Issue 1.1/2025

How to Pa A Guide for Community Groups



Primary Partner



Introduction and contents

The step-by-step Slossary

About this guide

This document has been prepared for guidance only. It has been prepared in response to community groups who want to know more about planting larger trees. It offers general guidance only as there will be several variables for each group to consider such as location, legal requirements, local conditions and group capacity and resources. It does not in any way replace local or professional advice.

Overview

More and more community groups and others are becoming involved in the planting of larger trees in public open spaces, such as parks and wider grass verges. The benefits of trees are many, from the ecological and environmental services such as carbon storage, carbon sequestration, pollution absorption and storm water attenuation to health and wellbeing and the creation of places where people want to live, work and play.

The focus of this guide is on the planting of larger trees and follows a simple step-by-step process. The planting of seedlings, small trees and more complex plantings (such as those in hard surfaces where engineered solutions may require professional advice) are not considered in this guide.

Navigation

Use the various \bigcirc arrows to efficiently navigate the document and go directly to the chosen page.

Cor	ntents	
The step-by-step process:		0
Tree	sizes and selection	0
1.	Setting up	
2.	Species selection	\bigcirc
3.	Buying the trees	\mathbf{O}
4.	Time of year for planting trees	\mathbf{O}
5.	Planting organisation	$\boldsymbol{\Diamond}$
6.	Planting method	$\mathbf{\Diamond}$
7.	Maintenance	\triangleright
Useful notes and explanations		\mathbf{O}
Glossary		٥
Our guides and other resources		0

The step-by-step Glossary process

S Contents



The step-by-step

Glossary

S Contents

Useful notes and explanations

Tree size guide

- There are many influences on the weight of trees and those provided are for guidance only to help decide which size tree is best suited to the group's resources, capabilities and desired outcomes. The heavier trees may need lifting equipment.
- The guide to the root diameter is also only indicative to inform the size of the planting hole which should be approximately twice the root width and no deeper than the roots or rootball.

Tree selection

Several issues can influence the choice of tree size and production methods such as:

- The size of tree(s) to be planted will depend on the desired impact at the time of planting.
- Larger, heavier trees are more challenging as they may need additional help and lifting equipment.
- Bare root trees need root protection at all times and should be planted on delivery.
- Rootball trees will need some specific tools to deal with the wire ring and mesh.



This Tilia tomentosa Brabant (shown in 2023) was planted as a 12-14cm girth tree in 2013.

Photos © TDAG

The step-by-step process

Glossary

Contents

Useful notes and explanations

Larger tree planting locations and benefits for community groups

Potential tree planting locations



Sense of place

Trees create a sense of place, encouraging social interaction and friendlier communities

Reduce surface flooding

Large canopy and mature trees intercept rainfall and provide evapotranspiration

Traffic calming

Cooling through shade Tree-lined streets slow Trees provide shading cars and can encourage to low rise buildings active travel and streets, reducing temperatures

Noise reduction Densely planted trees can Aesthetic

Autumn colour and buffer noise pollution spring blossom provide natural beauty

Benefits of tree planting

Cooling through evapotranspiration The air around trees is cooled as water evaporates from leaves and soil

Reduced stress, increased health and wellbeing Trees reduce stress.

improve mental health and can aid recovery times of patients in hospitals

Connectivity for wildlife Trees support biodiversity and provide

areen links

Outdoor recreation

Trees encourage people to get outside by creating pedestrianfriendly walkways, tree cover and places to rest and socialise

Wind reduction

Trees influence wind flow and when combined with buildings can reduce wind speed

Air quality

Trees and buildings can create rough surfaces of different heights that increases pollutant dispersion

Guide for Deliver

Trees, Planning and Development: A Guide for Delivery articulates the range of returns trees offer new developments and how to secure these returns. The main document is supported with additional briefing notes providing further guidance and research based evidence.

