

# Guideline Distances from Development to Trees

Securing Space for Existing and New Trees



Guidance retained from Residential Design Aid (4)  
Space About Dwellings (1989) and in  
Neighbourhoods For Living (2003)

updated March 2011 revised February 2021

## **Background**

*In 1989, Leeds City Council produced Residential Design Aid no 4 – “Space About Dwellings” (RDA 4) as a supplementary planning guide. Essentially this document consisted of a set of recommended guideline dimensions for distances between and around buildings as well as distances from specific tree species to the various aspects of new residential buildings and/or extensions. The objective in producing the document was to ensure that Site Planning and Design would allow sufficient space to be provided in layouts to satisfy both the needs of trees and those of future occupiers. Not only did the guidelines apply to existing trees but also to new tree planting.*

*In December 2003, the Council adopted “Neighbourhoods for Living” (Link [www.leeds.gov.uk/Environment\\_and\\_planning](http://www.leeds.gov.uk/Environment_and_planning)), which is a Supplementary Planning Guidance document. Although Neighbourhoods for Living superseded RDA 4, it did allow for the retention of section 6 on Distances to Trees of the supplementary planning guide.*

*This document is a listed background guide referenced in Neighbourhoods for Living SPG*

*This document is referred to on page 8 in Neighbourhoods for Living as a guide that provides relevant background information: “Securing space for existing and new trees” (forthcoming - data in Residential Design Aid 4 is still current until then). The principles for landscape setting and tree retention in new developments are set out on pages 23 and 57 of “Neighbourhoods for Living”. Page 57 states: (see residential Design Aid 4 until superseded by new guide SECURING SPACE FOR EXISTING AND NEW TREES)*

*This document is the new guide referenced in Neighbourhoods for Living SPG that supersedes section 6 of RDA 4*

*This guidance supports Leeds Core Strategy policies P12, GP5, and LD1 in particular. This document also supports the NPPF National Planning Policy Framework section 12.*

### **NPPF**

#### **12. Achieving well-designed places**

*124. The creation of high quality buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities.*

# Guideline Distances from Development to Trees

## 2011 update

This document updates and supersedes the previously retained section 6 of RDA 4. This document has been renamed “Guideline Distances from Development to Trees - Securing Space for Existing and New Trees”. The principles laid out in this document can be applied equally to all forms of development and not just to residential development. This document will be used as a tool to assess whether an application is achieving a satisfactory balance between the needs of trees and the needs of the buildings and their users.

### 1. Aims

The aim of this document is to ensure that sufficient space is allowed around buildings to enable:

- a. existing trees to be sustainably retained in a healthy condition by avoiding damage to roots and branches;
- b. existing and new trees to grow to maturity without adversely affecting:
  - the amenity of the buildings or indeed the building's structure
  - the amenity of the garden users
  - the structural stability of the buildings (assuming that the foundations are designed appropriately)

### 2. Existing Tree Information

As a basis on which to proceed, an existing tree survey will be required (in accordance with *BS5837: 2012 Trees in relation to design, demolition and construction - Recommendations* detailing the exact location, size, species, condition and root protection areas of existing trees on the site or adjacent land. This will be produced by or on behalf of the developer and is usually essential to assess the need for tree removal or retention, and any tree surgery which may be required (a guidance note on development site tree surveys is available from the LCC website, the Development Enquiry Centre or the Landscape Team).

### 3. Adjacent Sites

Where adjacent sites contain existing trees, it is expected that the distances recommended in the *Dimensions Table* (p.7) will normally be applied.

### 4. The Precedence of Existing Tree Locations

Many trees protected by Planning Conditions, Tree Preservation Orders or Conservation Area legislation exist in closer proximity to existing dwellings than recommended in the *Dimensions Table*. The removal of such trees will not normally be justified purely on the basis of substandard distances. Any problems in such circumstances can normally be addressed through standard arboricultural practices such as thinning or crown lifting (in accordance with *BS 3998 2010: Recommendations for tree work*).

Serious problems of shade, ill health or evidence of structural damage would have to be apparent to override the normal presumption in favour of the retention of such trees for visual amenity or other reasons.

## 5. Relationship to British Standard 5837 and other guidance

### BS5837

This document “Guideline Distances from Development to Trees” is complementary to BS5837: 2012 Trees in relation to design, demolition and construction - Recommendations and can be read in conjunction with it. British Standards can be purchased at [StandardsUK.com](http://StandardsUK.com)

The BS5837 states: This British Standard provides recommendations and guidance for arboriculturists, architects, builders, engineers, and landscape architects. It is also expected to be of interest to land managers, contractors, planners, statutory undertakers, surveyors, and all others interested in harmony between trees and development in its broadest sense.

The British Standard covers demolition as well as construction work and provides guidance on how to decide which trees are appropriate for retention. It also advises in great detail on the means of protecting such trees during the development process. The British Standard follows all the stages in the planning process from survey, through to design and implementation. However, it should be noted that the British Standard does not cover in empirical terms the amenity issues contained in this guidance document.

