APPENDIX 2 PLANTING WITHIN THE STOCKTON BOROUGH

Shrubs For Use In Landscape Projects

The following points must be considered when designing a planting scheme particularly where the council is responsible for the long-term maintenance of the scheme:

- In many urban areas planting up to 1.0m high in conjunction with advanced nursery stock trees with a clear stem height up to 1.8m is recommended to maintain sight lines and the perceived safety for pedestrians .It is acceptable to plant larger shrubs as specimens within the lower planting but extensive areas of large or medium sized shrub cover should be avoided. In particular large areas of thorny planting should be avoided to reduce excessive litter collection including food waste than can lead to rodent problems;
- Shrub beds in excess of 4m width should in general be avoided as they become hard to maintain and can thus cause security problems;
- Low maintenance planting is favoured and plants that require regular pruning should on the whole be avoided.

In selecting a plant the designer should ensure its planting characteristics are suited to the site characteristics and its use within a scheme. The following lists are a guide to planting within the borough. Therefore, rather than have a list of plants that would prove prohibitive and too prescriptive, suggestions have been compiled of plants to avoid or use with caution. This will allow the designer more flexibility when it comes to plant combinations and plant choices.

Plants that are not hardy should not be used in planting schemes. The following plants are not fully hardy in this area and will need protection in more exposed areas. They should therefore only be used in sheltered locations where their individual particular growing requirements are met and mass planting is not recommended. This list is not exhaustive and includes at least all plants listed as hardiness 1 and 2 in the guideline hardiness category of the Joint Council for Landscape Industries publication Trees and Shrubs for Landscape Planting available form the Landscape Institute http://www.landscapeinstitute.org/ (the exceptions are Buddleia Lochinch and Phormium tenax which grow satisfactorily in this borough).

- Abelia species
- Artemesia grandiflora
- Brachyglottis -species
- Camellia species
- Caryopteris x clandonensis ‘Heavenly Blue’
- Ceanothus species
- Ceratostigma willmottianum
- Cistus species
- Choisya species

- Escallonia species
- Laurus nobilis
- Myrtus communis
- Photinia species
- Physocarpus species
- Prunus laurocerasus ‘Zabeliana’ and ‘Cherry Brandy’
- Rosmarinus species
- Salvia species
- Santolina species
- Tamarix species

The following plants can create a hazard if planted next to footpaths on account of their thorny characteristics and therefore should not be used in this location

- Genista hispanica
- Pyracantha species
- Rosa species – varieties with a lax or loose upright habit
- Rubus cockburinanus
- Ulex species
- Yucca species

No planting should be placed next to a footpath or other thoroughfare that will need regular pruning to keep the route way safety accessible.

The following plants are not recommended as they are difficult to prune or respond poorly to pruning and are therefore short lived in many cases

- Cytisus species - not for use in a restricted space
- Genista hispanica - not for use in a restricted space
- Lavertera species
- Lavendula species - treat as a short-lived shrub e.g. on roundabouts where it can be replaced after several years

The following plants can be problematic when grown on the Clay soils found within the borough and this applies to most topsoil imported from areas in the northeast around the borough. If the plants are to be used the quality of the soil should be substantially improved by adding compost and sharp sand and the planting rates
(sq m = plants per square metre) should be increased as indicated below.

- Cistus species rate 5/sq m
- Cytisus species 4/sq m
- Euonymus species notably ‘Emerald Gold’ and ‘Emerald gaiety’ rate 7sq m
- Lavendula species 6/sq m
- Pervoskii species 4/sq m
- Rosemarinus species 5/sq m

- Skimmia species 4/sq m

Plants requiring ericaceous soils should be avoided except in exceptional circumstances e.g. special beds for acidic plants in for example a raised planter and in such cases the use of peat should be avoided as a means of creating an acidic soil.

In areas of open space which are likely to be used for informal ‘kick about’ areas plants chosen should be robust, non prickly, tolerant of vandalism, good vandalism recovery and establish quickly, the following species are to be avoided for reasons given:

- Cytisus species -intolerant of vandalism
- Berberis species -slow to establish
- Forsythia species -slow to establish
- Salix species - not suitable near built structures
- Prunus large varieties. - not suitable near built structures

Herbaceous Perennials For Use in Landscape Projects

Due to their habit of dying back in the winter there is a limited use only for herbaceous planting mainly on areas such as parks, nurseries or school gardens, cemetery gardens and roundabouts where the maintenance is higher and private garden design not maintained by the council. To produce a good quality scheme herbaceous plants should have the following characteristics - low maintenance/long life span/ no need for division/non poisonous / resistant to disease/weed suppressing.

Ornamental Grasses For Use in Landscape Projects

There are a variety of grasses that can be used in a landscape setting but due to their soft nature, like herbaceous perennials these are best used in special situations such as parks, nurseries or school gardens, cemetery gardens and roundabouts and private garden design not maintained by the council.

Bulb Planting

All spring flowering bulbs planted in ornamental grassland must flower no later than the end of April to prevent disruption to the grass-cutting programme. The most suitable flowering bulbs for planting in large drifts in grassed areas are Crocuses and early flowering Narcissus species. Muscari may also be suitable in smaller quantities.

