

Tree Planting Scheme

(Presenting a tree and hedgerow planting scheme in accordance with BS8545: 2014 *Trees: from nursery to independence in the landscape Recommendations*)

Project: High Barton, Marford Hill, Marford, LL12 8SY

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On Behalf of: Mr & Mrs Hodgson

Foreword

Salopian Consultancy Ltd is an Arboricultural/Ecological consultancy which provides inputs to guide developers and architects during the planning process.

Core services include BS5837:2012 tree surveys, condition assessments, mortgage applications and woodland management. In addition, Salopian Consultancy Ltd have in house ecological expertise enabling them to perform a range of Phase 1 and Phase 2 ecological surveys.

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Contents

Section 1:	Introduction	1
	Planning Status	1
	Aspirations of the scheme	1
Section 2:	Tree Planting Scheme	2
	Site evaluation and constraints assessment	2
	Soil volumes and planting pit design	2
	Species selection	4
	Tree selection	4
	Hedgerow selection	5
	Nursery production and procurement	5
	Handling and storage	6
	Planting	7
	Post planning management	8
	Timing of works	9
	Concluding statement	10
Appendix 1:	Tree stock criteria	
Appendix 2:	Planting criteria	
Appendix 3:	Industry standard dimensions of planting stock	
Plans		
Plan 1	Tree Planting Plan	

Section 1: Introduction

- 1.1 This report has been prepared to accompany the Arboricultural Appraisal (**Report reference SC:720**) undertaken by Salopian Consultancy Ltd and should be read in conjunction with this document.
- 1.2 The brief of this study has been to prepare a Tree Planting Scheme in accordance with **BS8545: 2014 Trees: from nursery to independence in the landscape Recommendations**. The aim of the planting scheme is to compensate for the canopy cover lost as a consequence of development; and to widen both the species assemblage and age demographic thereby securing a robust tree population in the long term.
- 1.3 A key focus of this scheme is to detail the measures required during planting as well as aftercare and post planting management to ensure new tree planting has the best chance of achieving its full potential.

Planning Status

- 1.4 The proposal is currently the focus of a live planning application (**23/00797/FUL**) where planning permission is sought for the demolition of the existing property to make way for the construction of a larger dwelling.
- 1.5 Comments have been received by Wrexham County Borough Council's tree officer regarding the findings of the Arboricultural Appraisal. Whilst there has been no objection to the level of tree/hedgerow loss proposed. Reassurance has been requested regarding the ability of the proposal to enhance and replace canopy cover, acknowledging the small size of the site, the relative large footprint of development and existing congested nature of the tree stock. This report aims to provide this outstanding information.
- 1.6 It is anticipated that a suitably worded planning condition could be provided to consent in relation to the implementation of those tree protection measures and arboricultural supervision detailed within the Arboricultural Appraisal (report ref SC:720); as well as provisions for new tree planting included within this report. Given the recent amendments to the design an updated Tree Protection Plan will need to be undertaken prior to any works.
- 1.7 This document provides details of species selection (para 2.11 – 2.13 & **Table 1 and Table 2**), sizes of planting stock (2.17 – 2.19) and planting densities as depicted in **Plan 1**, with a timetable of actions set in **Table 3** and aftercare measures (para 2.38 – 2.43).

Aspirations of the scheme

- 1.8 The primary aim of the tree planting scheme is first and foremost to provide compensatory planting to attempt to offset the losses associated with development, and to bolster the remaining tree stock through an appropriate level of new planting.
- 1.9 Secondly, the tree planting scheme aims to ensure that those newly planted trees reach "independence in the landscape", this term forms the focus of **BS8545:2014**. Whilst a tree can

be referred to as 'established' simply by surviving in its setting, 'independence' refers to a tree flourishing in its environment and achieving its full potential.

- 1.10 Trees provide many social, ecological and cultural benefits and are recognised in terms of their economic value through the ecosystem services they provide. Such services include, but are not limited to; shade provision, pollution absorption/interception, carbon sequestration/storage and stormwater attenuation.