### Amenity issues- Site layout avoiding future conflicts

Incoming occupiers of properties will expect trees to be in harmony with their surroundings without causing excessive shading, poor garden usability or excessive reduction in normal expectations for the full enjoyment of their properties. Merely avoiding the physical damage to trees covered by BS5837 (in terms of Root Protection Areas RPA and tree canopies) may not be sufficient. Allowance for the projected full maturity of any trees without conflict needs to be factored in.

The need for amenity is addressed in BS5837 under section 5 (Proposals: conception and design) and includes the requirement to consider the ultimate size of trees (not just their current form). To allow for this, layouts may require careful adjustment to ensure structures are set back sufficiently far enough from retained trees to avoid creating unreasonable inconvenience to future occupiers. A poor relationship will inevitably lead to future pressure on the trees for pruning and felling (with the associated financial cost). The loss of trees subsequent to construction and occupation can be avoided by setting the buildings/structures far enough back.

This need for amenity space is addressed in BS5837 under section 5 (Proposals: conception and design) including:

- the attributes of trees can significantly affect potential land use or living conditions
- the ultimate size (height/spread) and density of foliage of trees are factors which need to be taken into account
- Buildings and other structures should be sited allowing adequate space for a tree's natural development, with due consideration given to its predicted height and canopy spread
- the effect of trees on daylight (ambient) and sunlight needs to be taken into account
- the impacts of shading on open spaces such a gardens and sitting areas should be taken into account
- design proposals should avoid the need for frequent remedial pruning

- that large trees can cause apprehension to occupiers.
- Consider seasonal nuisance: trees are naturally growing and shedding organisms

This document therefore seeks to interpret the amenity space considerations in BS5837 by translating these into actual guideline distances. Professional judgement is required in applying the distances, on a case by case basis, to the specific site circumstances. There is therefore some flexibility in the application of the distances within acceptable tolerances of a few metres. Variations will be subject to the agreement of the Local Planning Authority

See appendix 1 for distances methodology

### **NJUG Guidelines**

This document is complementary to the [\*National Joint Utilities Group \(NJUG\) publication Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 1: 8th October 2007\*](#) and can be read in conjunction with it. The NJUG document states that the guidelines also have relevance in respect of work carried out to highways near trees (e.g. kerbing, footways). Utility companies have a statutory right to carry out works in order to provide and maintain their apparatus and this publication advises on precautions that should be taken to minimise the risk of damage to both trees and apparatus. When referring to Tree Surveys the publication is cross referenced to *BS5837: 2012 Trees in relation to design, demolition and construction- Recommendations*

## **6. Additional Precautions - Shrinkable Clay**

*Building Regulations Approved Document C* gives general guidance on the likely potential for volume change (shrinkage or swelling) for some commonly occurring clays. The presence of trees and other vegetation can increase shrinkage by drawing moisture out of these soils, which can lead to the undermining of foundations. Approved Document C contains a map of the UK from which the clay types can be ascertained. The shrinkable clay distribution map does not indicate any such clays in the Leeds area.

Approved Document C refers to detailed guidance on this subject in the *NHBC Standards Chapter 4.2 Building Near Trees*. In the NHBC Standard Shrinkable Clay is defined under Clause D5 (b) as: those containing more than 35% fine particles and having a modified Plasticity index of 10% or greater. The existence of such soils in the Leeds area is unlikely and therefore Laboratory tests would be required to prove otherwise.

If shrinkable clay is proven to be present in association with trees then special measures may be appropriate to protect building foundations from movement. It may be necessary to adapt the design of foundations to anticipate future root growth of trees yet to reach maturity (as advised by a suitably qualified Structural Engineer). In these circumstances the distances given in the Dimensions Table may also have to be increased. Again, detailed guidance on this subject is given in *NHBC Standards chapter 4.2 Building Near Trees*.

## 7. Climate Change and The Case For Trees

Trees are well recognised for their aesthetic qualities as well as their contribution to local distinctiveness and bio-diversity. They can visually enhance any new development, but they also have a role to play in sustainable development and adapting to climate change. Climate change in Leeds will mean higher average temperatures and increasing incidents of extreme weather and flooding.

Carbon dioxide CO<sub>2</sub> is a major greenhouse gas. In the light of the recently declared LCC climate change emergency, existing trees are now being additionally valued in terms of Carbon storage and their year on year carbon sequestration as well as their contribution to air quality/ pollution. In comparison, new tree planting offers little visually or environmentally for at least 20-30 years. All the more reason that retained mature trees need to be sustainably incorporated into new layouts without the pressure to reduce or remove them in the future, due to close proximity.

A shelterbelt of trees and shrubs can reduce the heat loss from buildings by reducing the impact of prevailing winds. Particular care has to be exercised with trees located on the south side of buildings. A balance has to be struck between providing shelter and not overshadowing the buildings as this may limit their passive solar gain. Overshadowing may also limit the potential for the addition of solar technologies (e.g. solar roof panels).