When planting in areas of ornamental grassland the following minimum spacings per square metre must be used:

- Crocus species including large flowering and species varieties 75 per sq m;
- Larger Narcissus species 30 per sq m recommended species for regularly cut and infrequently cut areas;

- Narcissus miniature species 50 per sq m - recommended varieties for regularly cut grassland or exposed areas are February Gold, February Silver, Jet fire, Peeping Tom and Tete a Tete;
- Muscari speices 75 per sq m - a recommended variety for grassland is armeniacum.

Where contours and space allow planting by machine method is recommended however planting, by hand, by first lifting the turf and planting the bulbs at required depths beneath and replacing the turf after is still acceptable, especially on embankments.

Other species of bulbs may be suitable for use in select areas in small drifts such as parks, nurseries, school gardens, and cemetery gardens and for special floral displays such as art works:

- Spring flowering bulbs- Anenome, Chinodoxia, Eranthis hyemalis (Winter Aconite), Galanthus (Snowdrop), Hyacinth, Iris reticulata, Pushkinia;
- Tulipa (Tulip) to be used in bedding schemes only;
- Summer flowering bulbs (not to planted in ornamental grassland) – Allium giganticum, Crocosmia species, Leucojum, Lilium species.

Trees For Use in Landscape Projects

The following amenity tree species list has been compiled to provide a quick reference guide of trees suitable for planting as ornamental amenity trees in the built up areas within the borough.

The trees listed are those of favoured ornamental form and character that will provide high amenity value and that are likely to be reasonably suited to the local conditions. The list includes both native and exotic species to be used as appropriate within various urban locations, e.g. suitable native species should be used to complement existing habitats, natural landscapes/exotic trees primarily used within certain built ‘artificial’ landscapes/formal parks and gardens as ornamental features where appropriate

Individual tree species will have different ideal growing conditions and characteristics and will therefore vary in their suitability at different sites.

Tree selection must give careful consideration to the ultimate size and spread of the tree(s) in question in relation to the available growing space, the growth habit and form of the trees, associated characteristics of the species (inc any negative characteristics) and also the most suitable conditions for the trees (e.g. soil type, exposure/shelter/shade, wet/dry site etc). Consideration should also be given to future local climate change and prevalence of pests and diseases affecting certain species.

Some trees will be suited for use as individual specimen trees of high ornamental value and some may be suitable for use in large numbers for

avenues, groups or simply creating ‘green mass’ in open spaces where tree cover/landscaping is otherwise absent or minimal.

Trees should be compatible with existing trees as well as each other and new schemes should adhere to principles of good landscaping – tree planting should complement existing building and landscape design and be in scale and context with surroundings, present and future.

New tree planting schemes as well as the placement of single trees in the landscape etc should be ‘sustainable’ and should represent a long term investment in the urban landscape – i.e. prospect for long term retention/ensure selected trees are planted where they can grow to full size and maturity and add value to the landscape.

Tree planting specifications are equally important to ensure trees have adequate growing medium, aftercare and are protected during the establishment phase.

Native tree species can also be considered for planting in the right locations with species selection in accordance with the next section Tree planting in wildlife sites, wildlife corridors (including road corridors) and rural countryside areas As many Native trees can be vigorous growers care should taken when planting close to roads, paths, buildings or other structures.

Ornamental Amenity Tree Planting List:

GENUS	SPECIES/CULTIVAR	SIZE/FORM	ATTRIBUTES/CHARACTERISTICS	USE
Acer (Maples)	platanoides	Large/ spreading	Autumn colour /hardy	Parkland/ specimen trees/groups/ formal avenues
	Platanoides 'schwedleri'	Large/ spreading	Hardy/ purple undersides on leaf	trees/groups/ formal avenues
	rubrum	Large/ spreading	Bright red Autumn colour	Parkland/ specimen
	saccharum	Large/ spreading	Yellow/ orange autumn colour	
	saccharinum	Large/spreading	Ornamental/can be prone to branch failures	
	campestre	Large/ spreading	Hardy/ yellow autumn colour	
	campestre 'elsrijk'	Medium/upright	Upright version of above	
	capillipes	medium	Autumn colour/ornamental	
	davidii	medium	Autumn colour/ornamental	
	X freemanii 'Autumn Blaze'	Medium,/ Large spreading	Dark green leaves bright red Autumn colour, attractive foliage	groups/formal avenues
Aesculus (Chestnuts)	hippocastanum	Large/ spreading	Large flowers (produce conkers!)	Parkland
	Indica	Large/spreading	Ornamental, late ornamental flowers	Parkland/ Specimen/ formal Avenues
	flava	Large/spreading	Ornamental, yellow flowers	Parkland/ Specimen/