Useful notes and explanations

Contents

1. Setting up

3. Buying the trees

Have a clear idea of what the aims and objectives of planting trees are:

- Assess what money is available for the purchase and establishment¹ of trees once planted. This is usually three years after planting.
- Assess what people are available for the handling of trees once delivered from the tree nursery.
- Assess what people are available for planting, including skill levels, age range and numbers of volunteers.
- Identify any training needs and guidance which might be necessary and where such guidance can be found.
- Identify potential planting sites.
- Liaise with the local authority **tree officer**, and other landowners and residents. Ensure that permissions are gained and residents are supportive of planting trees.
- Assess the site and seek professional guidance if necessary. Think about aboveground and underground constraints: nearby buildings, lampposts, telephone cables, parking spaces, road junctions and the possibility of underground pipes (CAT scanning).

2. Species selection

Assess and select appropriate tree species to be planted:

- Assessing which species will be suitable for the planting areas selected and how those species might contribute to the local tree population as a whole. (See right TDAG's <u>Tree Species Selection for</u> <u>Green Infrastructure: A Guide for Specifiers</u>)
- Liaising with householders, landowners and local authorities to engage in the selection process and inform them of the species to be planted and the characteristics of that species.

Buying the right trees is essential. Where and how to buy good quality trees:

- Identifying reputable tree nurseries that can supply trees of the size and quality required. Local authorities can offer guidance on a range of nurseries that are able to provide high quality trees and accreditations such as the Plant Healthy certification, ISO 14001, Royal Warrants and equivalents will provide further assurance.
- Clearly stating to the nursery the size, species and quality of the trees to be supplied.
- Arranging definite delivery dates with the supplying nursery.
- Ensuring that there is adequate site access and storage space for the trees once they are delivered from the nursery.
- Consideration of how the trees will be moved from the storage space to the planting site.
- Maintenance of the trees during storage. Make sure trees have enough light and water.
- Buying and storage of other materials necessary at planting such as tree stakes, ties and mulch.

4. Time of year for planting trees

Bare root and rootball trees in particular will only be available in winter (when dormant) typically end of November to early March, but varies according to weather. Planting can be undertaken if the ground is not frozen or waterlogged. This is also the preferred window for all tree planting.

¹ Glossary terms are blue and hyperlinked to the Glossary on page 14.



Tree Species Selection for Green Infrastructure: A Guide for Specifiers provides clear information with a decisionmaking tool for appropriate tree species selection in the context of climate change, for all urban planting sites and to aid the diversification of the urban forest.

The step-by-step

Glossary

S Contents

Useful notes and explanations

What do larger trees look like?

- Above ground all larger trees for planting have similar characteristics with a clear trunk and developing branches. Tree nurseries have different methods of production and there are three principal systems in the UK which impact on the root system and the trees' appearance when delivered.
- The principal factors which need to be considered are weight and storage between delivery from the nursery and planting the trees.
- The three systems are bare root, containerised and rootball trees.
- When in storage, bare root trees will need heeling in to protect their roots, containerised trees will need significant space, and rootball trees will need protection from drying out.

Bare root trees

Trees that are lifted from the nursery field and dispatched bare root with the roots wrapped in bags to protect them prior to planting (see top right).

The cheapest option. Trees are light and easy to handle but roots need protection at all times.

Containerised trees

Trees that have been lifted from the nursery field and containerised in pots or bags for one or two growing seasons prior to dispatch (see overleaf).

More expensive than either bare root or rootball trees, but easier to handle than rootball trees.

Rootball trees

Trees that are lifted from the nursery field with a soil ball usually wrapped in hessian with a wire mesh (see bottom right).

More expensive than bare root trees and heavy to handle, as weight guide on page 3 shows. May need special equipment for lifting into place.



A bare root tree - roots need protection at all times.



Rootball trees loaded for despatch from the nursery.