The warming of the urban environment in summer has important implications for human comfort and well being. This is known as the Urban Heat Island Effect. Trees along with other vegetation can help moderate the temperature through evapo-transpiration. They also provide shading.

Tree canopies and root systems can also make a contribution to Sustainable Urban Drainage in delaying the rate at which rainwater reaches the drainage system. Overloading the drainage system leads to flooding.

For further information please refer to Leeds City Council [Building for Tomorrow Today - Sustainable Design and Construction](#)

## 8. The Guideline Distances - how to use

*The Dimensions Drawing* (p. 5) illustrates the likely locations for trees on a development with the various distances labelled with letters A, B, C etc.

These letters are cross-referenced to the *Dimensions Table* which gives actual dimensions for the minimum distances in each situation. The distances are measured from the centre of the trunk and at right angles to the dwelling or garage. However measurement "C" is measured at 45° from the corner of the dwelling, and measurement "E" is taken between the centre of the trunk and the edge of the usable garden space.

In the rear garden the dimensions drawing illustrates the usable garden (shaded green) - the "F" dimension. This represents the baseline 10.5m min ground floor main to boundary dimension taken from Neighbourhoods for Living (N f L main to boundary). Measurement "F" (main garden) is a combination of this baseline dimension plus additional variable length for the particular tree attributes (ultimate height/spread, leaf density etc.) See appendix 1 for more information on the methodology used.

The distance dimensions are to be used for both existing and proposed new planting, to allow growth to maturity without conflicting with the amenity of the occupants or causing occupants to be fearful of the proximity of trees. Distances vary for different species due to factors such as: the potential ultimate size; canopy shape and density (e.g. wide canopy with dense foliage); light and shade effects; extent and nature of root systems and the water demands of certain trees.

With regard to existing trees, the distances will also allow for construction to take place without causing dieback, or death of the tree (assuming due care is taken to protect the root spread and canopy during construction)

These distances are guidelines only. They may need to be increased or decreased depending on the particular situation, e.g. if trees lie to the south of a building shading may be a major issue and greater distances may be required. Professional judgement is required in applying the distances, on a case by case basis, to the specific site circumstances. There is, therefore, some flexibility in the application of the distances within acceptable tolerances of a few metres. Variations will be subject to the agreement of the Local Planning Authority.

The heights and spreads in the Dimensions Table are typical dimensions of trees growing in the Leeds area. Measurements of Typical canopy spreads and tree heights were taken onsite and, in combination with written data (such as Alan Mitchell's 'Field Guide to Trees of Britain and Northern Europe) were used to formulate the tree size parameters.

The dimensioned crown sizes are generally less than published data which accounts for the urban context. Comparison publications: (Gruffydd, B. (1987) Tree form, size and colour – a guide to selection planting and design. E and F N Spon, London); Hiron A and Sjoman H (2018), Tree Species Selection for Green Infrastructure – A Guide for Specifiers.

