidance for land regeneration, Note 8 on native and non-native trees). The 'Right trees for a changing climate' portal (www.righttrees4cc.org.uk) provides a searchable database and guidance on selecting suitable tree species to plant in urban areas in a changing climate.

The specification of works provides detail needed to produce tender and contract documents for hard and soft works during the site delivery stage. A good specification takes considerable time to produce and this should be reflected in the project plan and Gantt chart. Providing a high level of detail in a specification can help to ensure tenders are detailed, easing tender evaluation and award. Specification of works is tailored to the site and project objectives and should not be duplicated from another site as this can perpetuate bad practice. The detail in the specification forms the foundation for the working relationships with those undertaking works.

Stage – Site delivery
Tasks
Hard works, soft works, management plan.
Description
Active regeneration starts on site to create new woodland.
Context and implication
Poor practice can creep in where delivery timetables are tight, so monitor contract compliance regularly to ensure successful delivery on time, to budget and to the quality required. It is important to be especially mindful of compliance with regulations and planning conditions during earthworks. Remember that these works can have a lasting impression with potential future users of the site.
Inputs
Masterplan, specification of works, contracts and contract management documentation, monitoring programme (including baseline monitoring data), permissions and licences (where required) for works.
Outputs
Site remediated, reclaimed and new woodland planted, management plan.
Expertise
Administration, contract management, contract monitoring, ecology, engineering, financial management, forestry, hydrology, landscape architecture, project management, soil science.
Further reading
-
Additional information
<p>Hard works is a broad term encompassing remediation, reclamation (also referred to as earthworks) and civil engineering (e.g. installation of surface drainage system, utility services, roads, pathways and signage). Hard works tends to precede soft works, a term used to encompass seeding and planting. During the hard works, remediation of risks to human health and the environment identified during the site investigations is performed. Once hard works are completed and regulatory approval is received, the reclamation and civil engineering work and then the soft works can begin. By definition, soft works must follow reclamation, but they can run concurrently to elements of civil engineering.</p> <p>The timely delivery of the growth medium to support vegetation must be finely balanced with hard works delivery to ensure the site is ready for planting within the planting season, otherwise planting must be delayed to the next planting season. Remember seedlings have a better chance of long-term survival than standards.</p> <p>Manage movement of on-site traffic during hard and soft works to avoid soil compaction by staking out access routes and restricting vehicular access. Experienced practitioners recommend that each step in the regeneration process must be completed and signed off before the next can continue; this is termed 'staged sign-off'. Such an approach helps ensure quality is achieved. They also recommend using checklists of contractual specifications during delivery (copies of which are given to contractors and subcontractors) to assist with quality checks.</p> <p>Towards the end of this stage, finalise the management arrangements for the regenerated site and produce a site management plan.</p>

Stage – Site establishment

Tasks

Site handover, monitoring, evaluation, maintenance.

Description

Site management including weeding, protection from pests, irrigation, monitoring tree survival and growth, and replacing dead trees, leading to a fully established site. This stage is considerably longer than other stages, typically lasting 3 to 5 years. A programme of activities and events to encourage use of the site is recommended. The close of the site establishment stage marks the end of the regeneration project; the site then enters a phase of long-term management and maintenance, which may continue in perpetuity to retain site quality.

Context and implication

This stage marks the start of the aftercare period. While the site may not necessarily change hands during this time, it is important to formalise the end of the site delivery, evaluate the project success, learn lessons, consider how they might be applied at future sites and reaffirm responsibilities for aftercare requirements. The project manager will report back to the project board on spend and quality. Public access to some parts of the site may need to be restricted for the first 5 years or so, to allow the trees to establish.

Inputs

Reports from preceding stages.

Outputs

Regenerated site handed over to the new team to manage. Monitoring and evaluation reports, lessons learnt report.

Expertise

Administration, ecology, environmental science, forestry, landscape architecture, law, project management.

Further reading

-

Additional information

Plans for ongoing management and maintenance after the site establishment stage should have been included in the business case to reflect the staff and cash costs required after regeneration.

The management plan will contain policies and actions to guide all concerned with the long-term future of the site and to ensure the site reaches its full potential. For cost efficiencies, integrate the long-term management of the site with that of neighbouring sites. Where site management activities are suitable for volunteers, resources need to be made available for volunteer engagement and co-ordination.

Useful sources of information

Forestry Commission publications

- The UK Forestry Standard (FCFC001)
- UKFS Guidelines on landscape (FCGL004)
- UKFS Guidelines on climate change (FCGL002)

Guidance and good practice

- Creating and managing woodlands in and around towns (FCHB011)
- Public engagement in forestry – a toolbox for public engagement in forest and woodland planning (FCMS016)
- Design guidance for play spaces (FC England)

Research

- Greenspace establishment on brownfield land: the site selection and investigation process (FCIN091)

Other publications

- Best practice guidance for land regeneration guidance notes (Forest Research)
- Construction code of practice for the sustainable use of soils on construction sites (Defra)
- Construction (Design and Management) Regulations (HSE)
- Creating community woodland on closed landfill sites (Cheshire County Council)
- Developing your comprehensive community engagement strategy – a practical guide for local strategic partnerships. (Urban Forum, London)
- For successful project management: think PRINCE2 (TSO)
- Guidance on financial provisions for former landfill (Environment Agency)
- How to write a communications strategy. Successful communication: planning tools (Overseas Development Institute)
- Model procedures for the management of land contamination. Contaminated Land Report 11 (Environment Agency)
- Multiple criteria decision analysis: an integrated approach (Kluwer Academic Publishers, Dordrecht)
- Paying for parks: summary (Commission for Architecture and the Built Environment)
- Sustainability interventions – for managers of projects and programmes (Centre for Education in the Built Environment, University of Salford)
- UK Biodiversity Action Plan priority habitat descriptions: open mosaic habitats on previously developed land (JNCC)
- Woodland establishment on landfill sites: ten years of research (Communities and Local Government)

Websites

Further information on project delivery, a checklist of questions and a Microsoft Project profile file for use in delivery of tasks is available at: www.forestry.gov.uk/fr/regenguidance

See also:

- Association of project management – www.apm.org.uk
- British Standards – www.standardsuk.com
- Contaminated land: applications in real environments – www.claire.co.uk
- Institution of Civil Engineers – www.ice.org.uk
- Right trees for a changing climate – www.righttrees4cc.org.uk

Enquiries relating to this publication should be addressed to:

Dr Kieron Doick
Forest Research
Alice Holt Lodge
Farnham
Surrey GU10 4HQ
+44 (0)1420 526177

kieron.doick@forestry.gsi.gov.uk
www.forestry.gov.uk/forest_research

The authors gratefully acknowledge the contribution of the EPSRC (Engineering and Physical Sciences Research Council) to the funding of this research (Grant number GR/T18905/0).

For more information about Forestry Commission publications, visit: **www.forestry.gov.uk/publications**

The Forestry Commission will consider all requests to make the content of publications available in alternative formats. Please send any such requests to **diversity@forestry.gsi.gov.uk** or call **0131 314 6575**.