				formal Avenues
Alnus (Alders)	cordata	Large/ tall/upright	Attractive form/foliage/hardy/ wet soils	Parkland/formal avenues/ groups/specimen
	Incana (plus cultivars)	Large/ tall/upright	Attractive form/foliage/hardy/ wet soils	Groups/parkland
	spaethii	Large/Tall	Attractive form/Foliage/Hardy/vigorous/wet soils	Parkland, avenues/groups / Specimen
Amelanchier	Arborea Robin Hill	Small trees	Flowers and autumn colour neat form	
	Ballerina			
	lamarckii			
Betula (Birch)	ermanii	Medium/conical, good shape	Ornamental/light shading/autumn colour/attractive columnar habit	Formal avenues, groups, specimen
	Albo-sinensis		Attractive peeling bark white pinkish	Specimen/groups
	jacquemontii		Striking white bark	ornamental
	Pendula (plus cultivars)		Native version	Groups, parkland
	utilis		Striking white bark	Ornamental specimen
	nigra		Often multistemmed/wide spreading	
Carpinus (Hornbeams)	betulus	Large / dense canopy	Handsome shape/foliage	

	betulus ‘fastigiata’ esp ‘Frans Fontaine’		Neater upright form of above (‘frans fontaine very compact upright tree)	Specimen/group /parkland
	japonica		Attractive Foliage/spreading tree	Parkland specimen
Castanea (Sweet Chestnut)	sativa	Large/ spreading	ornamental	Avenues/ specimen/ group/ open spaces
Corylus (Turkish Hazel)	colurna	Medium/Large / upright conical	Handsome avenue tree, hardy/pollution tolerant	Formal avenues
Crataegus (Thorns)	Oxycantha ‘Paul’s Scarlet’	Medium/round	Pink flowers/wildlife,birds etc	Parkland/groups / specimen
	lavellei	Small-medium/ round	Attractive fruits/foliage	Parkland groups specimen
	X prunifolia	Small spreading	Striking Autumn colour	
Davidia	involucrata	Medium/spreading	Highly ornamental	Exotic specimen
Fagus (Beech)	sylvatica	Large /spreading	Autumn colour, handsome tree, heavy shade	Parkland specimen/groups Rows/open space
	Sylvatica ‘Asplenifolia’	Large / spreading	‘Cut leaved’ / serrated leaves	Parkland / specimen

	Sylavtica ‘Dawyck’	Tall/ columnar	Fastigiate form	Wide verges and specimen / avenue planting
	Var purpurea		Purple, heavy shade, colour fades later in season	Parkland specimen
Fraxinus (Ash)	Excelsior ‘jaspidea’	Large /spreading	Golden stems/autumn colour	Parkland/groups /avenues ornamental
	Oxycarpa ‘raywood’	Large	Neat form, autumn colour	Parkland/groups / formal avenues /ornamental
	excelsior	Large	Native tree	
Eucalyptus (Gums)	niphophila	Large	Evergreen/ handsome foliage, bark – hardier than other gums	Specimen/ parkland/novelty
	gunnii			
	globulus			
Ginkgo (Maidenhair tree)	biloba	Large	Handsome foliage	Specimen/parkl and/novelty
Gleditisia	triacanthos ‘Sunburst’	Medium sized	Yellow foliage with colour retained into summer	General / novelty planting
Juglans (Walnuts)	regia	Large/ spreading	Handsome large tree	Specimen parkland
	nigra			Specimen

				parkland
Ilex (Holly)	j.c. van tol		Evergreen specimen	Specimen/Groups/ parkland/ cemeteries
	Green pillar			Specimen/ Groups / parkland/ cemeteries
	pyramidalis			Groups/parkland/ cemeteries
Laburnum	X watereri	Small - medium	Yellow flowers	Avenues
Liriodendron (Tulip tree)	tulipifera	large	Handsome specimen tree, large flowers, attractive foliage	Specimen, parkland
Liquidambar	Styraciflua	Large, pyramidal crown	Autumn colour, maple like foliage	Street tree, avenue, park planting
	Styraciflua vars. ‘Thea’	Large but more conical form	Purple autumn foliage	Street tree, avenue, park planting
Magnolia	Kobus	Small rounded tree	Hardy, white spring blossom	Parks, verges, suited to horticultural schemes
	Grandiflora vars	Large rounded tree	Sheltered position profuse blossoms in spring	

Malus (Apples/crabs)	tschonoskii	Small/upright	Rich Autumn colour	Formal avenues
	hupehensis	Small-medium / round spreading	Attractive Flowers/fuits	Group, specimen, parkland
	trilobata	Small-medium /round spreading	Attractive Flowers/fuits	Group, specimen, parkland
	floribunda	Small-medium / round	Attractive Flowers/fuits	Group, specimen, parkland
	spectabilis	Small-medium/upright tree	Attractive Flowers/fuits	Group, specimen, parkland
Metasequoia (Dawn Redwood)	glyptostroboides	Medium-large/upright	Deciduous conifer, wet sites, neat shape	Specimen tree
Nothofagus (Southern Beech)	procera	Large/ compact upright	Hardy, neat form	specimen
Paulownia	tomentosa	Med to Large rounded tree	Large foliage - Sunny sheltered site req'd violet to blue foxglove like flowers in May when established	Specimen
Platanus (Plane)	X acerifolia / hispanica	Large, spreading	Attractive form, foliage, bark, reasonably hardy to drought conditions	Avenues, specimen, open spaces
	Orientalis (+ vars)	Large , spreading	Attractive form, bark and cut folliage reasonably hardy to drought conditions	Avenues, specimen, open