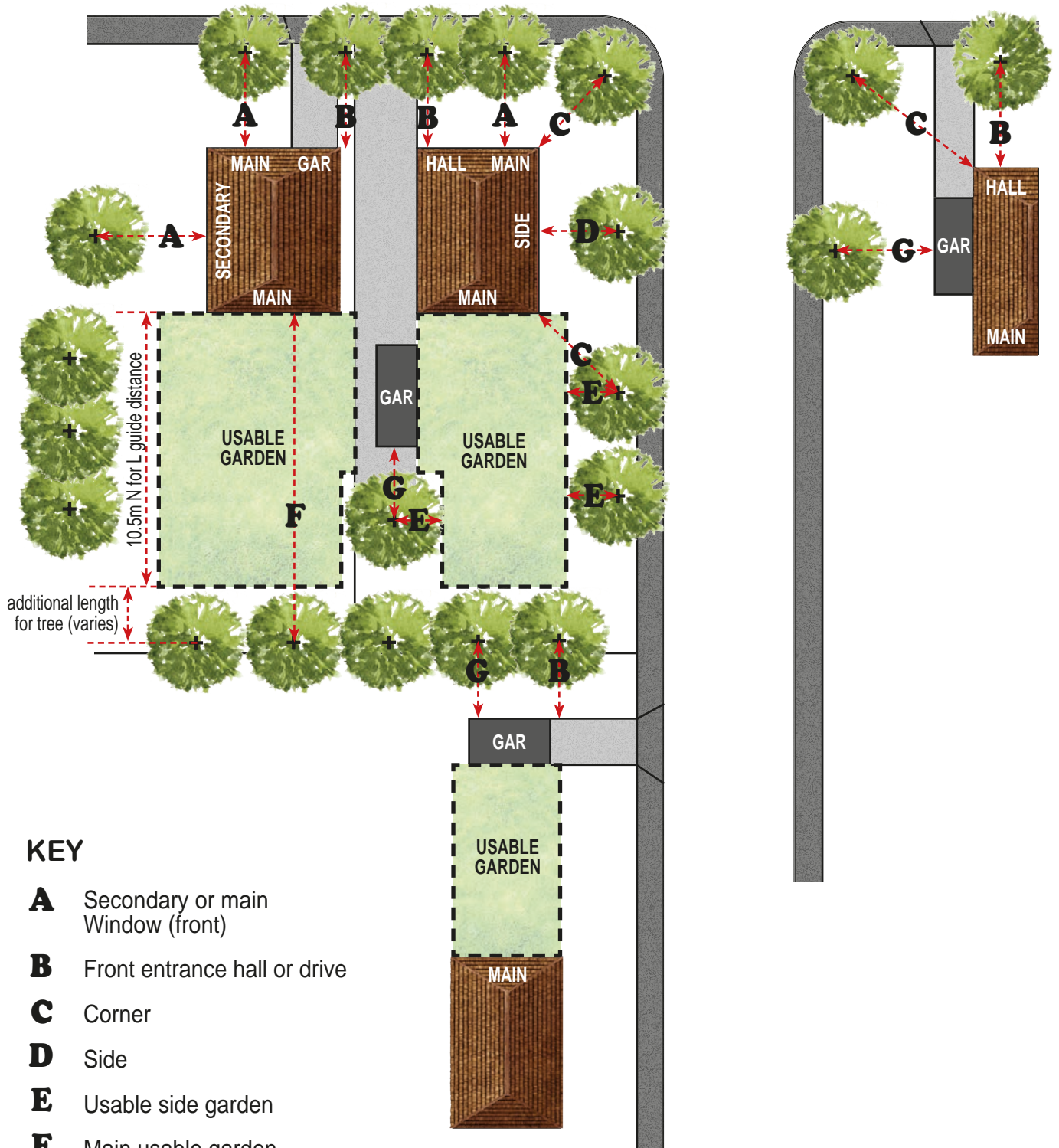


*Poor relationship: background chestnut tree at just 4m from the front of the dwelling (guideline distance 10m). Trees are overbearing and cutting out light even though they are on the N side.*



*Good relationship: Usable gardens - beech trees on the rear boundary. Stoneleigh Close LS17 8FH - "F" distance 19m (guideline distance 22m) - trees lie to south.*

# Dimensions Drawing





## 9. Species - Dimensions Table

The list includes most trees suitable for planting in housing areas. There are many other cultivars too numerous to list here, some of which would be acceptable depending on location. Inclusion in the list does not imply suitability for a particular situation. The advice of a Landscape Architect should normally be sought.

Planting of poplars and willows, except for a few small or shrubby varieties, is normally inadvisable near housing due to their aggressive root systems. Sycamore is unlikely to be chosen for new planting, but its retention is often desirable.



*Poor relationship: Maple trees too close to flats necessitate continuous harsh pruning and disfigurement to reduce the canopy sizes*



*Good sustainable relationship: Sycamore trees to front SE. "A" distance is 12m (Guideline distance 10m). Location - Brackenhurst Drive LS17 6WE.*

*Dimensions Table* **Recommended Minimum Distances of Built Development to Trees** (all dimensions in metres)

Botanical Name	Common Name	Height	Spread	Front: Main	Front: Hall	Corner	Side	Usable Side	Main Garden	Garage	Ultimate Size Category S = Small M = Medium L = Large VL = Very Large
Acer campestre	Field Maple	12	8	8	8	5	6	4	14	4	S-M
Acer capillipes	Red Snake-bark Maple	10	6	6	5	4	5	3	12	4	S-M
Acer cappadocicum	Caucasian Maple	15	8	10	6	5	6	4	14	5	M-L
Acer davidii	Pere David's Maple	10	7	7	5	4	5	3	12	4	S-M
Acer ginnala	Amur Maple	6	4	5	4	3	4	3	12	3	S
Acer griseum	Paperbark Maple	8	6	7	6	4	5	3	12	3	S
Acer hersii	Hers's Maple	10	7	7	5	4	5	3	12	4	S-M
Acer negundo	Box Elder	10	8	8	6	5	6	4	12	4	M
Acer palmatum	Japanese Maple	5	4	4	4	2	2	2	10	2	S
Acer platanoides	Norway Maple	18	10	10	8	6	7	5	16	6	L
Acer pseudoplatanus	Sycamore	20	12	12	10	8	10	6	18	8	L
Acer rubrum	Red Maple	18	10	10	8	6	7	5	16	6	L
Acer rufinerve	Grey-budded Snake-bark Maple	10	7	7	5	4	5	3	12	4	S-M
Acer saccharinum	Silver Maple	18	10	10	8	6	7	5	16	6	L
Aesculus x carnea	Red Horse Chestnut	14	10	9	7	6	7	5	14	5	M-L
Aesculus hippocastanum	Horse Chestnut	18	12	12	10	8	10	6	18	8	L
Ailanthus altissima	Tree of Heaven	18	10	10	8	6	7	5	16	6	L
Alnus glutinosa	Common Alder	16	8	10	6	5	6	4	14	4	M
Alnus cordata	Italian Alder	16	8	10	6	5	6	4	14	4	M
Alnus incana	Grey Alder	16	8	10	6	5	6	4	14	4	M
Amelanchier laevis	Snowy Mespilus	6	4	6	5	2	3	2	10	2	S
Araucaria araucana	Monkey Puzzle	16	5	6	5	4	6	2	12	4	M
Betula pendula / pubescens	Silver Birch	18	10	8	6	5	6	4	12	5	M
Betula jacquemontii, Betula utilis	Himalayan birch	14	8	6	4	5	4		12	5	M
Carpinus betulus	Hornbeam	14	8	10	8	5	7	4	14	5	M