Photos © TDAG

The step-by-step process

Useful notes and explanations

Glossary

Contents

5. Planting organisation

Organise the practical and logistical elements of planting:

- Arranging planting dates and ensuring that there are enough volunteers available.
- Arranging delivery of trees to the planting sites.
- Risk assessments to be prepared for planting.
- Equipment necessary for planting.

6. Planting method

The planting of larger trees is a straightforward and uncomplicated step-by-step process which can be divided into a series of distinct tasks:

- No step should be rushed and each step should be completed before the next is started.
- The planting of the different nursery production methods differ slightly.
- For all tree planting, whether bare root, containerised or rootball make sure the roots are soaked before planting. Do not plant in frozen, drought ridden or water-logged soil,
- These steps are described in sequence below and illustrated with a clear diagram for each.



Containerised trees illustrating the Air-pot container system.



Trees, Planning and Development: A Guide for Delivery articulates the range of returns trees offer new developments and how to secure these returns. The main document is supported with additional briefing notes providing further guidance and research based evidence.

Photo © TDAG

The step-by-step process

Glossary

Separate top soil

from subsoil and

store for backfilling

Depth of hole to be deep enough to accommodate root system, container or rootball S Contents

Useful notes and explanations

Follow these simple steps in sequence for each of the three root systems and store for disposal Minimum diameter approximately 1m Minimum diameter approximately 1m

The planting of larger trees is straightforward and uncomplicated process.

Step 1

After the delivery of trees to site, position them near the planting holes to minimise their movement.

NB Protect the roots of bare root trees from damage while the planting hole is dug and prepared.

Step 2

Mark out a circle in the grass or soil to approximately twice the width of the roots - this represents the mulching area.

Step 3

Skim off the grass within the circle area and dispose of it. If possible, dispose of the grass in a compost pile.

Step 4

Do not disturb soil below roots

Leave sufficient space

all around the roots

for backfilling

Dig a hole deep enough to accommodate the roots or rootball, but no deeper. The width should accommodate the roots or rootball circumference plus sufficient space either side of the roots for backfilling and tamping gently down without compacting the back filling soil.

Do not disturb the soil below the depth of the roots or rootball. Separate the topsoil from the subsoil and keep both for backfilling later.

Next steps:

- Bare root trees page 10
- Containerised trees page 11
- Rootball trees page 12

Skim off the grass

within the circle area

The step-by-step

Glossary

V V V

S Contents

Useful notes and explanations

1

Bare root trees up to 10-12cm - trees that are lifted from the nursery field and dispatched bare root with the roots wrapped in bags to protect them prior to planting



Step 5

Remove the protection from the bare root tree to be planted and place the root system in the planting hole.

Prue rew retained Nursery mark indicates planting depth

Step 6

Ensure that the tree is at the right depth: there will be a 'nursery mark' at the base (root flare) of the tree showing the depth the tree was planted at in the nursery. This should be level with the undisturbed soil in the area where turf was removed.

If there needs to be adjustments to the planting depth, ensure that the tree roots are protected.

Prune to remove damaged or crossed branches and retain the lead shoot. More extensive formative pruning may be advisable, but this is likely to require professional input.

Step 7

v v v

Place the tree in the planting hole ensuring that it is upright and perpendicular to the ground. Backfill the hole using the retained subsoil first and lightly treading the backfill to consolidate it. The addition of fertilisers at this stage is unnecessary.

Backfill area

Backfill should be added gradually, in layers of about 15cm depth, and gently tamped ensuring the tree is held upright., lightly treading the backfill layers to consolidate them and eliminate air pockets under and around the root system. Tamp down but do not compact the soil.

Steps 8-13: page 13

The step-by-step process **Glossary**

S Contents

Useful notes and explanations

Containerised trees – trees that have been lifted from the nursery field and containerised for one or two growing seasons prior to dispatch



Step 5

Remove the tree from the container and dispose of the container. Fabric containers will need to be cut with a knife.

Ensure that the container compost is moist at planting.

