GENERAL NOTES

All plants supplied shall comply with the National Plant Specification. Supplying nurseries shall be registered under the Horticultural Trade Association (HTA) Nursery Certification Scheme. All plants shall be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.

Native species shall be British provenance, where available, and certified to confirm origin.

Good Horticultural Practice
All landscaping work shall adopt good horticultural practices. Compost, mulch and soil conditioners shall be peat-free. The use of pesticides (herbicides, insecticides, fungicides, slug pellets etc) shall be discouraged. Any pesticides used shall be non-residual. i.e. glyphosate.

Protection of Existing Trees/Hedgerows
Existing trees/hedgerows retained on or overhanging the site shall be protected in accordance with BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'. Protection measures shall be implemented prior to any preliminary or preparation works on site.

Nesting Birds
To ensure compliance with the Wildlife & Countryside Act 1981 (as amended), vegetation clearance shall be undertaken outside the bird nesting season, which generally extends between March and September inclusive, dependent on weather. If birds are found to be nesting any works which may affect them shall be stopped until the young have fledged and the nest abandoned naturally.

GROUND PREPARATION
Weed Control
Prior to any excavation or cultivation of soft landscape areas treat existing weeds where necessary with a glyphosate based herbicide and allow a suitable period as recommended by the manufacturer for this to take effect.

Subsoil Depths & Acceptable Materials
Provide a minimum depth of subsoil beneath topsoil formation levels to the clearances specified below in all soft landscaped areas. Where there is insufficient depth excavate and dispose of material, loosen the formation and make up with additional subsoil or second quality topsoil. Grade to smooth flowing contours to achieve specified finished levels of topsoil.

Acceptable Materials
Additional subsoil or second quality topsoil shall be free of pests, diseases, visible fragments and roots of aggressive weeds, sticks, straw, turf and significant quantities of foreign matter such as building materials, vegetation, lumps of clay, and the like. Do not use any materials contaminated with rubbish or other materials that are:
- corrosive, explosive, or flammable
- hazardous to human or animal life
- detrimental to healthy plant growth

Contaminated Subsoil
Thoroughly clean existing subsoil of all builders rubbish to full depth before ripping the ground.

Subsoil Treatment
Prior to spreading topsoil and when ground conditions are reasonably dry the subsoil shall be thoroughly loosened to full depth using a winged tine cultivator. The spacing between the tine furrows shall be close enough to cause the uplifting and fracturing of the soil throughout the treatment depth. Remove any stones larger than 75mm and other items including bricks, kerbs, lumps of concrete, plaster, timber, plastic, glass, metal and any other building debris brought to the surface.

Soil Requirements
Imported subsoil to ***BS 8601: 2013***
Imported topsoil to ***BS 3882: 2015 -*** multi-purpose for general landscaping operations.

Minimum placement depths:
- Amenity grass: 600mm comprising 150mm topsoil over suitable sandy subsoil
- Shrub beds: 600mm comprising no more than 300mm topsoil over suitable sandy subsoil
- Tree pits: Refer to key for specific requirements

Handle topsoil in the driest conditions possible. Do not handle during heavy rainfall. Break up compacted topsoil to full depth prior to cultivation.

New Tree Planting Adjacent Services & Structures
All trees and shrubs, whether existing, felled, or proposed, on or adjacent to the site shall be taken into consideration by the client's structural engineer when calculating foundation types and depths.

- No tree shall be planted within 6m of centreline of an adoptable sewer
- All trees planted within 3m of a building or heavily loaded structure shall have their roots deflected away by means of a high density deep application root barrier to avoid direct damage from future tree growth.
- All trees within 2m of a masonry boundary wall, or within 3m of any hard paved surface or underground service, shall have their roots deflected away by the installation of a tree root barrier system to avoid direct damage from future tree growth.

Root Barrier System
- For protection of building foundations: ReRoot 2000 high density deep application root barrier as supplied by GreenBlueUrban Ltd., or similar
- For protection of pavements only (surround applications): Root Director preformed root protection system as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature trunk (to be advised by manufacturer)
- For protection of pavements & underground services/utilities(linear applications): ReRoot ribbed root barrier as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature trunk (to be advised by manufacturer)

Installation in full accordance with manufacturer's instructions.