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<b>Reference key as used on distances to trees plan</b> (Dimensions Drawing)											
Carpinus betulus 'Fastigiata'	Fastigate Hornbeam	14	8	8	5	4	6	2	12	4	M
Castanea sativa	Sweet Chestnut	18	12	14	12	8	10	6	18	8	L
Cedrus atlantica	Atlas Cedar	18	12	14	12	8	10	6	18	8	L
Cedrus deodara	Himalayan Cedar	18	12	14	12	8	10	6	18	8	L
Chamaecyparis lawsoniana "Ellwoodii"	Lawson Cypress	8	3	6	5	3	4	1	10	3	S
Chamaecyparis lawsoniana "Fletcheri"	Lawson Cypress	8	3	6	5	3	4	1	10	3	S
Cotoneaster frigidus	Tree Cotoneaster	5	4	5	4	2	3	2	10	3	S
Crataegus crus-galli	Cockspur Thorn	6	4	5	4	2	3	2	10	3	S
Crataegus x lavalleyi	Hybrid Cockspur Thorn	6	4	5	4	2	3	2	10	3	S
Crataegus "Paul's Scarlet"	Red Hawthorn	12	5	6	5	3	4	2	10	3	S-M
Crataegus x prunifolia	Broad-leaved Cockspur Thorn	5	5	5	4	3	3	2	10	2	S
X Cupressocyparis leylandii	Leyland Cypress	20	5	12	10	6	7	3	18	4	L
Cupressus glabra	Smooth Arizona Cypress	12	12	12	10	8	8	6	16	6	M-L
Cupressus macrocarpa	Monterey Cypress	20	10	12	10	6	8	5	18	5	L
Davidia involucrata	Dove Tree	12	8	8	6	5	7	4	12	5	M
Eucalyptus niphophila	Snow Gum	6	4	5	4	3	4	2	10	3	S
Fagus sylvatica	Common Beech	25	20	16	14	10	12	8	22	8	VL
Fraxinus excelsior	Ash	25	16	16	14	10	12	8	20	8	VL
Fraxinus excelsior "pendula"	Weeping Ash	8	10	10	8	5	7	3	16	4	S-M
Fraxinus oxycarpa "Raywood"	Raywood Ash	20	14	16	14	10	12	8	20	8	VL
Fraxinus ornus	Manna Ash	10	6	8	6	4	5	3	12	3	S-M
Ginkgo biloba	Maidenhair Tree	16	6	10	8	5	6	3	14	4	M-L
Ilex x altaclerensis	Highclere Holly	10	6	8	6	3	4	3	12	3	S-M
Ilex aquifolium	Common Holly	10	6	8	6	3	4	3	12	3	S-M
Juglans regia	Common Walnut	18	12	12	10	8	10	6	18	8	L

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<b>Reference key as used on distances to trees plan</b> (Dimensions Drawing)											
Laburnum x waterii	Voss's Laburnum	8	4	6	5	3	4	2	10	3	S
Larix decidua	Common Larch	16	6	8	6	4	5	3	16	3	M-L
Liriodendron tulipifera	Tulip Tree	16	10	12	10	6	8	5	16	5	M-L
Malus floribunda	Japanese Crab Apple	5	6	6	5	3	4	3	10	3	S
Malus hupehensis	Chinese Crab Apple	6	6	6	5	3	4	3	10	3	S
Malus 'John Downie'	Crab Apple	7	5	6	5	3	4	3	10	3	S
Malus tschonoskii	Pillar Crab Apple	10	5	8	6	4	5	3	12	3	S-M
Metasequoia glyptostroboides	Dawn Redwood	18	6	10	8	5	8	5	18	3	L
Morus nigra	Black Mulberry	5	5	6	4	3	3	2	10	3	S
Nothofagus obliqua	Roble Beech	18	12	12	10	8	10	6	18	8	L
Pinus cembra	Stone Pine	16	6	8	6	4	5	3	16	4	M
Pinus nigra	Black Pine	20	8	10	8	5	6	4	18	4	
Pinus nigra maritima	Corsican Pine	20	6	10	8	5	6	4	18	5	
Pinus parviflora	Japanese White Pine	8	6	8	6	4	5	3	12	3	
Pinus sylvestris	Scots Pine	16	6	8	6	4	5	3	16	4	
Picea omorika	Serbian Spruce	20	3	12	10	6	6	1	18	6	L
Platanus x hispanica	London Plane	18	12	14	12	8	10	6	18	8	L
Pyrus calleryana "Chanticleer"	Ornamental Pear	12	6	8	6	4	4	3	10	3	S-M
Pyrus Communis	Common Pear	12	8	8	8	5	6	4	14	4	S-M
Populus alba	White Poplar	18	14	12	10	6	8	5	18	5	L
Populus nigra betulifolia	Native Black Poplar	18	14	12	10	8	10	5	20	5	L
Populus nigra 'Italica'	Lombardy Poplar	20	4	14	12	6	8	6	18	6	L
Populus x 'Serotina'	Black Italian Poplar	20	18	16	14	8	10	6	20	6	VL
Populus tremula	Eurasian Aspen	14	8	10	8	6	8	4	16	4	M
Prunus avium	Wild Cherry	16	12	12	10	8	10	6	18	6	M-L
Prunus cerasifera	Cherry Plum	6	4	6	5	3	3	2	10	3	S