Containerised trees can produce root circling (or girdling) and so the nursery should provide the length of time that tree has been in the container.

The fibrous roots in the container should hold the compost ball together once the container is removed. If the compost ball falls apart, the tree should be rejected as there has been inadequate root development.





Step 6

Slice approximately 1cm from the sides and base of the rootball. The aim is to avoid the development of root circling. Ensure that the base of the container rootball sits on the undisturbed soil at the base of the hole. The surface of the container rootball should be level with the undisturbed soil where turf was removed. If there needs to be adjustments to the planting depth, ensure that the nowexposed root system is protected.

Prune to remove damaged or crossed branches and retain the lead shoot. More extensive formative pruning may be advisable, but this is likely to require professional input.

Step 7

Place the tree in the planting hole ensuring that it is upright and perpendicular to the ground. Backfill the hole using the retained subsoil first and lightly treading the backfill to consolidate it. The addition of fertilisers at this stage is unnecessary.

Steps 8-13: page 13

NB Some methods for containerised trees mean that their roots may be wrapped in hessian and wire mesh for transportation requiring same planting method as root balled trees. This means they may also be heavier – see rootball trees.

The step-by-step process

Useful notes and explanations

Glossary

S Contents

Rootball trees – trees that are lifted from the nursery field with a soil ball usually wrapped in hessian with a wire mesh







Step 5

The critical issue here is to retain the structural integrity of the rootball.

Remove the wire ring, but retain wire mesh and hessian at this stage. The industry agrees that the wire and hessian should be retained to put the rootball in the planting hole and that the wire ring should be removed. There are differences about what to do then – some recommend leaving it in place as both should disintegrate over time, others recommend partial backfilling and then peeling back, cutting away and removing the wire and hessian as described in Step 7.

NB Some other forms of production can use hessian and mesh for protection during transit.

Step 6

Place the rootball in the planting hole and ensure that its base sits on the undisturbed soil in the bottom of the hole. Ensure that the tree is at the right depth: the root flare should be visible on the surface and level with the undisturbed soil in the area where turf was removed. Peel back the wire mesh and hessian. It may be necessary to remove soil from the top surface of the rootball to expose the root flare. If there needs to be adjustments to the planting depth, ensure that any exposure of the root system is protected.

Prune to remove damaged or crossed branches and retain the lead shoot. More extensive formative pruning may be advisable, but this is likely to require professional input.

Step 7

Ensure that the tree is upright and perpendicular to the ground. Backfill using the retained subsoil first, lightly tamping it down to consolidate but do not compact it until about one third of the rootball is covered. Then the hessian and wire should be peeled back, cut away and removed at least to this point and complete backfilling. The addition of fertilisers at this stage is unnecessary.

Steps 8-13: page 13

The step-by-step process

Useful notes and explanations

Glossary

S Contents



Tie tree to the stakes Lightly fork whole area

Step 8

The purpose of the stakes is to stop movement of the root system, which can create air pockets, until the lateral roots start to establish. Stakes should be positioned and knocked into place, ensuring that they're firm and capable of preventing the tree from moving in the ground. The type of staking system used is unimportant. It is a temporary measure to prevent the tree root system moving prior to the tree becoming selfsupporting. A single stake should be adequate for bare root trees.

NB Double staking might be most appropriate for rootball and containerised trees, with the stakes set either side of the tree.

Step 9

Tie the tree to the stakes with the attachment point at one third of the overall height of the tree. Use approriate tree planting materials such as rubber or webbing with buffers. Do not use string, wire or hessian. The tree is secured and supported and there is no potential for the tie to move and damage the developing tree.

Step 10

Lightly fork the whole area within the circumference of the original circle removed from the grass.



Step 11

Apply organic mulch in a doughnut shape, to approximately 5cm deep, around the whole area of the original circle removed from the grass.

Step 12

Water the tree to consolidate the soil and remove potential air gaps.

Step 13

Remove debris and waste materials from the planting site.