				spaces
Populus	tremula	large	Wet sites, wildlife (suckers)	Wet sites
	‘robusta’ or ‘Eugenei’	large	Good form, hardy	Open space, parkland, avenues
	X berolinensis	large	Good form, hardy	Open space, parkland
	Nigra var italica	Large/ fastigiate	upright	Large avenues, industrial shelterbelts
	canescens			Double avenues/ industrial sites
Prunus (Cherries)	Avium ‘plena’	Medium-large	White flowers	Specimen, group
	sargentii	medium	Pink/white flowers autumn colour	Specimen, group
	Padus ‘watererii’	medium	Attractive white flowers	Group open spaces
	Umeniko / omineko	medium	White flowers	avenues
	Subhirtella Autumnalis rosea	Small - medium	Winter flowers	Group, open spaces
	Spire’	Small/upright	Pink flowers, fastigiate neat compact form	Formal small avenues, car parks
	‘accolade’	Medium/spreading	Pink flowers	Specimen, group
Pyrus (Pear)	Calleryana	medium	White flowers, compact form upright,	Formal avenues

	‘chanticleer’ ‘redspire’		hardy	
Quercus (Oaks)	Petraea (sessile)	large	Neater form than ‘robur’, native	Specimen, group, avenue/ parkland
	Robur (common)	Large	Native, wildlife	Specimen, group, parkland
	Rubra (red)	Large/ domed	Autumn colour bright red	Specimen, group, avenue/ parkland
	Frainetto (hungarian)	Large/ domed crown	Large handsome tree	Specimen, group, avenue/ parkland
	Palustris (pin)	Large/ upright	Neat upright form attractive foliage	Specimen, group, avenue/ parkland
	Robur ‘fastigiata’	Medium-large	Upright form	Avenue, specimen, groups
Robinia (False Acacia)	pseudoacacia	Medium- large	Ornamental foliage, yellow flowers, hardy can be brittle.	Specimen, parkland
Salix (Willows)	alba	large	Attractive foliage, wet sites	Parkland, specimen
	Matsudana ‘tortuosa’	Medium-large	Corkscrew stems	Specimen, group, parkland tree
	X chrysocoma	Large/weeping	Weeping willow (golden)	specimen
Sophora	japonica	Medium sized	Attractive folliage, and tree shape	Suited to small schemes &

				sheltered sites
Sorbus (Rowans/Whitebeam)	Aucuparia ‘asplenifolia’	small	Attractive foliage, autumn colour	Small avenues, groups, confined spaces
	Commixta ‘embley’	Small-medium	Attractive foliage, autumn colour	Small avenues, groups, confined spaces
	‘joseph rock’	small	Attractive foliage, autumn colour	Small avenues, groups, confined spaces
	Aria ‘lutescens’	Small-medium	Neat shape, attractive, foliage	Small avenues, groups, confined spaces
	folgneri	Small- medium	Attractive foliage, autumn colour	Small avenues, groups, confined spaces
	hupehensis	Small-medium	Attractive foliage, autumn colour	Small avenues, groups, confined spaces
	intermedia	medium	Attractive foliage, fruit etc	Avenue, group, open spaces, parkland
	domestica	medium	Attractive foliage, good form	Parkland, specimen, group, open spaces
	torminalis	small	Attractive foliage	Parkland,

				openspaces
Tilia (Limes)	Cordata (plus Green Spire)	large	Attractive foliage, canopy (aphid free)	Parkland, groups, avenues
	tomentosa	Large/ spreading	Attractive foliage, canopy (aphid free)	Parkland, groups, avenues
	mongolica	large	Attractive foliage, canopy (aphid free)	Parkland, groups, avenues
	petiolaris	large	Attractive foliage, canopy (aphid free)	Parkland, groups,avenues
	Var ‘winter orange’	Med – Lge	Oval crown red buds and orange shoots attractive during winter	Verge and avenue schemes
Taxus (Yew	baccatta	medium		Cemeteries, parkland
	‘fastigiata’	medium		Cemeteries, Parkland
Ulmus (Elm)	Americana ‘Princeton’	Large spreading	Resistant to Dutch Elm disease	Avenue, specimen, parkland planting

RECOMMENDED ORNAMENTAL TREE PLANTING:

Large Trees for Formal Avenues

- Acer (esp rubrum, platanoides, campestre
- Aesculus indica/flav
- Corylus colurna
- Fraxinus (esp ‘raywood’)
- Fagus sylvatica
- Platanus x acerifolia
- Populus (e.g Canadensis cultivars/nigras)
- Tilia (esp cordata, petiolaris, tomentosa)

Medium Trees for Formal Avenues

- Betula (esp ermanii)
- Prunus (esp avium ‘plena; umeniko; tai haku etc)
- Pyrus (esp chanticleer)
- Smaller Acers (e.g. snakebark maples etc)
- Sorbus (e.g. intermedia, domestica, commixta)