The Landscape Contractor shall be responsible for acquiring 'As-Built' drain and service plans before commencing work on site.

ESTABLISHMENT AFTERCARE

Maintenance operations for all new planting, including Contractor's initial 12 months defects and aftercare period, shall include:

Native Trees & Shrubs In Grass Plots
- Weed Control - A translocated herbicide shall be applied around individual trees and shrubs to maintain a 600mm diameter weed free circle
- Firming - Any plants which have been subject to frost heave or wind rock shall be straightened to an upright position and the ground re-firmed
- Pruning - Where required, trees and shrubs shall be pruned to ensure an appropriate habit and form is maintained and to encourage healthy growth; remove any dead, broken, or damaged branches by pruning back to healthy wood
- Stakes, shelters and ties (where fitted) shall be checked and adjusted to allow for the growth of each plant, and replaced where missing or damaged. Vegetation within shelters shall be pulled by hand
- Stakes, shelters and ties shall be removed 5 years after planting or when no longer required

Ornamental Shrubs & Hedgerows
- Weed Control - All planting beds and base of hedges shall be kept weed free by hand weeding or herbicide treatment. Top up mulch twice annually in spring and autumn to maintain original specified depth.
- Firming & Pruning - firm and prune all newly planted shrubs in accordance with good horticultural practice to promote healthy, bushy growth and to ensure individual plants establish dense cover as rapidly as possible. Any damaged shoots or branches shall be pruned back to healthy wood
- Trim back growth overhanging adjacent footpaths and parking areas
- Native Mixed Hedges - once established, trim annually on rotation one side at a time. Trimming shall be carried out during the dormant season from November to March, taking care not to disturb nesting birds
- Hornbeam Hedges - once established clip annually one to three times during the summer to maintain desired shape and height, taking care not to disturb nesting birds
- Monitor health and control pests and diseases
- Watering - water as required to ensure establishment and survival (see below)

Specimen Trees
Individual trees planted as specimens shall be inspected annually during the growing season and maintained as follows:
- Firm and straighten to an upright position as required
- Maintain irrigation systems/pipes in good working order. Irrigation pipes shall be checked and repaired as necessary
- All tree stakes and ties are to be checked and adjusted if too loose, too tight, or if chaffing is occurring. Any broken stakes are to be replaced
- Formative pruning to include: removal of epicormic shoots, deadwood, competing secondary leader shoots, and closely spaced, duplicated branches with potentially weak or tight forks. All tree works to be carried out in accordance with BS 3998:2010.
- Apply an annual application of slow release fertiliser during March and April at a rate of 50g per tree
- Watering - Water as required to ensure establishment and survival (see below)

Watering
During the first two years after planting a monitored watering regime shall be implemented, commencing from the end of March/early April to the end of October - depending on weather conditions. Apply water when there has been no appreciable rain for 7 days or when there has been drying winds or very high temperatures.

Replacement of Failed or Defective Plants
Following the initial 12 months defects period any trees or plants which within a period of 5 years from the completion of the development are missing, found dead, or are seriously damaged or diseased shall be replaced in the next planting season.

GRASSLAND ESTABLISHMENT & MANAGEMENT

Establishment (first year after sowing):
- Areas which fail to germinate or establish shall be re-turfed or re-seeded as required
- Amenity Grass - all areas shall receive 2 establishment cuts; first cut carried out once height of initial growth reaches 50mm, with grass cut to a finished height not exceeding 30mm. Second cut shall be carried out when the grass once again reaches 50mm. All arisings shall be removed. After the second cut all turfed areas shall be rolled and all stones removed.
- Tussock Grass - annual weeds shall be controlled by topping or regular mowing until the sown grasses are established. Control perennial weeds by spot application of herbicide, or by pulling (Ragwort)

Management once established:
- Amenity Grass - cut to a height between 20-30mm throughout the growing season (March to October inclusive) to maintain a neat tidy appearance. Remove all arisings. Reform edges as required
- Tussock Grass - control scrub and bramble by cutting every 2-3 years between October and February on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.
- All grassed areas - Control perennial weeds by occasional spot treatment with a herbicide, or by pulling (Ragwort)