The step-by-step process

Glossary

S Contents



Newly planted trees:

- Illustrations showing how trees should look when planting is complete. Multistem trees planted without staking (see below) and newly planted tree with triple staking (see right).
- Note the size of the mulch ring around the tree.
- Also note that while triple staking is illustrated here single and double stakes are also appropriate.





Photos © TDAG

The step-by-step

S Contents

Useful notes and explanations

7. Maintenance

Look after the trees to make sure they are established well to reach maturity:

- Water trees regularly during the growing season (April to October). Sun, shade, wind and temperature will all affect trees and how much water they need. Check trees regularly (every few days in dry spells). If the soil around the base looks dry and dusty, the trees will need plenty of water. The use of water bags is very efficient where water is dispersed gradually through small hole at the base of the watering bag (see top right). This may have to be continued for two or three growing seasons following planting.
- All tree ties should be checked at regular intervals (two or three times in any growing season) to ensure that there is no damage to the growing trees (see bottom centre).
- Mulch should be topped up on a regular basis to retain the original 5cm depth. Create a doughnut shape around the trees, leaving the base where it meets the ground free from mulch.
- Stakes should be removed once the trees are self-supporting (see top left). This should occur after two growing seasons but may be longer with certain species. This can be tested by moving the trunk of the trees, if there is no movement at ground level then it can be reasonably assumed that the trees no longer need the stakes.
- The trees should be monitored regularly during the growing season to identify early any impact from pests and/or diseases and to assess foliage colour and development to correct any nutritional deficiencies with the use of fertiliser. In most instances this will be unnecessary.



A young tree with stakes and ties removed.



Glossary

The use of the watering bag.



All stakes and ties should be removed when tree is firmly rooted. Ties should be checked regularly.

Photos © TDAG

Useful notes and explanations Glossary

The step-by-step

Useful notes and explanations

Glossary

Contents

Useful notes and explanations

Gain more information on key considerations and terms:

- Nursery trees are measured by stem/trunk circumference at 1m above the ground or container surface. Trees will be categorised as 8-10, 10-12, 12-14 or 14-16cm girth. The size of the trees required should be specified. This is consistent whether buying bare root, containerised or rootball trees (and larger).
- Nursery trees will generally have a clear stem of 1.8m (the distance between the beginning of the crown and the base of the tree).
- The **root flare** (also know as root collar) is the point at the base of the trunk of trees where the trunk starts to 'flare' out into the roots.
- Root circling (or girdling) describes roots that have grown in circles around the inside of a container. This can make the trees unstable after planting as the roots don't spread out. Lightly shaving the outside and bottom of the rootball before planting will encourage roots to spread, stabilising the trees in the ground.
- A watering bag can be attached to the tree stakes and filled with water. This means trees don't need to be watered as often and the water is released as the trees need it. Bags still need to be checked regularly.
- Bare root trees: should have evenly distributed fibrous roots and at least four major lateral roots. They tend to be limited to the smaller trees up to 10-12cm girth.
- Containerised trees: their fibrous roots should hold the compost ball once the container is removed. Reject trees where the composts ball falls apart. NB 'Containerised trees, such as Air-Pots may have rootballs with hessian and wire mesh for tranportation. Not to be confused with rootball trees.
- Rootball trees: check the root flare is clearly visible at the top of the actual rootball.

Glossary

Air-pot trees: these are wrapped in hessian and wire mesh for delivery and should not be confused with rootballs lifted directly from the nursery field.

Bare root: trees which are delivered with the root system free of soil.

CAT scanning: the examination of ground prior to planting to identify and locate the position of any underground services using specialist electronic equipment.

Containerised: trees which have been lifted from the nursery field and potted into a container and grown in that container for at least one full growing season.

Establishment: the point at which the trees have become independent in the landscape and require no routine maintenance.

Heeling in: the covering of tree roots in a soil trench between delivery and planting.