Section 2: Tree Planting Scheme

Site evaluation and constraints assessment

- 2.1 A **BS5837:2012** compliant tree survey was performed on the 31st of December 2022 by Salopian Consultancy to assess the Arboricultural Impacts associated with the proposed site layout **TY/1090/PL04** produced by Ty Architecture. The findings of which are detailed within the Arboricultural Appraisal, report reference **SC:720 (23/01/2023)**.
- 2.2 In summary the footprint of the single storey extension encroaches into the Root Protection Areas (RPA) of **24T** and **25T** a mature 'B grade' sycamore and beech, with a negligible level of RPA encroachment (circa 1%) identified within that of **13T**, a mature 'A grade' Corsican pine.
- 2.3 The level of disturbance to the rooting environments of the trees above (<3.5% of the RPAs in all cases), is considered to be within the species ability to tolerate and therefore hand dig methodologies have been proposed during these works to provide a degree of caution in areas where tree roots may be encountered. The use of ground protection measures have also been advised within the RPA of **T24** to accommodate the erection of scaffolding and provide sufficient working space.

Soil volumes and planting pit design

- 2.4 Whilst an assessment of the underlying soils has not been undertaken to date, it would be fair to assume that the soils within the existing lawned areas do provide sufficient pH, drainage capacity and organic matter to enable the development and growth of trees. This assumption is based upon the condition of those existing trees which display a good level of vitality within their canopy. These areas will be protected during construction using protective barrier fencing as outline within the initial Arboricultural Method Statement to avoid compaction and surface stripping/ the need to replace or remediate topsoil removed during initial stages of ground works.
- 2.5 Conversely, those areas which are currently capped by hard surfacing, or where built structures are present will have a restricted drainage capacity due to compaction. The soil environment will need to be improved following the removal of such surfacing to accommodate new tree planting.

- 2.6 Such remediation measures will involve the removal of hard surfacing, decompaction of the underlying soils and the addition of new top soil to provide a healthy rooting environment. It is generally considered that tree roots are unable to penetrate soils with a bulk density greater than 1.4 -1.6g/cc¹ therefore the remediated soils must achieve a density lower than this which can be confirmed using a penetrometer.
- 2.7 Simple checks of the underlying soil can be undertaken prior to planting to ensure soil pH and drainage of soils are sufficient. Soil readings taken from a litmus test or pH meter should fall between 5.5 to 6.5 as tree roots generally favour slightly acidic conditions with most key nutrients accessible within this pH range. A percolation test should provide a minimum reading of between 125mm/h to 250mm/h to ensure sufficient drainage for most species and to avoid water logging during periods of high rainfall. These checks will be essential when determining the proposed planting areas and level of remediation required prior to planting.
- 2.8 Many factors can affect tree growth, but one of the most influential is the rooting environment and critically the amount of soil available to support root development². There are a variety of studies and models which attempt to calculate the required minimum soil volume based on either stem diameter or canopy spread. Smiley² presents data in his review of past studies which provide some guidance on the soil volumes for trees with a stem diameter between 100mm and 610mm. These calculations broadly correlate with that of the soil volume calculator produced by Green Blue Urban which uses the projected mature canopy diameter to calculate required soil volumes.
- 2.9 The Green Blue Urban calculator has been used to calculate the required soil volumes to allow these tree to reach maturity provided within **Table 2** using the maximum anticipated canopy diameter based on the attributes provided within Hiron A, Sjomann H (2019)³ Barrell (2004)⁴ and my own knowledge of the species.
- 2.10 The planting pit design will follow the example shown in **Figure 1** overleaf, reproduced from **Figure F.3** of **BS8545:2014**. The addition of a irrigation pipe would be beneficial to aid infiltration of air and water.