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<b>Reference key as used on distances to trees plan</b> (Dimensions Drawing)											
Prunus cerasifera "Pissardii"	Purple-leaved Plum	6	4	6	5	3	3	2	10	3	S
Prunus dulcis	Almond	6	5	6	5	3	3	2	10	3	S
Prunus x hillieri "Spire"	Ornamental Cherry	8	3	6	5	3	3	2	10	3	S
Prunus lusitanica	Portugese Laurel	5	5	6	5	3	3	2	10	3	S
Prunus sargentii	Sargent's Cherry	8	6	7	5	4	5	3	12	4	S
Prunus padus	Bird Cherry	10	6	8	6	4	5	3	12	4	S-M
Prunus serrulata	Jananese Cherry	10	5	8	6	4	5	3	12	3	S-M
Prunus serrulata "Amanogawa"	Japanese Cherry	10	2	5	4	4	4	1	10	3	S-M
Prunus serrulata "Hokusai"	Japanese Cherry	6	5	6	5	3	4	2	10	4	S
Prunus serrulata "Kanzan"	Japanese Cherry	10	8	8	6	5	6	4	12	5	S-M
Prunus serrulata "Pink Perfection"	Japanese Cherry	6	5	6	5	3	4	2	10	3	S
Prunus serrulata "Shirofugen"	Japanese Cherry	6	6	6	5	3	4	2	10	3	S
Prunus serrulata "Shirotae"	Japanese Cherry	8	8	8	6	5	6	4	12	5	S-M
Prunus serrulata "Tai-Haku"	Japanese Cherry	10	8	8	6	6	6	4	12	6	S-M
Prunus serrulata "Ukon"	Japanese Cherry	8	6	8	6	5	6	3	12	4	S
Prunus subhirtella	Winter Flowering Cherry	8	5	6	5	4	5	2	10	4	S
Prunus subhirtella "Autumnalis"	Winter Flowering Cherry	8	5	6	5	4	5	2	10	4	S
Prunus x yedoensis	Yoshino Cherry	10	8	8	6	5	6	4	12	5	S-M
Pyrus salicifolia	Weeping Pear	6	4	5	4	3	3	2	10	3	S
Quercus rubra	Red Oak	20	12	14	10	8	8	6	18	8	L
Quercus cerris	Turkey Oak	20	12	14	10	8	8	6	18	8	L
Quercus coccinea	Scarlet Oak	20	10	14	10	8	8	6	18	8	L
Quercus ilex	Holm Oak	16	10	12	10	6	8	5	14	6	M-L
Quercus petraea	Sessile Oak	20	10	14	10	8	8	6	18	8	L
Quercus robur	English Oak	20	16	16	12	10	12	8	20	10	L