Mulch: organic material used to cover the surface area of the planting hole. Prevents the soil surface from becoming compacted, suppresses weed growth, enhances water retention as well as providing organic material.

Rootball: trees which have a soil ball held together by the root system. This ball is then wrapped in hessian and held with a wire mesh.

Root circling (or girdling): where the root system of trees growing in a container hits the side wall of that container and starts growing around the circumference of the container. If present, this can cause instability and failure as the trees grow and develop.

Root flare (also know as the root collar): the area at the base of the stem of trees where the stem starts spreading out laterally into the root structure.

Tree officer: the person employed by the local authority to maintain and manage their tree stock.

Tree ties: the method used to link the stem of trees to the stake used to support it. Tree ties can be made of various materials but are often plastic or rubber.

Our guides and other resources

Available at: tdag.org.uk



S Contents

Useful notes and explanations

> First **Steps in Urban Heat**



Case Study Library

Case studies may be included in the guides are periodically reviewed

First Steps in **Trees and New Developments**

First

For Built Envi

Steps in

Quality

Urban Air

STREET, MARCH

First Steps in

Urban Air Quality

Compiles the basics

built environment

professionals need

air quality and how

design of our urban

areen infrastructure -

determines where air

pollution is produced,

and how it disperses.

infrastructure - including

to know about urban

First Steps in Trees and New Developments

Sets out simple principles of good practice from pre-to post-planning for achieve both housing and tree planting targets.



get started.

First Steps in

Valuing Trees

Infrastructure

First Steps in

information and

Valuing Trees and

Compiles accessible

advice about the use

approaches for trees

which tool or method

to choose and how to

of economic valuation

and green infrastructure,

Green Infrastructure

and Green

First Steps in Urban Water

Relevant for all working in the built environment. this guide explains how we can and should be managing water as a resource, with a focus on the role of trees and other green infrastructure in urban areas.



First Steps in

Provides an overview

within our urban areas,

including the cooling

benefits provided by

green infrastructure,

and other cooling

solutions.

of the sources and

circulation of heat

Urban Heat

First Steps in Urban Tree Canopy Cover (UTCC)

Focuses on a strategic approach to UTCC for urban forest planning, summarising how it can be determined at different scales using methodologies that look down from above.

or are referenced in the Case Study Library. These reflect different project viewpoints, aim to offer impartial. factual information and to check the progress of tree planting.

How our guides are developed

As is TDAG's practice, it has been an exercise in cross-disciplinary collaboration, made possible through the generous financial support of our sponsors.

Please Note: while very effort is made to ensure that the information in TDAG guides is obtained from reliable sources. the TDAG Trust is not responsible for any errors or omissions or for the results obtained from the use of this information. TDAG guidance cannot replace professional advice.

This guide was produced by the following core team:

- Project management and fundraising: Sue James - Writing and research:
- Keith Sacre
- Design: Reduction

Trees in the Townscape:

12 action-oriented principles as

a 21st century approach to urban

trees, providing decision makers

with the references they need to

fully realise this potential.



Trees

Trees in Hard Landscapes: A Guide for Decision Makers A Guide for Deliverv

> Starting from the point where the policy decision to retain or plant trees has been made, this guide explores the key four building blocks to success - collaborative process. designing with trees, technical design solutions and species specific criteria.

A Guide for

Decision

Makers

Tree Species Selection for Green Infrastructure: A Guide for Specifiers

Provides clear information with a decision-making tool for appropriate tree species selection in the context of climate change, for all urban planting sites and to aid the diversification of the urban forest.



Trees, Planning and Development: A Guide for Deliverv

Articulates the range of returns trees offer new developments and how to secure these returns. The main document is supported with additional briefing notes providing further guidance and research based evidence.

Working in collaboration	The step-by-step process	Slossary	Sontents
for better places			
This work is licensed under CC BY 4.0. To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/	explanations		



Guidance Sponsors



© Trees and Design Action Group Trust