Carpinus betulus 'Streetscape'	Hornbeam sp.		
Quercus robur	Oak		
Fraxinus excelsior	English Ash		

Small trees for rear gardens:

species	common name
Crataegus lavegata 'Paul's Scarlet'	Red Hawthorn
Malus 'John Downie'	Crab apple sp.
Malus hupehensis	Crab apple sp.
Malus 'John Grewe'	Apple
Pyrus 'Beurre Hardy'	Pear
Pyrus communis 'Conference'	Pear

Hedged hedges to shrubs and front gardens:

Species	Common name
Carpinus betulus	Hornbeam
Fagus sylvatica	Common Beech
Ligustrum vulgare	Privet

Mixed native hedgerow:

species	common name	% of mix
Acer campestre	Field maple	10
Corylus avellana	Hazel	30
Crataegus monogyna	Hawthorn	30
Euonymus europaeus	Spindle	10
Ilex aquifolium	Holly	5
Prunus spinosa	Blackthorn	15

Mixed native shrub planting:

Species	Common name	% of mix
Acer campestre	Field maple	10
Cornus sanguinea	Dogwood	10
Corylus avellana	Hazel	10
Crataegus monogyna	Hawthorn	20
Ilex aquifolium	Holly	5
Prunus spinosa	Blackthorn	10
Rosa arvensis	Field rose	10
Salix caprea	Goat Willow	10
Viburnum opulus	Guelder rose	10

Native climbers:

species	size
Hedera helix	15L C3 with cane
Humulus lupulus	15L C3 with cane
Lonicera periclymenum	15L C3 with cane

Berberis candidula 'Pygmaea'	3L C0		5m2
Buddleja davidii 'Black Knight'	10L C0		2m2
Buddleja davidii 'White Profusion'	10L C0		2m2
Ceanothus x pacifiens 'Yuki Yanagi'	3 ML C0		4m2
Ceanothus 'Blue Mound'	10L C0		3m2
Ceanothus thyrsiflorus 'Repens'	3L C0		5m2
Choisya 'Aztec Pearl'	10L C0		3m2
Cornus 'Midwinter Fire'	10L C0		3m2
Corylus avellana 'Variegata'	10L C0		3m2
Cornus sericea 'Flaviramea'	10L C0		3m2
Deutzia elegantissima	10L C0		3m2
Escallonia 'Apple Blossom'	10L C0		3m2
Euonymus 'Silver Queen'	10L C0		3m2
Hebe 'Great Orme'	3L C0		5m2
Hebe 'Nicola's Beth'	10L C0		3m2
Hebe burkiana	3L C0		5m2
Hebe rakaiensis	10L C0		3m2
Hedera helix 'Green Ripple'	3L C0		5m2
Hebe/Pinus 'Pacific'	3L C0		5m2
Hydrangea arborescens 'Annabelle'	3L C0		single specimen
Hypericum 'Hidcote'	3L C0		5m2
Hypericum calycinum	3L C0		5m2
Lavandula 'Munstead'	10L C0		4m2
Lonicera pileata	3L C0		5m2
Magnolia stellata	30L C0		single specimen
Mahonia aquifolium 'Apollo'	3L C0		5m2
Mahonia x media 'Charity'	10L C0		1m2
Potentilla fruticosa 'Red Ace'	10L C0		3m2
Potentilla fruticosa 'Tangerine'	10L C0		3m2
Prunus laurocerasus 'Otto Luyken'	3L C0		4m2
Prunus lusitanica 'Myrtifolia'	3L C0		4m2
Ribes sanguineum 'McCronald's Blue'	3L C0		4m2
Rudbeckia fulgida var. deamii	3L C0		4m2
Santolina virens	3L C0		5m2
Senecio cineraria	3L C0		5m2
Sedum spectabile 'Autumn Joy'	3L C0		5m2
Skimmia confusa 'Kew Green'	3L C0		4m2
Ceratostigma plumbaginoides	3L C0		4m2
Viburnum davidii	3L C0		4m2
Viburnum tinus	10L C0		3m2
Vinca major	3L C0		5m2

Larger marginal species for shallows in balancing pond:

Botanical Name	Common Name	Specification
Alisma plantago aquatica	Water plantain	2L container 3m2
Butomus umbellatus	Flowering rush	2L container 3m2
Caltha palustris	Marsh marigold	2L container 3m2
Mentha aquatica	Water mint	2L container 5m2

SPECIFICATION NOTES

1. General.
This plan to be read in conjunction with the following documents:
Arboricultural report by others

2. General landscaping.
i. Existing levels to be preserved around retained existing trees and vegetation. Existing trees and vegetation to be retained are to be protected in accordance with BS5837: 2012 during construction.
ii. All landscape works to be undertaken by competent persons, with appropriate training and equipment.
iii. All arisings to be removed from site at contractor's expense unless noted otherwise. (e.g. woodchip, gravel, topsoil, timber sleepers).

3. Services.
The contractor must ascertain for himself/herself the exact location of underground services before commencing work.

4. Soil Materials Generally.
i. Purity: Soils shall be free from roots, stolons, rhizomes, propagules of perennial or invasive weeds couch grass, bindweed, docks, Japanese knotweed, giant hogweed and horsetail/marestail (Equisetum arvense).
ii. Foreign matter: On visual inspection, free from non-soil material, brick and other building materials and wastes, sharps, and any other foreign matter or material or substance that would render the soil or soil amelioran unsuitable for use.
iii. Contamination: Do not use topsoil, subsoil, sand or compost contaminated with rubbish or other materials that are:
•Corrosive, explosive or flammable;
•Hazardous to human or animal life;
•Detrimental to healthy plant growth.
iv. Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil, subsoil, sand or compost or other planting media to be used.

5. Soil testing
Each soil source (imported and site-won subsoil and topsoil - see items 6-8 and 10 below) shall be analysed by Tim O'Hare Associates, Howbery Park, Wallingford, Oxon OX10 8BA. Tel: 01491 822863, Email: info@toha.co.uk, www.toha.co.uk (or equivalent approved).

6. Subsoil for general planting areas (sample of site-won and/or imported subsoil to be sent for testing to check compliance with parameters below)
Provide subsoil as necessary to make up deficiency on site. Natural or manufactured subsoil (from approved source) will be acceptable (within parameters given below). Subsoil to be tested to determine suitability for proposed use for planting; test report to be submitted for approval and to enable amelioration recommendations. Subsoil should be free from commonly tested contaminants, including asbestos. Subsoil parameters to be within the following:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	35
Silt (0.002-0.05mm)	%	0	35
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	50	90
Stones (2-60mm)	%DW	–	50
Stones (>60mm)	%DW	–	0
pH Value	Unit	5.5	8.5
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (Ca2SO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	–	1.5

7. Subsoil for tree pits (sample of site-won and/or imported subsoil to be sent for testing to check compliance with parameters below)
Provide subsoil as necessary to make up deficiency on site. Natural or manufactured subsoil (from approved source) will be acceptable (within parameters given below). Subsoil to be tested to determine suitability for proposed use; test report to be submitted for approval and to enable amelioration recommendations. Subsoil should be free from commonly tested contaminants, including asbestos. Subsoil parameters to be within the following:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	18
Silt (0.002-0.05mm)	%	0	25
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	60	90
Stones (2-60mm)	% dry wt.	–	50
Stones (>60mm)	% dry wt.	–	0
pH Value	Unit	5.5	8.5
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (Ca2SO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	–	1.5

8. Topsoil for general landscapes (sample of site-won and/or imported topsoil to be sent for testing to check compliance with parameters below and to inform any necessary amelioration - see 10. below)
Existing topsoil to be stripped and re-used, provided soil is within parameters given below when analysed. Imported topsoil to be good quality sandy loam or manufactured topsoil (from approved source, meeting parameters given below). Topsoil (site-won or imported) is to be tested to determine suitability for proposed use and should be free from commonly tested contaminants, including asbestos; test report to be submitted to Landscape Architect for approval and to enable amelioration recommendations to be made:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	18
Silt (0.002-0.05mm)	%	0	35
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	50	85
Stones (2-20mm)	% dry wt.	0	20
Stones (20-50mm)	% dry wt.	0	15
Stones (>60mm)	% dry wt.	–	0
pH Value	Unit	5.5	8.5
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (Ca2SO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	4.0	8.0
Total Nitrogen	%	0.15	–
Carbon: Nitrogen Ratio	–	–	20:1
Extractable Phosphorus	mg/l	26	100
Extractable Potassium	mg/l	240	1200
Extractable Magnesium	mg/l	50	600