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Robinia pseudoacacia	False Acacia	18	10	12	10	6	7	5	16	6	L
Salix alba	White Willow	25	16	16	14	6	10	8	22	8	VL
Salix caprea	Goat Willow	14	6	8	7	4	6	6	14	6	S-M
Salix fragilis	Crack Willow	18	14	14	12	6	8	7	18	7	L
Salix x sepulcralis 'Chrysocoma'	Golden Weeping Willow	18	20	16	14	10	12	8	20	8	VL
Sorbus aria	Whitebeam	10	6	8	6	4	5	3	12	4	S-M
Sorbus aucuparia	Rowan	18	6	6	5	4	5	3	10	4	S
Sorbus "Embley" (Discolor)	Chinese Scarlet Rowan	8	6	6	5	4	5	3	10	4	S
Sorbus hupehensis	Hupeh Rowan	8	6	6	5	4	5	3	10	4	S
Sorbus x intermedia	Swedish Whitebeam	8	6	6	5	4	5	3	10	4	S
Sorbus sargentiana	Sargent's Rowan	8	6	6	5	4	5	3	10	4	S
Sorbus x thuringiaca	Bastard Service tree	10	5	6	5	4	5	2	10	4	S-M
Taxus baccata	Yew	10	8	8	6	5	6	4	12	5	M-L
Tilia cordata	Small-leaved Lime	20	10	12	10	8	10	5	18	8	L
Tilia x euchlora	Caucasian Lime	16	8	10	8	5	7	4	16	5	M-L
Tilia x europaea	Common Lime	30	16	16	12	8	10	8	20	8	VL
Tilia platyphyllos	Large-leaved Lime	25	16	16	12	8	10	8	20	8	VL
Tsuga canadensis	Eastern Hemlock	20	10	12	10	8	10	5	18	8	L
Ulmus glabra	Wych Elm	18	10	12	10	6	8	3	18	7	M-L
Ulmus procera	English Elm	20	10	14	12	8	10	6	20	7	L
Ulmus campestris wheatleyi	Wheatley Elm	18	8	10	8	4	6	3	16	6	M-L

# APPENDIX 1

## METHODOLOGY

Methodology used to determine the Guideline Distances

Rear gardens must be usable for typical garden uses such as sitting out, children's play, games, garden sheds, grow plants/vegetables, and hang out washing. Permitted development rights (PDRs) can result in other features outside the normal planning controls such as conservatories.

The presence of trees, on the other hand, can reduce the area available for these typical garden uses. Trees can cause shading of daylight (ambient) and block sunlight. They can dry out the ground and block rainfall (difficult to grow plants). Roots can be near the surface and they can cause seasonal nuisance including leaf fall, honeydew and the shedding of branches. The specified distances are aimed at compensating for this reduction in usable garden area and avoid trees coming under pressure to provide the solution through cutting back. In the case of legally protected trees permission for lopping or removal cannot be unreasonably withheld if a conflicting relationship between tree and usable garden has already been consented.

Distances therefore vary between different species. The following factors were taken into account, combined with onsite measurements, in formulating the distances:

- the potential ultimate size
- canopy shape and density (e.g. wide canopy with dense foliage)
- light and shade effects
- extent and nature of root systems (including water demands of certain trees and surface rooting trees)

### Distance Formula - 2 worked examples

**SYCAMORE** (*Acer pseudoplatanus*) – large tree - height 20m, spread 12m.

**Main Garden length F = 18m** (dimensions Table)

Baseline garden Neighbourhoods for Living SPG (N f L) main to boundary	10.5m	10.5m
Overhang on garden side (50% of spread)	12m spread /2=6m	16.5m
Extra for dense foliage (shading factor)	Add 1.5m	18m

**Final "F" distance = 18m**

**SILVER BIRCH** (*Betula pendula/pubescens*) – medium tree -height 18m, spread 10m.

**Main Garden length F = 12m** (dimensions Table)

Baseline garden Neighbourhoods for Living SPG (N f L) main to boundary	10.5m	10.5m
Overhang on garden side (50% of spread)	10m spread/2 =5m	15.5m
Reduction for light foliage (shading factor)	Minus 3.5m	12m

**Final “F” distance = 12m**

### Follow up monitoring

Adherence to these standards has resulted in relatively harmonious relationships between developments and trees. Here are a few examples:

- Brackenhurst Drive LS17 - *flat development where some blocks back onto Scott Hall Road*
- Pine Tree Avenue Boston Spa - *detached houses side-on to street trees*
- Oxclose Drive, Boston Spa - *particularly properties facing Main Street and on western boundary*
- Oak Tree Lane LS14
- The Meadow, Scarcroft
- Freely Lane, Bramham - *properties on western boundary*
- Parkwood Avenue LS8
- West Park Crescent LS8
- Stoneleigh Avenue, off Shadwell Lane
- Alwoodley Gates
- Fir Tree Gardens
- Scholars Way, Colton
- Court Barton Lane, Clifford
- St Edward’s Wood, Clifford - *trees on easternmost plot*



## APPENDIX 2 published data - The Ultimate Size And Spread Of Trees Commonly Grown In Towns

Arboriculture Research Note 84 (ARN 84) (issued by the Arboricultural Advisory & Information Service) states:

*Knowledge of the maximum height a species may achieve under ideal conditions and the height and spread normally found in town plantings is therefore important for designers.*