PLANT SCHEDULE

SPECIMEN TREES

Species	Girth (cm)	Form	Height	Condition	Qty
Acer campestre 'Elegant'	14-16cm	Extra Heavy Standard	425-600cm	Rootball	5
Betula pendula	14-16cm	Extra Heavy Standard	425-600cm	Rootball	12
Pinus sylvestris	40-45cm	Heavy Standard	350-400cm	Container grown	11
Prunus avium 'Plena'	14-16cm	Extra Heavy Standard	425-600cm	Rootball	10
Sorbus aria 'Majestica'	14-16cm	Extra Heavy Standard	425-600cm	Rootball	6

NATIVE MIXED HEDGE

Hedge				NH1	NH2
Length (m)				41	130
Species	%	Height	Root Condition	Qty	Qty
Acer campestre (Field Maple)	15	60-80cm	1+1 bareroot transplant	31	97
Cornus sanguinea (Dogwood)	15	60-80cm	1+1 bareroot transplant	31	97
Corylus avellana (Hazel)	15	60-80cm	1+1 bareroot transplant	31	97
Crataegus monogyna (Hawthorn)	30	60-80cm	1+1 bareroot transplant	61	196
Ilex aquifolium (Holly)	10	60-80cm	3 litre container	20	65
Viburnum opulus (Guelder Rose)	15	60-80cm	3 litre container	31	98
Total				**205**	**650**

Plant in single species groups of 3-9no with groups evenly distributed along the entire length of the hedge.

NATIVE HORNBEAM HEDGE

Hedge				HH1	HH2
Length (m)				106	47
Species	%	Height	Root Condition	Qty	Qty
Carpinus betulus (Hornbeam)	100	60-80cm	1+1 bareroot transplant	530	235

NATIVE TREE & SHRUB MIX WITH STANDARD TREES

PLOT				NTS1	
Total Area (m2)				2074	
Transplants & Shrubs	%	Height	Condition	Qty	Group Size
Species					
Acer campestre (Field Maple)	5	60-80cm	1+1 bareroot transplant	46	10-20
Betula pendula (Silver Birch)	5	60-80cm	1+1 bareroot transplant	46	10-20
Carpinus betulus (Hornbeam)	2.5	60-80cm	1+1 bareroot transplant	22	5-10
Corylus avellana (Hazel)	20	60-80cm	1+1 bareroot transplant	179	20-30
Crataegus monogyna (Hawthorn)	20	60-80cm	1+1 bareroot transplant	179	20-30
Ilex aquifolium (Holly)	5	60-80cm	3 litre container	45	5-10
Malus sylvestris (Crab Apple)	5	60-80cm	1+1 bareroot transplant	46	10-20
Prunus avium (Gean)	5	60-80cm	1+1 bareroot transplant	46	10-20
Prunus spinosa (Blackthorn)	10	60-80cm	1+1 bareroot transplant	90	10-15
Quercus robur (Oak)	7.5	60-80cm	1+1 bareroot transplant	62	5-10
Sorbus aucuparia (Rowan)	5	60-80cm	1+1 bareroot transplant	46	10-20
Viburnum opulus (Guelder Rose)	10	60-80cm	1+1 bareroot transplant	90	10-15
Standard Trees	**Girth (cm)**	**Height**	**Condition**		
Species					
Carpinus betulus (Hornbeam)	8-10cm	250-300cm	bareroot	9	
Quercus robur (Oak)	8-10cm	250-300cm	bareroot	27	
			Plot Total	**933**	

All trees and shrubs shall be planted at 1.5m c/s (0.45 plants per square metre) in single species groups of the size shown, except for standard trees which shall be planted as individual specimens as indicted on the drawing. Groups shall be evenly distributed across the plot.

NATIVE SHRUB MIX WITH STANDARD TREES

PLOT				NS1	NS2	NS3	NS4	
Total Area (m2)				150	155	196	242	
Transplants & Shrubs	%	Height	Condition	Qty	Qty	Qty	Qty	Group Size
Species								
Corylus avellana (Hazel)	30	60-80cm	1+1 bareroot transplant	43	45	57	71	10-20
Crataegus monogyna (Hawthorn)	30	60-80cm	1+1 bareroot transplant	43	45	57	71	10-20
Ilex aquifolium (Holly)	10	60-80cm	3 litre container	14	15	18	24	5-10
Prunus spinosa (Blackthorn)	15	60-80cm	1+1 bareroot transplant	22	22	29	35	5-10
Viburnum opulus (Guelder Rose)	15	60-80cm	1+1 bareroot transplant	22	22	29	35	5-10
Standard Trees	**Girth (cm)**	**Height**	**Condition**					
Species								
Carpinus betulus (Hornbeam)	8-10cm	250-300cm	bareroot	2	2	2	2	
Quercus robur (Oak)	8-10cm	250-300cm	bareroot	4	4	4	4	
			Plot Total	**150**	**155**	**196**	**242**	