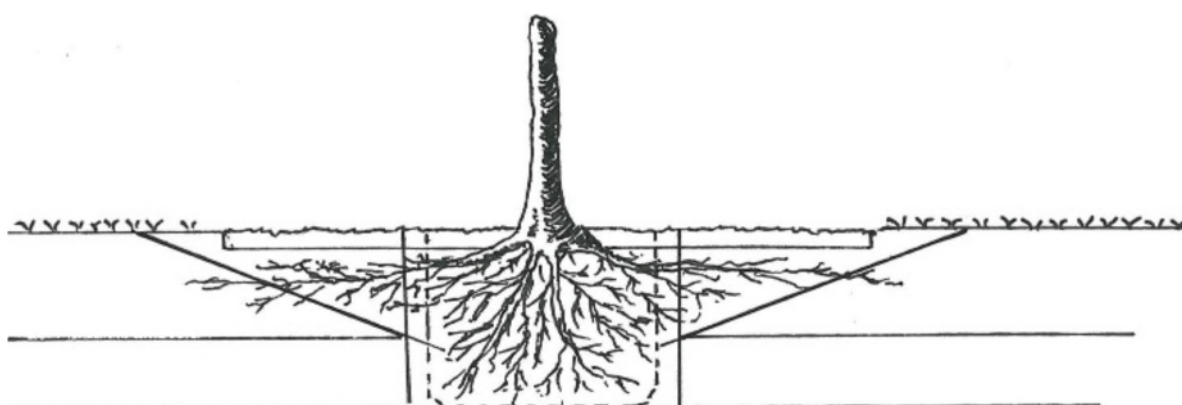
¹Hiron.A & Percival.G (2011) Fundamentals of tree establishment: a review (2011) *Conference: Trees People and the Built Environment*

²Smiley .E Soil for Urban Tree Planting, Research laboratory technical report, Bartlett Tree Experts) Soil volumes

³Hiron A, Sjomann H (2019) *Trees Species Selection for Green Infrastructure A Guide for Specifiers*. Trees & Design Action Group

⁴ Barrell.J (2004). Fastigate trees:fools gold or a winning strategy. Article in essential ARB Issue 13

Figure 1 Planting pit design



Species selection

Tree selection

- 2.11 Compensatory planting of a single regular 8 – 10 (St) standard of tassel cherry (*Prunus Litigiosa*) which has a fastigate upright form, as well as a single half standard (HST) 4 – 6 *Amelanchier x grandiflora* "robin hill" has been proposed.
- 2.12 The choice of these tree species have been selected within the locations shown in **Plan 1** given their tolerance to shade and small stature. These attributes have been chosen to minimise the potential conflicts with structures/parking areas and future growth. Such rationale is important to ensure there are no undue pressures to remove trees in future years once they reach their mature stature.

Table 1. Tree species selection, quantity, size and production system

Species	Quantity	Size	Nursey production systems
<i>Amelanchier x grandiflora</i> "robin hill"	1	Half standard	Containerized
<i>Prunus Litigiosa</i>	1	Regular standard	Root ball

Table 2. Soil volume/planting pit required to ensure new tree planting can flourish

Species	Anticipated mature canopy spreads (m)	Soil volume (m ³) required using Green Blue Urban soil volume calculator	Width and length of plating pits (m) all of which are 1m in depth
<i>Amelanchier x grandiflora</i> "robin hill"	3 m	4 m ³	2m x 2m
<i>Prunus Litigiosa</i>	2 m	1.8 m ³	1.4m x 1.4m

Hedgerow selection

- 2.13 The planting of 12m of laurel hedgerow has been proposed to partially mitigate the loss of 23m of **22H**. This linear feature will aid in screening to and from the driveway and replacing nesting resource for birds. Hedge planting will consist of 40 – 60cm bare rooted whips, planted at a density of 6 per meter in staggered rows.