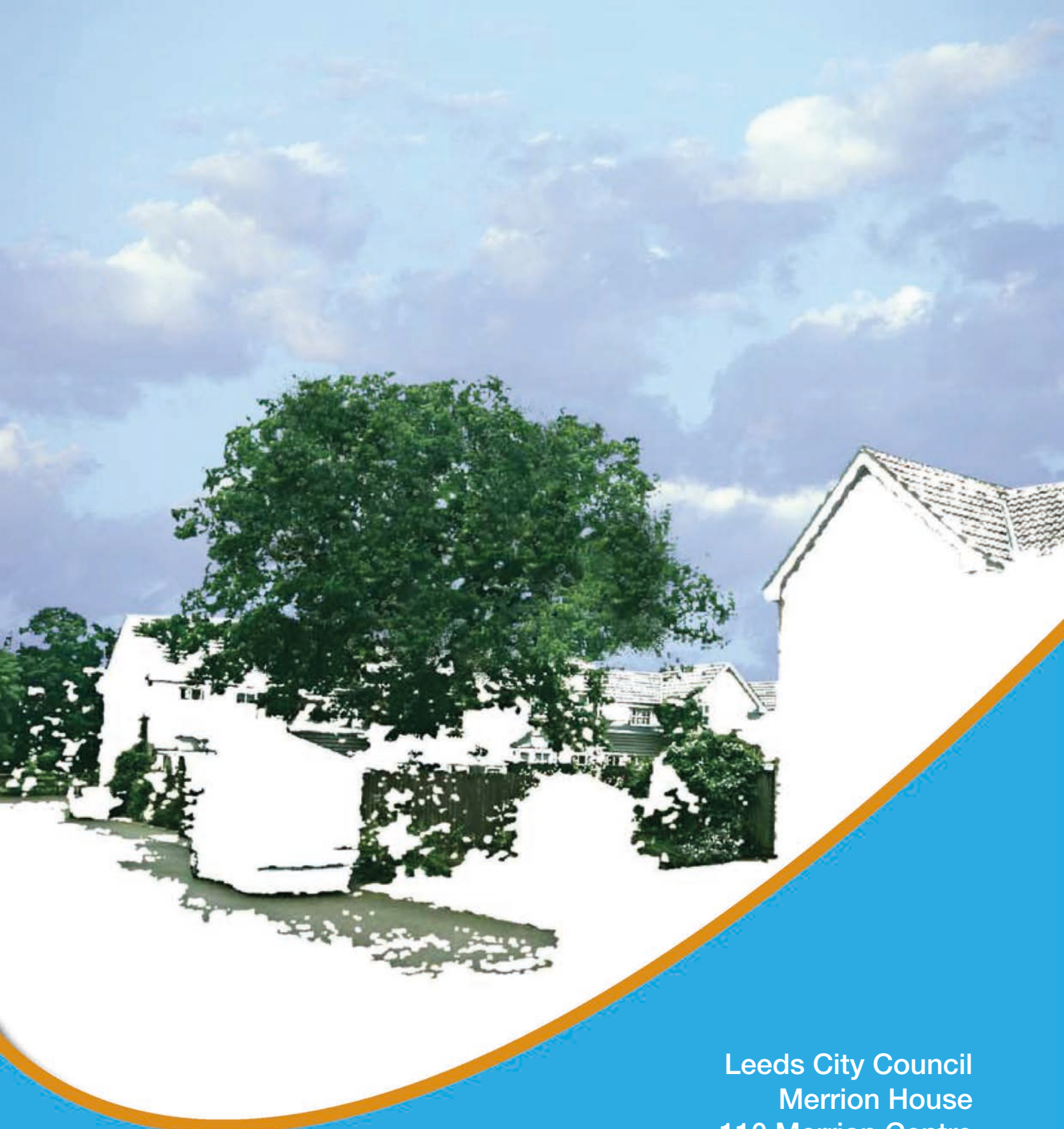
It goes on to recommend:

*When selecting trees to plant into urban streets and other restricted positions in towns consideration should be given to the likely mature spread and height of the species so that expensive pruning does not become a requirement. In addition, use of a tree with an ultimate mature size appropriate for the surroundings should ensure that otherwise valuable trees do not have to be felled prematurely due to their size.*

In particular ARN 84 references the publication Gruffydd, B. (1987) Tree form, size and colour – a guide to selection planting and design. This book details normal ultimate crown spread. It also references Mitchell, A.F.; Schilling, V.E; White, J.E.J. (1994) Champion Trees in the British Isles.

Species group	Tallest Known (Mitchell et al) (m)	Ultimate Spread of the Crown (Gmffydd) (m)	Normal Ultimate Height in an Urban Situation (m)
Maple	30	18	18
Cherry	13	8	9
Rowan	20	5	9
Birch	28	14	17
Whitebeam	23	10	18
Lime	44	16	30
Sycamore	37	20	28
Ash	41	18	17
Plane	48	18	30
Hawthorn	16	8	9
Robinia	29	14	15
Common alder	25	14	15
Hornbeam	30	16	18
Beech	46	20	30
Cypress	40	12	24
Crab apple	12	8	7
Wild cherry	31	16	18
Willow	32	14	18
Pine	36	8	20
Apple	-	9	8
Plum	12	8	8
Oak	42	20	22
Horse chestnut	37	20	28

The table above is extracted from ARN 84 summarises the published data on tree sizes including information based on observation of the same species growing in urban situations. The distances in Guideline Distances from Development to Trees are based on more conservative tree parameters than those above.



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