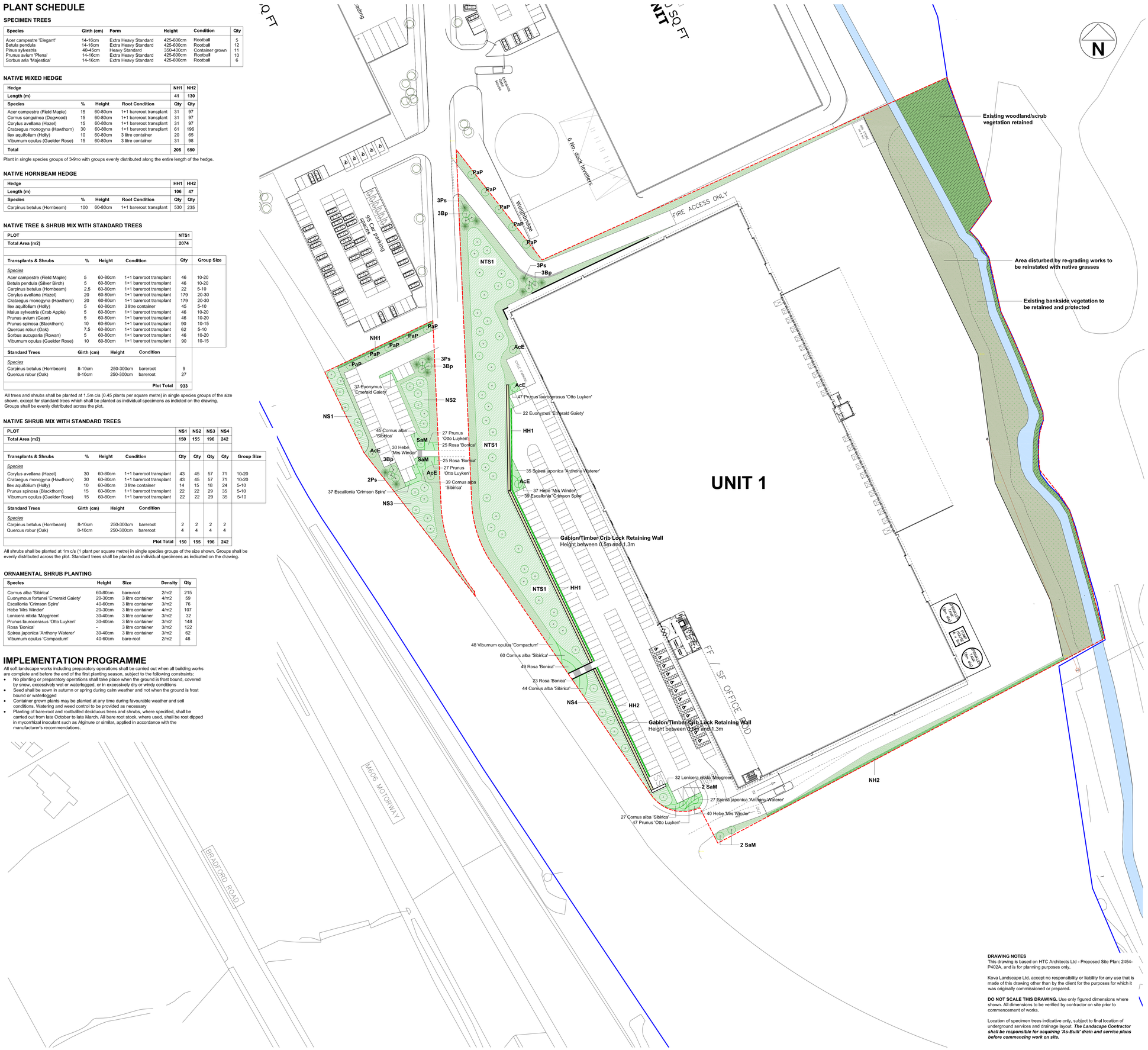
All shrubs shall be planted at 1m c/s (1 plant per square metre) in single species groups of the size shown. Groups shall be evenly distributed across the plot. Standard trees shall be planted as individual specimens as indicated on the drawing.