Table 2. Hedgerow composition selection, quantity, size and production system

Native Hedgerow	Sum of length of hedgerow planting	Size	Nursey production systems
Laurus nobilis	28 m	whip 40cm – 60cm at a density of 6 per meter	Bare root

Nursery production and procurement

- 2.14 Procurement will start with a nursery visit to view the tree stock in situ and check good practices are being followed, ideally when trees are in full foliage. During the selection and procurement of young trees, those factors highlighted in **Section 8.1- 8.4** of **B8545:2014**, (summarised below & overleaf) shall be assessed prior to purchase.
- 2.15 The tree stock must be marked/labelled at the nursery and details regarding age, methods of propagation, production, growing media, country of origin and date of export provided.
- 2.16 Bud graft and unions will be checked for compatibility. Those with disproportionate growth above or below the grafting/budding joint or those that have been set below the soil surface should be rejected. Trees should have a straight leader with a thick stem taper, a sound height/stem girth ratio and a well balanced branching structure.
- 2.17 **Table 1 of BS3936-1:1992**, and **Table D.1 of B8545:2014** provides guidance on height/girth ratios.
- 2.18 ‘Half standards’ are defined as having a stem diameter of 4 – 6cm at 1m and a high to 1.75m to 2m. Where containerised the container volume of half standards must be a minimum of 10 litres.
- 2.19 ‘Regular standards’ are categorised as those with a girth measurement of 8cm – 10cm at 1m and a height to 2.5m – 3m. Where produced using a root ball systems the root ball will be a minimum of 300m in line with **Table D.5 of B8545:2014**.
- 2.20 Co-dominant branches and stems will be removed or reduced as should any crossing or inward growing branches to promote healthy future growth.
- 2.21 Containerized trees will be free from circling or girdling roots, this can be checked by breaking/opening the container and checking a sample of the root system. Root flare must be clearly visible and above the soil level. A comprehensive checklist for the quality of nursery stock is provided within **Appendix 1**.

Handling and storage

- 2.22 Paragraphs 9.2 to 9.5 of **B8545:2014** discusses the common shortfalls in handling and storage of young trees which can lead to failure. The use of container grown trees has a number of benefits, one of which is their availability throughout the year but also ease of handling, storage and reducing post transplanting stress. The shortfalls of this production system are namely root circling and the shrinkage of the root growing medium post-transplanting. Sourcing planting stock which have been grown in air pots can negate concerns with circling roots.
- 2.23 Delivery times must be kept to a minimum and agreed between the nursery as should the time between loading and unloading. Additional information such as access arrangements and parking will also be agreed prior to dispatch.
- 2.24 Prior to dispatch all trees must be clearly labelled with the suppliers name, species, variety, cultivar, size and date of containerization. Trees will be irrigated immediately before loading and dispatch.
- 2.25 Trees need be loaded in a way that minimises damage from other plants and security ropes, the main stem should be fully supported throughout transit by a suitable compressive absorbing material e.g straw bales. When transported in an open vehicle, trees will be covered with an opaque sheet. Conversely, when transported in a closed sided vehicle, efforts will be needed to ensure the temperature remains cool and moist.
- 2.26 An assessment of the quality of the tree stock received upon delivery from the nursery will be performed using the suggested criteria included within **Appendix 1**. When removing a tree from it's container, or where unwrapping a root ball tree the compost ball must not fall apart and should be free from circling or girdling roots, if either occurs the tree must be rejected.
- 2.27 At the point of dispatch some production systems require the removal of the container, in such instances the root ball should be wrapped in hessian to provide a degree of protection. It is important to keep this time to a minimum prior to planting and irrigate the root system to avoid it drying out.
- 2.28 Sufficient mechanical or human resources need to be available to ensure trees can be lifted safely and in an efficient manner, taking care to not drop trees to the ground. An inspection will be undertaken at this point by the Site Manager and Arboricultural Clerk of Works (ACW) reporting any defects/breakages to the nursery and if necessary, return and replace damaged stock. Trees will be stored in an upright position in a designated storage area and planted as soon as possible.