9. Ameliorant: fertilizer and compost (contractor is responsible for submitting a sample of imported or site-won topsoil (to inform requirements).
Topsoil amelioration to be determined by analysis. Once amelioration requirements ascertained as required, approved (peat free) composts to PAS100 and/or fertilizers to be incorporated during cultivation at required rate to full depth of growing medium.

10. Soil handling and depths.
Management of soils to be in accordance with the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
i. Topsoil and subsoil to be handled (i.e. excavated and/or imported, stored, spread, cultivated) in accordance with method agreed in writing by Landscape Architect prior to work commencing. All topsoil and subsoil areas shall be thoroughly cultivated by hand or suitable machinery to the full depth of the topsoil layer, incorporating ameliorants as required. If compaction is suspected in sub-grade, subsoil or topsoil surfaces, these should be ripped as necessary to decompact and ensure adequate drainage.
ii. Hand cultivations shall be carried out to achieve the required finish on areas where machine cultivation is impossible in subsoil to large, protective and finished locations, spread, cultivated

11. Plant handling and establishment.
Plant handling shall be in accordance with 'Handling and establishing landscape plants', published by the CPSE through the JCLI. (https://www.cxlhub.com/wp-content/uploads/2014/12/The-National-Plant-Specification-Handling-and-Establishment.pdf). The contractor shall comply with Part 3: Recommendations for plant handling from delivery to site to ensure successful establishment.

12. General planting notes.
Details for tree, hedge and general planting to be finalised once final site conditions are known (i.e compaction and permeability of ground). General plant stock to conform to BS 3936, advanced nursery stock to BS 8545, and planting to BS 4428. Plants shall be first class examples of their species or variety, free from all pests and diseases, with good fibrous root systems and materially undamaged. All planting operations to be in general compliance with BS4428: 'Code of Practice for general landscape operations'.
Only carry out all planting while soil and weather conditions are suitable:
•Do not plant during periods of frost or strong winds. Plant only during the following periods
•Deciduous and conifer trees: Late October to late March (rootball and bare root)
•Container grown plants: At any time if ground and weather conditions are favourable. Ensure that adequate watering is provided
Setting out of planting beds to be approved by Landscape Architect before work commences. Ensure that plant beds are neatly defined, and rise from adjacent paved areas as specified above. All tree pits, tree circles in lawn and planting beds are to be mulched with approved bark mulch to 75mm depth after planting.

14. Tree planting
Any proposed substitutions of species shown on plan to be approved by landscape architect prior to planting. Details for tree planting to comply with BS8545. As a guide all trees to be planted in square pits with base undisturbed unless drainage / compaction problems known. Plant at a depth where the root flare is clearly visible at the soil surface. Where trees have been supplied with free root-flare too deep excess soil or fibrous root growth should be removed before planting. All trees to have 'Pelsler' tree irrigation/aeration system installed as supplied by Platipus 01737 762300 www.platipus-anchors.com or approved equivalent. Water-in heavily after planting and mulch surface, ensuring mulch is not in contact with trunk of tree. Tree support to comply with BS 8545: Bare root trees to have a single upright stake; RB or CG trees to have double stake and bridge with adjustable tie; multi stemmed trees or trees on slopes to have angled single stake with adjustable tie; in windy locations or for large trees, install wired guying; tree stakes to be stained black. Trees to be underground guyed shall have suitable guying systems installed as supplied by Platipus 01737 762300 www.platipus-anchors.com or approved equivalent. Any necessary remedial tree works are to be carried out by an approved tree surgeon to BS 3998. Trees planted within grass areas to be set in mulched earth circles, 1m diameter around tree trunk, with turf trimmed neatly to form circle.
i. Trees up to 20cm girth.
Depth of tree pits to be the same as the rootball and with overall width to be 150mm wider than the diameter of the rootball (75mm min. from rootball edge to tree pit side. Pits to be backfilled with 300mm depth of specified topsoil over subsoil as per spec.
ii. Trees - 20cm girth and above.
Depth of tree pits to be 200mm deeper than rootball and with overall width to be 150mm wider than the diameter of the rootball (75mm min. from rootball edge to tree pit side) Pits to be backfilled with 400mm depth of specified topsoil over washed medium coarse grade sand to a depth of 200mm below rootball.