Small Trees for Formal Avenues

- Crataegus (lavellei, ‘Paul’s Scarlet, prunifolia)
- Malus (tschonoskii)
- Sorbus (e.g. asplenifolia, lutescens, commixta ‘embley’, sheerwater seedling)

- Prunus (eg ‘Spire’)
- Pyrus (chanticleer)

Specimen Trees for Large Open Spaces

- Acer (see recommended cultivars)
- Castanea sativa
- Carpinus betulus
- Fagus sylvatica
- Gingko
- Juglans Regia/nigra
- Liriodendron tulipifera
- Nothofagus
- Platanus x acerifolia
- Quercus (see recommended cultivars)
- Salix (see cultivars)
- Tilia (see recommended cultivars)

Large Specimen Trees (Including Exotic Species)

- Acer (see recommended cultivars)
- Aesculus indica/flava/ hippocastanum
- Carpinus betulus
- Castanea sativa
- Circidophyllum japonicum
- Fagus sylvatica
- Fraxinus excelsior, jaspidea, oxycantha ‘Raywood
- Gingko biloba

- Juglans Regia/nigra
- Liquidambar stryraciflua
- Liriodendron tulipifera
- Platanus x acerifolia
- Quercus (see recommended cultivars)
- Salix x chrysocoma
- Tilia (see recommended cultivars)

Also see Conifers list below

Small Specimen Trees

- Amelanchier
- Magnolia (various inc evergreen)
- Malus
- Prunus
- Sorbus

Conifers/Evergreen

- Abies grandis
- Abies spectabilis
- Abies procera
- Auracaria Auracana – monkey Puzzle
- Cedrus Atlantica ‘Glauca’
- Cedrus libani
- Cedrus deodara
- Cryptomeria japonica

- Cypresses -
- Larix decidua
- Picea breweriana
- Picea engelmannii
- Picea pungens var glauca
- Picea orientalis
- Pinus sylvestris
- Pinus resinosa
- Pinus ponderosa
- Pinus jefferyi
- Pinus peuce
- Sequioadendron giganteaum – giant Redwood
- Taxodium distichum
- Thuja plicata
- Tsuga heterophylla

Trees for Wet sites

- Alnus cordata, glutinosa, incana
- Betula nigra
- Populus robusta, tremula, canescens
- Prunus padus
- Salix alba
- Salix x chrysocoma
- Salix matsudana

Tree planting on wildlife sites including wildlife corridors and rural countryside areas

In these areas only native planting should be used and species should be selected from the following list based on the Tees Forest Planting list. Individual species and plant mixes should be selected and designed by assessing any existing, important woodland planting in the area and this particularly applies to areas listed as SNCI (Sites of Nature Conservation Importance).

Wherever possible nursery stock of local provenance should be used
The Forestry Commission can be a useful source of advice and possibly grant aid when planting larger groups of native trees contact www.forestry.gov.uk/england

Tree and Shrub Species Considered Locally Appropriate to the Borough.

Large and Medium- Sized Indigenous Trees

• Alder	Alnus glutinosa
• Ash	Fraxinus excelsior
• Beech	Fagus sylvatica
• Birch Downy	Betula pubescens
• Birch Silver	Betula pendula
• Crab Apple	Malus sylvestris
• Field Maple	Acer campestre
• Oak Common	Quercus robur
• Oak Sessile	Quercus petraea
• Rowan	Sorbus aucuparia
• Small leaved lime	Tilia cordata
• Wild Cherry	Prunus avium
• Willow Crack	Salix fragilis
• Willow Goat	Salix caprea

- Willow White Salix alba
- Wych Elm Ulmus glabra

Small Indigenous Trees and Shrubs

- Blackthorn Prunus spinosa
- Broom Cytisus scoparius
- Elder Sambucus nigra
- Gorse Ulex europaeus
- Hawthorn Crataegus monogyna
- Hazel Corylus avellana
- Rose Burnet Rosa pimpinellifolia
- Rose Dog Rosa canina
- Rose Field Rosa arvensis
- Rose Sweet Briar Rosa rubiginosa

APPENDIX 3 TREE PROTECTION

Planning Conditions and Tree Preservation Orders (TPO'S) will be used to safeguard trees in appropriate cases. Developments that result in unjustified felling or that might cause damage or unreasonable conflict with important trees or woodland is unlikely to receive planning consent.

The British Standard 5837: Trees in Relation to Construction 2005 (gives detailed guidance on protection) and will be the main point of reference to the Council when determining applications. Stockton Borough Council will be guided by this document in its assessment of all planning applications and recommends that information be submitted in the format of this document as follows:

- Tree & Land Survey, Sections 4.1 To 4.5;
- Tree Quality Assessment, Section 4.3;
- Tree Constraints Plan (TCP), Section 5;
- Arboricultural Impact Assessment (AIA) Section 6;
- Arboricultural Method Statement (AMS) Section 7 To 12;
- Tree Protection Plan (TPP) Section 7 To 12.

Developers need to ensure that experts commissioned to advise on matters of technical content within planning applications, have the appropriate qualifications and experience. Technical information relating to trees should be provided by a suitably qualified person.