ORNAMENTAL SHRUB PLANTING

Species	Height	Size	Density	Qty
Cornus alba 'Sibirica'	60-80cm	bare-root	2/m2	215
Euonymous fortunei 'Emerald Gaiety'	20-30cm	3 litre container	4/m2	59
Escallonia 'Crimson Spire'	40-60cm	3 litre container	3/m2	76
Hebe 'Mrs Winder'	20-30cm	3 litre container	4/m2	107
Lonicera nitida 'Maygreen'	30-40cm	3 litre container	3/m2	32
Prunus laurocerasus 'Otto Luyken'	30-40cm	3 litre container	3/m2	148
Rosa 'Bonica'	-	3 litre container	3/m2	122
Spirea japonica 'Anthony Waterer'	30-40cm	3 litre container	3/m2	62
Viburnum opulus 'Compactum'	40-60cm	bare-root	2/m2	48

IMPLEMENTATION PROGRAMME

All soft landscape works including preparatory operations shall be carried out when all building works are complete and before the end of the first planting season, subject to the following constraints:
- No planting or preparatory operations shall take place when the ground is frost bound, covered by snow, excessively wet or waterlogged, or in excessively dry or windy conditions
- Seed shall be sown in autumn or spring during calm weather and not when the ground is frost bound or waterlogged
- Container grown plants may be planted at any time during favourable weather and soil conditions. Watering and weed control to be provided as necessary
- Planting of bare-root and rootballed deciduous trees and shrubs, where specified, shall be carried out from late October to late March. All bare root stock, where used, shall be root dipped in mycorrhizal inoculant such as Alginure or similar, applied in accordance with the manufacturer's recommendations.



KEY

Proposed Landscaping

Specimen Tree Planting
Tree planting in accordance with BS 8545: 2014 'Trees: from nursery to independence in the landscape - Recommendations"

Trees in Soft Landscape Areas
- Trees shall be planted into prepared pits. Excavated topsoil and subsoil shall be retained for backfilling. Tree pits shall be at least 300mm wider and 75mm deeper than the tree root system/rootball when fully spread, with a minimum size of: 900mm x 900mm for standard (8/10) trees, 750mm deep; 1200mm x 1200mm for extra heavy standard (14/16 to 18/20) trees, 900mm deep; and 1600mm x 1600mm for semi-mature (40/45) trees, 900mm deep. Where necessary the depth shall be increased to accommodate the depth of the rootball and to obtain the correct planting level. Fork over the bottom of the pit to an additional depth of 200mm, and leave slightly domed to assist drainage, air movement, and root penetration. Care shall be taken to prevent smearing of tree pit sides.
- Tree pits shall be backfilled with excavated topsoil and subsoil, where suitable for re-use, to replicate a natural soil profile comprising 300mm depth of topsoil over suitable sandy subsoil, with a 150mm thick layer of river washed gravel or crushed stone laid at the base of the pit to facilitate drainage. During backfilling, the tree shall be gently shaken at regular intervals to settle the soil closely around the roots. The backfill shall be firmed in layers not exceeding 150mm to a finished level equivalent to the nursery soil mark on the tree.
- Trees shall be supported with double stakes driven vertically at least 300mm into the bottom of the tree pit before planting, close to the tree position on the windward side. Tree shall be fixed firmly but not rigidly to stake with Toms rubber tree ties. The above ground height of the stake should be a minimum of a third of the stem height. All stakes shall be 60mm diameter softwood, peeled chestnut, larch or oak, free from projections and large or edge knots, with a pointed lower end.
- All stakes shall be 60mm diameter softwood, peeled chestnut, larch or oak, free from projections and large or edge knots, with a pointed lower end..
- All tree pits shall be fitted with a perforated flexible plastic irrigation pipe, diameter 80mm, inserted around the rootball during planting, at a depth of 150mm below the ground surface. The pipe shall be of sufficient length to coil completely around the root system or rootball. To be provided with two 'T' piece connections with aeration caps, located opposite each other.
- The finished compacted pit shall be topped with organic mulch spread evenly to a depth of 75mm after settlement within a 1m diameter circle around each tree. Mulch to comprise composted wood chips or bark, free of pests, disease, fungus, and weeds. Prior to application clear all grass and weed growth and water soil thoroughly.