Planting

- 2.29 Planting will be undertaken after the construction period between November – March avoiding periods of frost, adhering to the processes outlined in **Figure 7** of **BS8545:2014**. Preparation of tree pits will be undertaken after any necessary soil remediation measures and/or assessments. Each tree planting pit will be constructed in line with the design illustrated in **Figure 1** of this report, taking care to avoid soil smearing or disturbing the base of the pit. The planting pit should be no deeper than the root ball and at least 75mm wider than the root system.
- 2.30 The use of geo textiles should be avoided to promote root development into the surrounding soils. The tree pit will be back filled gradually with the same topsoil taken from the excavation and firmed to avoid air pockets whilst avoiding compaction. Care must be taken to avoid raising the finish level above the root flare and support provided throughout this process to ensure the tree remains upright.
- 2.31 After planting the tree pit will be watered until it becomes saturated. Tree supports will be installed and mulch applied to the surface. Only the number of trees which can be planted in one occasion will be moved from the storage area to avoid unnecessary handling and desiccation of tree roots.
- 2.32 There are a number of tree supports available and methods of attachment. **Appendix F.2.1** of **BS8545:2014** highlights the benefits of attaching supports low, to promote stem thickening and a healthy stem taper above the natural root flare. The use of a rubber tree tie attached to a timber post at 30cm above ground level is recommended. Each post will be driven approximately 30cm below ground level, placed on the windward side of the tree to ensure adequate support is provided. Care will be taken to ensure the wooden stake(s) is not driven through the root ball.
- 2.33 **Appendix G.2** of **BS8545:2014** acknowledges there is no single formula for the volumes of water to apply to newly planted trees and the frequency is dependent on many factors. In most species, root growth ceases when soil moisture is reduced to below 14%. Installation of a Treegator irrigation system per tree is advised as a slow-release system to allow gradual irrigation avoiding the wilting point of trees or conversely waterlogging by over watering. This product is easy to install and requires minimal maintenance with refilling required every 5-7 days during dry periods. The use of this product is advised over the first two growing seasons for all newly planted trees.
- 2.34 The benefits of using organic mulches have been well documented in improving the soil environment for both newly planted trees and those within the mature age classes. These benefits include, but are not limited to; weed suppression, nutritional enrichment, regulating pH, moisture and temperature fluctuations, suppression of pathogens (*Phytophthora* & *Armillaria* ⁵) and mitigating compaction of soils. To provide such benefits, an organic mulch

⁵Percival G. Controlling tree diseases: thinking outside the box. Arboricultural Association The Arb Magazine 42 -45.
<https://www.bartletttree.co.uk/resources/Controlling-Tree-Diseases-Thinking-Outside-the-Box.pdf>

applied to a radius of 0.3m is advised for all newly planted trees at a depth of 50mm – 100mm in accordance with **F.2.2** of **BS8545:2014**. Care must be taken not to pile mulch directly against the lower stem/root flare.

- 2.35 An additional benefit of adding mulch circles is this provides some deterrent from mechanical damage during grass strimming and mowing operations. This is often the culprit of damage to young planted trees and often leads to failure to become established.
- 2.36 Hedgerow shrubs shall either be notch planted or trench planted. Where trench planted, trenches shall be dug to a minimum depth of 400mm and width of 600mm, with the plants put into the ground at the same depth at which they had been previously grown in the nursery. All plants need to be well heeled in after planting and watered during dry weather.
- 2.37 Most hedging plants are supplied as bare root specimens; therefore, it is essential to ensure plant roots do not become desiccated. It is recommended plants are kept under a moist cloth/hessian or temporarily heeled in in bulk during planting. Hedges shall be planted between November and March while plants are still dormant at a density of six 40-60cm whips per meter in a staggered formation. Planting will not be undertaken in very cold or wet weather to prevent frost damage or water logging of roots.