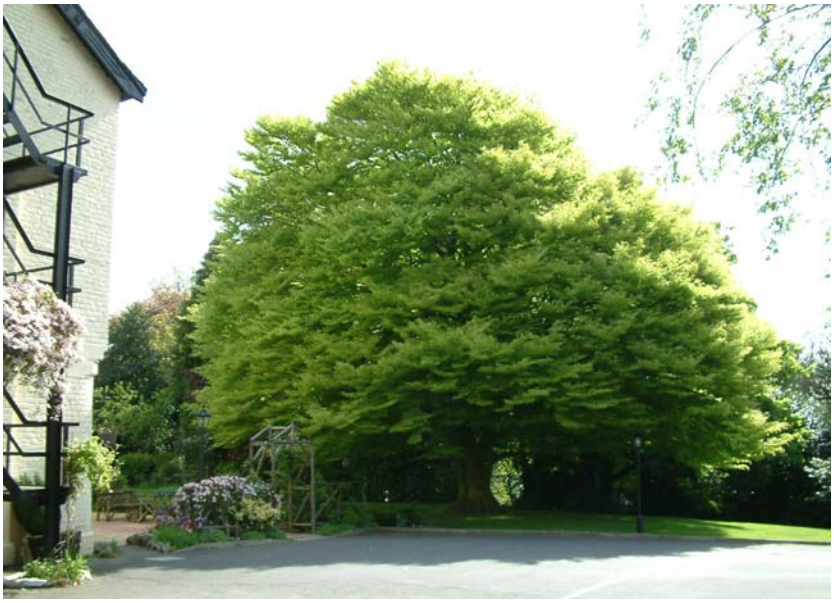
Tree and Land Survey

Land Surveys (refer to section 4.1): An accurately measured land survey should be undertaken to show all relevant hard and soft landscape features including for example, locations of all existing vegetation, buildings, boundary treatments, levels, service runs, drainage etc.

Tree Surveys (refer to section 4.2 to 4.5): Tree surveys should cover all the trees on the site and any significant trees that are located immediately adjacent to the site within 10m of the site boundary.

All trees and vegetation surveyed should be individually numbered and plotted on a site plan showing the full extent of existing canopy spreads.

The tree survey should collect the relevant information specified in the British Standard for all vegetation recorded and should be submitted as an accompanying schedule to the site plan.



Tree Quality Assessment *(Refer to Sections 4.3 To 4.5):*

Trees should be categorised in accordance with the cascade chart in Table 1. All trees need to be attributed relative values ranging from those trees of high quality and value, to those of low quality and value, in order that informed decisions can be made regarding tree management proposals.

Categories of either A, B, C and R (remove) should be allocated to each tree and colour coded on the accompanying drawings.

Root Protection Areas *(RPA's – refer to section 5.2):*

Should be calculated and plotted for all trees in category A, B or C. In order to avoid damage to retained trees the root protection area defined under each tree should either be excluded from or otherwise undisturbed by all site development activities. This normally requires protective fencing or specific controlled working methods near trees – see later sections.

Tree Constraints Plan:

The relevant survey information should be made available to the developer's project team who can then logically design the development with reference to the existing tree cover: The preparation of a 'Tree Constraints Plan' can be used as a design tool to illustrate possible constraints in relation to trees with respect to their retention value, current and future size, position, and root protection areas.

With the preparation of a plan it is possible to undertake an effective visual appraisal of the site by helping to define the available space for development and to optimise its use. At this stage and as part of initial design, consideration should be given to assigning space to account for the following:

- Building Footprints, Layout and Orientation;
- Construction Zones required;
- Access and Storage areas;
- Utility installations;

- Tree protection zones;
- Tree Retention, management or removal.

The British Standard also draws attention to developers to consider possible future effects of trees that may be a constraint in the design phase such as light restriction, and future property maintenance issues.

Arboricultural Impact Assessment *(AIA –refer to section 6):*
Further to an analysis of the tree constraints plan, an assessment of the probable impact of any proposed development on the trees and vice versa is essential to progress the final design and complete development proposals for submission. There are many design issues to take into consideration to ensure that retained trees and buildings are compatible and that any possible conflicts between the two are resolved through appropriate design and construction methods. It will usually be necessary to evaluate in more detail the possible requirements for tree retention and management following the arboricultural impact assessment and modify development proposals accordingly. Factors that need to be considered should include, for example, the following:

- Tree sizes, positions & future growth;
- Tree protection & management requirements;
- Proximity of trees to buildings, structures and hard surfacing;
- Changes in site levels;
- Changes and types of surfacing to be used;
- Engineering specifications / alternative construction methods near trees;
- Installation and layout of services;
- Demolition of buildings and structures;
- Construction site access;
- Construction site layout inc offices, parking, storage;
- Sunlight and shading;
- Site visibility, sightlines and street lighting.

Development proposals should be sympathetic to retaining and protecting trees of significant value and adequately controlling all site development activities. e.g. no works will be permitted in Root Protection Areas of trees to be retained unless it can be demonstrated they will not be of detriment to the trees' health or will use appropriate 'tree friendly' working methods.