15. Hedges.
Depth of planting trench to be same as rootball, overall width150mm wider than rootball (75mm min. from rootball edge to sides of trench). Trench to be backfilled with 300mm depth of specified topsoil over subsoil as per spec. Fertiliser to be incorporated as required to ensure establishment and continued thriving of plants - type and application rate to be determined by analysis. Central post and wire supporting to be provided with two line wires and plants to be tied in using horticultural plastic ties. On planting, hedges to be trimmed to 600mm ht. and sides trimmed to neat shape where necessary.

16. Native tree and shrub mix.
All plants to be planted in cultivated planting beds with species randomly mixed for natural effect, and planted in groups of 3-5 plants of any one species. Plants to be notch- or pit-planted. Plant on grid at spacing given in schedule. Provide and install each plant with an appropriate sized recyclable staked green tree or shrub shelter (available from Tubex Ltd phone 01621 874201 or similar approved). Position shelter stake on windward side of plant, drive vertically into bottom of pit before planting, to a min. depth of 300mm and consolidate backfill material around stake; attach shelter to stake with a minimum of two ties.

17. Specimen Shrubs.
Depth of planting pit to be same as rootball, overall width space 100mm wider than rootball (50mm min. from rootball edge to sides of pit). Pit to be backfilled with 300mm depth of specified topsoil over subsoil as per spec. Fertiliser to be incorporated as required to ensure establishment and continued thriving of plants - type and application rate to be determined by analysis.

18. Shrub and Ground Cover Planting.
All plants to be planted into cultivated planting beds (with 300mm depth specified topsoil) at densities shown in plant schedule, backfilled with same topsoil. Fertiliser to be incorporated as required to ensure establishment and continued thriving of plants - type and application rate to be determined by analysis.

19. Climbers.
All climbers to be planted as 19. above and provided with steel line wires attached to the wall/fence/trellis (min 3 no.) at 300mm vertical spacing with climbers spread out and tied to wires using appropriate horticultural ties. Fertiliser to be incorporated as required to ensure establishment and continued thriving of plants - type and application rate to be determined by analysis.

20. Grass.
Turfing and seeding shall be carried out only during appropriate seasons and while soil and weather conditions are suitable for the relevant operations. Only machinery and tools suitable for the site conditions and the work to be carried out shall be used. Hand tools shall be used around trees, plants and in confined spaces where it is impractical to use machinery. The soil shall be weed free prior to turfing and seeding. Contact herbicide as specified should be applied to all areas of weed growth 4-6 weeks before grassing and repeated if necessary to maintain a weed free bed. Where deep rooted weeds are present (docks, thistles etc.) approved Glyphosate-based herbicide should be applied as a spot treatment. Turf or seed shall be laid on prepared, levelled soil (minimum 150mm depth) in the areas indicated on the drawings in accordance with BS 4428:1989 'Code of practice for general landscape operations'. All grass areas to be approved landscape quality turf for general amenity areas or lawn turf for garden areas, or equivalent seed.

21. Maintenance.
Establishment maintenance for all planting for 5 years from Practical Completion to include weed control, watering and replacement of failures to original specification in the planting season following failure:
•All plant material to receive annual pruning and hedges and groundcover to be trained and edged with minimum 2 trims per year.
•Check tree stakes and ties annually and after strong winds.
•Check shrub shelters at least twice annually to remove weeds and any soil build up inside tube. Shelters to be removed in year 3 and recycled.
•Native shrubs plants to be trimmed during winter just after planting, then twice annually in summer and autumn to encourage lower branching and dense growth.
•Lawn & amenity grass areas - Mowing is to be carried out using approved

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