Post planting management

- 2.38 Post planting management and maintenance is discussed in **Section 11** of **BS845:2014** and forms three main components, irrigation, formative pruning and routine assessment/maintenance as discussed below.
- 2.39 The frequency and volume of water required is dependent on seasonal factors but must be undertaken for at least the first two growing seasons. Where there is 10 consecutive days of the growing season >25 degrees an increased frequency of watering will be required. A soil moisture probe/tensiometer can be used to monitor soil moisture and action will be taken before moisture content drops below 14%. The use of Treegator systems will be used to facilitate effective irrigation as detailed in paragraph 2.33 of this report to ensure the availability of water through dry periods.
- 2.40 Formative pruning will be undertaken during the early years of a trees development to promote a healthy and structurally sound branching structure. Such provisions at an early stage can avoid the development of defects and poor growth forms such as included unions and crossing branches in maturity. Pruning must be undertaken in accordance with those practices detailed in **BS3998:2010 Tree work. Recommendations**, avoiding cutting into the branch collar.

- 2.41 A formal assessment of new planting will be undertaken annually for the first 5 years to identify the need for maintenance or intervention using the suggested criteria included within **Appendix 2**.
- 2.42 Any plants which have failed within this period will be replaced. Leaf size, density, colour, shoot extension can all be used to monitor the vitality of a tree. Where discoloured foliage, necrotic spots or leaf scorching is identified remedial action may be necessary informed by further investigative studies. An assessment of leaf chlorophyll fluorescence is possible using equipment such as Arborcheck to compare readings against baseline data to identify deficiencies.
- 2.43 Stakes and ties will be monitored over the course of a trees development and removed in year 3 before the tie girdles the stem. Support over two growing seasons is usually sufficient to allow the development of a sufficient root system to support a tree. The timetable below has been prepared to set out the sequence of events discussed above over a 3-4 year period, with assessment criteria for post planting condition and monitoring included within **Appendix 2**

Table 3. Timetable of works

Action	Year 1	Year 2	Year 3/4
Procurement of trees (see Appendix 1)	September - October		
Ground/planting pit preparation	November - March		
Tree planting	November - March		
Addition of mulch to suppress weeds	April - August		April - August
Monitoring (see Appendix 2)		June - August	June - August
Formative pruning			October – February
Removal of stakes & supports			October – February

Other matters – Root barriers

- 2.44 The use of root barrier/deflectors is an important tool to prevent root development in areas which may cause damage to hard surfacing and other aspects of the built environment.
- 2.45 This is particularly pertinent for shallow rooted species which can cause conflict with paved surfaces. It is also useful where there are concerns with tree roots encroaching into services and drainage runs.
- 2.46 An important requirement of the barrier/deflector is to ensure that the lip protrudes above the soil surface to prevent roots growing over it and needs to be deep enough to deter roots from growing under it.
- 2.47 Barriers/deflectors can be produced in many forms and materials, including geotextiles, plastic, concrete or metal screening. Ideally a permeable geotextile product should be used to ensure the free movement of water to and from the rooting environment to avoid waterlogging.

- 2.48 The use of Green-techs 260 Permeable Root barrier would be suitable from an arboricultural stance to ensure the free movement of water between the planting pit and surrounding soils. Its use of which will be confirmed by the project engineer.

Concluding statement

- 2.49 Provided that the tree planting scheme is implemented in full and the tree protection measures detailed in Salopian Consultancy Ltd's Arboricultural Appraisal SC:720 are updated and enforced; no adverse effects upon trees proposed for retention are envisaged. The proposed tree planting scheme has been prescribed to provide a proportional level of replacement planting to compensate the loss of those trees proposed for removal.
- 2.50 It is recommended that those actions detailed within this report are implemented under the guidance of an ACW at the cost of the developer. The presence of an ACW would ensure tree-protection measures are enforced, that the compensatory planting scheme is undertaken, and an auditable process is available where requested to aid the discharge of planning condition.
- 2.51 In the event that the development proposals alter significantly, an updated impact assessment should be undertaken to identify the likely impacts upon the tree stock and amendments made to those accompanying documents accordingly.