Arboricultural Method Statement *(AMS – Refer To Section 7.1)*:
On completion of the Arboricultural Impact assessment, the final design and resultant development proposal must include an 'Arboricultural Method Statement' to detail all aspects of tree management and protection and construction methodologies that are required. This should include a Specification for Tree Works and a Tree Protection Plan as outlined below.

Specification for Tree Works:
A full specification for tree works must be given to outline management requirements for all trees, detailing the full nature, extent and reasons for proposed arboricultural operations, e.g. crown lifting of tree to 5m to clear access. This should include details of all tree works needed to allow construction; works needed to ensure compatibility of trees with the intended site use including any works required purely for 'arboricultural purposes'. Where trees require removal for development purposes and no other reason the term 'for development purposes' should be stated.

Proposed tree work operations should also be illustrated on a site plan in an appropriate format to assist in the visual appraisal of development proposals, e.g. showing trees to be retained and trees to be removed. This can be done, for example, using dotted lines or colour coding to show trees requiring work.

Tree Protection Plan *(TPP – refer to section 7.2)*
Once the layout proposals have been finalised a drawing to show Tree Protection Plan should be submitted to illustrate the precise location of protective barriers around trees and any other relevant physical protection measures including ground protection. Tree Protection must ensure adequate

protection of Root Protection Areas and aerial parts of trees and marked as construction exclusion zones on the site plan.

Details should be provided of the protective measures to be used in the accompanying written method statement but can also be annotated on the Tree Protection Plan where appropriate (refer to section 9 for specific details).

The method statement should include details of all control measures needed to protect trees for the full duration of site development and specify all design and construction methods necessary to ensure long term compatibility of retained trees and new buildings and structures: Where potential impacts cannot be avoided by the design of the scheme, specific measures such as the use of special materials and construction techniques will be required. In many cases the acceptability of the scheme will depend on these measures. The method statement should therefore be reflected elsewhere in the final design and development proposal that is submitted to the Council. Sections 11 & 12 give extensive guidance on preparing an arboricultural method statement addressing some of the main issues as follows:

- Methods for tree protection during demolition;
- Planning construction operations and supervision;
- Methods for avoiding tree root damage during construction;
- Ground Protection i.e. maintaining ground conditions for tree growth;
- Working within Root Protection Areas;
- Avoiding damage to structures by trees;
- Installation of services below and above ground (to be shown on site plan);
- Foundations within Root Protection Areas;
- Types of hard surface and their suitability in proximity to trees;
- Low-invasive vehicular access in proximity to trees;
- Soft surfaces around trees;
- Avoidance and remediation of compaction;
- Design considerations for new planting.

Details in respect of the above should therefore be submitted where necessary to complete the arboricultural method statement for submission to the Council.

Where any of the work is likely to need Highway Authorities or Building Regulation approval, the applicants should consult, and gain approval from, the appropriate authority or the Council's Building Control Team before submitting the application.

APPENDIX 4 TREE PLANTING SPECIFICATION

Tree planting will normally include light to extra heavy standard trees in the girth range 8-10cm to 16-18cm (2.5 -5m tall trees). (Some schemes may in some cases require larger trees up to 25cm girth)

Purchase of trees
Stockton council can provide a list of approved nurseries to ensure good stock is used (any trees that fail to thrive within the 5 years maintenance period will have to replaced by the developer at their cost).

Handling of trees

All trees are handled carefully at all stages from collection, storage, transporting to planting.

PLANTING USING TRIPLE STAKING & CAGE METHOD:

All materials to be supplied inc
3no. pointed treated stakes (e.g.1.5m)
Tree ties (tie wrap/belt only no blocks), nails as required.
Approved compost (e.g. organic manures)
Approved bark mulch,
Green plastic coated mesh 1.5m, fencing staples as required.

Planting pit preparation to include excavation of 1m x 1m x 0.5m pits (1m diameter, 0.5m deep edged circular pits are preferred)

Planting depth
Trees must be planted upright at the correct depth to ensure the root collar at the base of the stem is the same as the level in the nursery.
Approved compost min 80 Litre per pit to be mixed with existing topsoil before being backfilled – no subsoils, rubble or turf to be left at the top or placed in contact with tree roots.

Tree stakes
Stakes should be positioned outside 'rootball' of tree and must not damage roots. Stakes should be driven in firm and be aligned evenly spaced and upright. Tree stakes should be placed either ¼ top height of the tree or ½ clear stem height of the tree they are supporting, as suited to the variety/form of the tree.

Tree ties
Standard tree tie wrap/belt min 25mm to be used to secure tree to each stake at required stem height – no blocks, wires, boards etc to be used.

Mulch

Fully composted bark mulch to be placed 0.5m radius around each tree at minimum 50mm depth- do not use wood chip that is un-composted. Mulch must not cover the base of the tree stems.

Tree cages

Cages should be firmly secured to tree stakes up to the base of the tree canopy leaving a 200mm gap approx at ground level. The height of the cage should ideally be approximately 1.7m, however it should also be positioned and cut as suited to the form and variety of tree.

Tree watering

All trees to be watered in at the time of planting to ensure rootballs/airpots are thoroughly soaked in.