Native Tree & Shrub Planting
NTS1
Planting shall be carried out on a 1.5m staggered grid. See plant schedule for species mix and sizes.

Native Shrub Planting
NS1
Planting shall be carried out on a 1m staggered grid. See plant schedule for species mix and sizes.

Native Hedge Planting
Double staggered row hedging at 400mm between rows and 450mm centres within each row. Plant in single species groups of 3-9no with groups evenly distributed along the entire length of the hedge. See plant schedule for species mix and sizes.

Ornamental Shrub Planting
Evergreen and deciduous flowering shrubs planted in single-species groups - see plant schedule for species, sizes, and planting density.

Areas for planting shall be treated with a translocated herbicide such as Glyphosate to clear existing weeds and herbage prior to planting and cultivated to a depth of 300mm. All weeds, roots, and stones larger than 50mm brought to the surface shall be removed off site.

Native Tree & Shrub Planting
All transplants and shrubs shall be pit planted with backfill mixed with a slow-release fertiliser applied at the manufacturer's recommended rate. All bare root stock shall be root dipped in mycorrhizal inoculant such as Alginure, or similar, applied in accordance with the manufacturer's recommendations. Water thoroughly after planting. On completion, all tree and shrub planting areas shall be seeded with a shade tolerant grass seed mix, e.g. Emorsgate EG9, or similar. Base of hedgerows shall receive a layer of organic bark mulch spread to an even depth of 75mm.

Ornamental Planting
All planting shall use pit planting techniques. Ornamental shrub pits shall be backfilled with a previously prepared mixture of 80% by volume topsoil excavated from the pit/or imported topsoil as required, with 20% well rotted organic peat free compost, and a slow-release fertiliser applied at the manufacturer's recommended rate. Water well after planting and spread a layer of organic bark mulch to an even depth of 75mm over all planting beds.

Plant Protection - Native Trees & Shrubs
Where rabbits are know to be active all transplants and shrubs shall be fitted with a standard tube guard such as Tubex Shrubshelter, 60cm high, Ø 130-160mm. All holly shrubs shall be fitted with a wider diameter tube guard such as Tubex Shrubshelter Plus, 60cm high, Ø 200mm. All guards shall be fixed to firmly anchored softwood stake using at least two cable ties. Colour of guards: Green

Amenity Grassland
To be seeded with a low-maintenance hard-wearing amenity grass mixture, e.g. Emorsgate EG22, or similar

Meadow Grass - Tussock Grassland
To be seeded with tussock grasses, which once established, require little or no maintenance, and will provide good habitat for wildlife, e.g. Emorsgate EG10, or similar.

Areas to be seeded shall be sprayed out with a glyphosate herbicide and cultivated to a depth of 100mm taking care to protect roots of existing trees retained. All weeds, debris, and stones over 25mm in diameter shall be removed off site and the surface raked to smooth flowing contours with a fine tilth. Seed shall be sown in two equal sowings in transverse directions at the rates specified. Sow in autumn or spring during calm weather and not when the ground is frost bound or waterlogged.

Existing Bankside Vegetation Retained

PLANNING

P1: First Issue	LK	02.06.20
Revisions:	Dwn:	Date:

Project: **M606 Bradford**

Client: **Tungsten Properties**

Drawing: **Soft Landscaping Proposal**

Date: 02.06.20	LK
Dwg No: KL-449-001	1:500 @ A0
Revision: P1	

DRAWING NOTES
This drawing is based on HTC Architects Ltd - Proposed Site Plan: 2454-P402A, and is for planning purposes only.

Kova Landscape Ltd. accept no responsibility or liability for any use that is made of this drawing other than by the client for the purposes for which it was originally commissioned or prepared.

DO NOT SCALE THIS DRAWING. Use only figured dimensions where shown. All dimensions to be verified by contractor on site prior to commencement of works.

Location of specimen trees indicative only, subject to final location of underground services and drainage layout. ***The Landscape Contractor shall be responsible for acquiring 'As-Built' drain and service plans before commencing work on site.***

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