Appendix 1: Tree stock criteria

Table 1: Assessment criteria for the quality of tree stock samples received prior to planting, prepared with reference to **Table 1 of BS 5845:2014**. Key criteria highlighted in orange. Where key criteria are not met reject sample and request replacements from the nursery. To be filled in by the Arboricultural Clerk of Works and kept as part of an auditable process.

Criteria for evaluation	Confirmation/observation and comments
General	
Is the sample alive and in good health	
Is the sample free of pests and disease	
Is there any signs of damage	
Does the sample comply with Table 1 of BS 3936-1:1992 in terms of girth and height	
Does the sample have a clear stem up to the required height	
Is the container or root balls size the volume/dimensions stated within Table 1 of BS 3936-1:1992 9 (See Appendix 3 for guidance)	
Is the tree clearly labelled with information on the “supplier’s name, species, variety, cultivar , size, with the customers name, batch number and in the case of containerized trees the date of containerization.	
Rooting system	
Rooting system must be free of girdling/circling roots	
Has information been provided regarding the length of time in the container e.g potting dates	
Does the root system contain a good network of fine, fibrous roots	
Does the compost ball fall apart when lifted from the container, or where the root ball is unwrapped	
Has there been drainage holes in the container to avoid waterlogging of roots	
Root flare/main stem	
Is the soil level above the root flare/has the sample been planted too deeply within the container	
Is there a clear stem taper and root flare, and proportional height to stem girth ratio typical of the species	
Is the stem straight	
Is there a straight leader with a well-balanced branching system	

Graft point	
Is there proportionate growth at the grafting point between stock and scion.	
Is there any abnormal flattening of the main stem indicating impairment of the vascular system	
Is there any epicormic growth associated with the graft point	
Canopy	
Is extension growth reasonable in length	
Is there any signs of leaf lesions or discoloration	
Is leaf and bud density typical of species and age, or is it sparse, is there any adventitious bud development on the main stem	
Has the sample been formatively pruned at the nursery, removing the presence of co-dominant branches/stems and included branch unions, inward growing and crossing branches.	

Appendix 2: Planting criteria

Table 2: Assessment criteria for the post planting condition of the tree stock, key criteria highlighted in orange. Where key criteria are not met immediate intervention is required to be prescribed by the Arboricultural Clerk of Works (ACW). This table is to be completed by the project ACW and kept as part of an auditable process.

Criteria for evaluation	Confirmation/observation and comments
General	
Is a reasonable quantity of the tree stock alive, in good health, and have become established	
Are there signs of pests and disease	
Is there any signs of damage	
Have trees been planted in inappropriate locations, not in accordance with the planting plan e.g close to structures, highways or overhead cables/underground utilities	
Rooting system	
Are there any signs of girdling surface roots, or over the root flare	
Are there any signs of damage on the upper side of exposed roots from mower damage	
Are there any signs of compaction/foot fall over the planting pit/planting areas	
Does the topography of the planting area suggest either waterlogging has occurred or that the site is not freely draining	
Root flare/main stem	
Is the soil level above the root flare, have trees been planted to deeply	
Is there a clear stem taper and root flare. Do trees have a proportional height to stem girth ratio typical of the species	
Are the stems of trees straight	
Do those trees planted exhibit a straight leader with a well-balanced branching system (excluding multi-stemmed species)	
Graft point	
Is there proportionate growth at the grafting point between stock and scion.	
Is there any abnormal flattening of the main stem indicating impairment of the vascular system	
Is there any epicormic growth associated with the graft point	