ADDITIONAL INFORMTION FOR PLANTING USING DOUBLE STAKING METHOD:

ALL MATERIALS TO BE SUPPLIED

Inc 2no. pointed treated stakes (e.g.1.5m) tree ties (tie wrap only), nails etc, compost, approved bark mulch, mesh cages where specified.

Tree stakes

Stakes should be positioned outside 'rootball' of tree and must not damage roots. Stakes should be driven in firm and be aligned evenly on the same side especially where several trees are planted. Trees stakes should be up to 1/3 rd of stem height of the tree they are supporting.

APPENDIX 5: STREET TREES FORMULA FOR CONTRIBUTIONS

The highway layout embraces design principles which follow the recently released Manual for Streets (MfS). SBC are currently assessing the impact the manual has on its current Highway Guidance (Design Guide and Specification for Residential Industrial Estate Development Current Edition) with the aim of revising our current guidance to take account of current best practice design.

Until our guidance has been revised all current applications that follow MfS principles have to be assessed on a case by case basis.

Trees and Soft Landscaping in Adopted Highway
All highway infrastructure including roads, footways, drainage and verges will generally be adopted on satisfactory completion of the maintenance period without charge. In the case of trees and soft landscaping in excess of the areas of highway grass verge a commuted sum covering maintenance costs over and above those which may normally be encountered will be required.

Activities and costs are based on likely date adoption of Highways which could be within 12 months of completion of development therefore all figures quoted assume that highway planting has received 1 full year's maintenance prior to adoption. Figures to be increased or decreased pro-rata based on date of adoption.

Tree Establishment Maintenance
Costs are based on trees being planted at a stock size of 20 - 25cm girth, Rootballed stock type, triple staked with wire tree guard.

- Watering of individual trees at 15 occasions per season (approx weekly May to August) for the second and third season at £5 per tree per occasion.
- Mulching of individual trees on 2 occasions per season for 3 seasons at £10 per tree per occasion.
- Maintenance and removal of stakes and temporary tree guards to trees in grass in year 3 at £15 per tree.

Long Term Management
Following establishment, maintenance inspections of trees on the development site will be necessary at 3 yearly intervals for a 25 year period. Inspections rate for this would be £100 per visit. (Maximum 8 No Visits).

Management including crown lifting and possible 'feathering' of any basal growth, 5 occasions per tree over the 25 year period at a rate of £30 per tree.

Surfaced Tree Pits

Where trees are to be planted in adopted hard surfacing the tree shall be placed in an appropriate tree grill / porous resin surrounds and protected by temporary metal tree guards Detail to be agreed with SBC. Permanent features shall have a minimum design life of 25 years. Should the items have a shorter life expectancy the Council will require commuted lump sums to cover replacement of these features for a 25 year period to ensure that failure of the street furniture does not compromise road safety. This clause shall apply equally to any permanent street furniture which is to be placed in adopted highway. Any temporary features shall be identified together with their maximum duration on site, during which time they shall remain fully functioning and in good condition. A commuted lump sum for removal will be agreed with the SBC.

Shrub Planting
It is assumed for the purposes of this application that no shrubs are to be planted on highway land as any shrub planting on Highway land will be subject to maintenance by the Council and therefore payment for maintenance will be by agreement of commuted lump sums in accordance with Parks and Green Spaces.

Any planting on Highway Verges shall not exceed 60cm in height on maturity and shall be planted in accordance with standard SBC specification (to be provided by SBC as part of the Detailed Planning application consultation process or Reserved Matters Application).

Bibliography

Acts of Parliament

- Highways Act 1980
- Wildlife and Countryside Act 1981

Planning policy and regulations

- Guidance on permeable surfacing of front gardens – Environment Agency
- Hedgerow regulations
- Planning Policy Statement 25 Development and flood Risk
- NJUG Volume 4 Guidelines For the Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook 19th November 2007

British Standards

- BS5837 Trees in relation to construction
- B.S 3882:2007 Specification for Topsoil
- B.S 4428:1989 Code of Practice for General Landscape Operations
- BS 3936:2007 Nursery Stock –Various
- BS 3969:1998 Recommendations for Turf for General Purposes

Other publications

- Guidance on permeable surfacing of front gardens – Environment Agency
- Tree and shrubs for landscape planting – Joint Council for Landscape Industries
- Manuel for Streets – Department for Transport
- Public Space lessons, adapting public open space to climate change- Commission for Architecture and the Built Environment (CABE)
- Tees Valley Biodiversity action plan

Stockton Borough Council publications

- Design Guidance Notes for Installation of New Play Areas
- Detailed Guidance Notes for Open Space to be transferred to council for future maintenance
- Open Space audit
- Planning obligations SPD

Useful contacts – web sites

Commission for Communities and Local Government www.cabe.org.uk

Department for Transport http://teesvalleybiodiversity.org.uk

Environment Agency www.environment-agency.gov.uk.

Forestry Commission www.forestry.gov.uk/england

Landscape Institute http://www.landscapeinstitute.org/

Tees Valley Wildlife Trust http://teesvalleybiodiversity.org.uk

APPENDIX 6: MAPS SHOWING COVERAGE OF THE PROXIMITY STANDARD