Criteria for evaluation	Confirmation/observation and comments
Canopy	
Is extension growth reasonable in length	
Is there any signs of leaf lesions or discoloration	
Is leaf and bud density typical of species and age, or is it sparse, is there any adventitious bud development on the main stem	
Has the sample been formatively pruned at the nursery, removing the presence of co-dominant branches/stems and included branch unions, inward growing and crossing branches	
Has pruning been undertaken in accordance with BS3998:2010 adopting target pruning back to sufficient growth points	
Is there evidence to suggest pruning has been undertaken during suboptimal times of the years e.g ring porous species, or those that produce flower during the spring	
Aftercare and support	
Has mulch been applied and annually topped up in the first three years to suppress weed competition	
Have trees been adequately supported, using an appropriate height of support to promote the development of a good root flare/stem thickening	
Is there evidence of a robust water scheme, irrigation systems or provision of slow release water systems such as Treegator	
Are the infill pipes of irrigation systems (where present) free of debris and blockages	
Is surrounding hard standing permeable	
Have planting ties been loosened following the increase in stem girth to avoid abrasion and girdling	
Have ties and planting stakes been removed after the first 3 growing seasons	
Has formative pruning been undertaken within the first 3 – 5 years. Does post planting formative pruning meet the requirements of BS3998:2010 e.g adopting target pruning back to sufficient growth points.	

Appendix 3: Industry standard dimensions of planting stock as specified within Table 1 of **BS3936-1:1992 Nursery stock Part 1:Specification for trees and shrubs**

Form	Stem girth in (cm) measured at 1m from root flare)	Overall height in (cm)	Clear stem height from root flare to lowest branch (cm)	Container size in litters (where container grown)
Seedling cutting and transplants either bare roots or cell grown	N/A	10 to 15 15 to 20 20 to 25 25 to 30 30 to 40 40 to 50 50 to 60 60 to 80 80 to 100 100 to 125	- - - - - - - - - -	N/A
Whips (W)	- - - - -	100 to 125 125 to 150 150 to 175 175 to 200 Over 200	- - - - -	N/A
Feather trees (F)	- - - - 6 to 8 8 to 10 10 to 12	125 to 150 150 to 175 175 to 200 200 to 250 250 to 300 250 to 300 Over 300	- - - - - - -	- - 10 10 15 15 15
Standard trees				
Half (HST)	4 to 6	175 to 200	125 to 150	10
Extra light (ELS)	4 to 6	200 to 250	150 to 175	15
Light (LS)	6 to 8	250 to 300	150 to 175	15
Standard (St)	8 to 10	250 to 300	175 to 200	15
Selected (SEL)	10 to 12	300 to 350	175 to 200	25
Heavy (H)	12 to 14	350 min	175 to 200	35
Extra Heavy (EH)	14 to 16	350 min	175 to 200	35
Key notes - All plant material shall be clearly labelled with information on the “supplier`s name, species, variety, cultivar, size, quantity and total quantity with the customers name, batch number and in the case of containerised trees the date of containerisation. - Bare root stock will have at least four substantial lateral roots and a well balanced fine root system - Container grown trees must include date of containerisation, and be free of circling roots (seek air pots where available . - Transplants will have been transplanted at least once and details will be provided from the nursey regarding number of years in the seed bed and years transplanted e.g 1 + 2 = 1 year in seed bed, 2 years transplanted (3 year old seedling). - Feathered trees will have a central leader with an even balanced distribution of lateral shoots from the ground level upwards. - Whips will be free of significant lateral growth.				

Plan 1:Tree Planting Plan

SCALE : 1 : 750 @ A4	DATE : 21/06/2023
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MAP FILENAME :
High Barton



Key

- | | | |
|---|---|---|
|  | Existing trees/hedgerows to be retained | |
|  | Laurus nobilis (Hedgerow Planting) | |
|  | Amelanchier x grandiflora "robin hill" | 4 - 6 (HST) Half standard (Containerized) |
|  | Prunus Litigiosa | 8 - 10 (ST) standards (bare root) |
|  | Root Barrier | |
- hedgerow planting to comprise of 40 - 60cm bare rooted whips planted at a density of 6 per meter in staggered rows

