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Arboricultural Advice in accordance with BS 5837:2012 Trees in relation to construction – Recommendations Tree survey and Impact Assessment 4/12/19

Subject Property: 10-12 Broadhalgh Road
Bamford
Rochdale
OL11 5NJ

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1 INTRODUCTION

1.1 **Brief:** I have been instructed to carry out an arboricultural survey of a proposed development at 10-12 Broadhalgh Road, Bamford, Rochdale, OL11 5NJ. The property is the gardens and driveway associated with a pair of semi-detached brick-built houses. The proposed development is a pair of 4-bedroom detached properties with associated access driveway and gardens. I will provide a tree constraints plan, arboricultural impact assessment, tree protection plan & method statement in accordance with BS5837:2012
Trees in relation to construction – Recommendations (hereafter BS5837).

1.2 **Qualifications and experience:** This report is based on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in Appendix 2. Observations or comments on structural engineering and the law are made from an arboricultural perspective. Specialist professional advice should be sought to clarify such observations.

1.3 **Documents and information provided:** I was provided with copies of the following documents:

- Site Plan as Proposed (G273-001revB - Proposals)

1.4 **Scope of this report:** This report includes an assessment of the trees in relation to potential development in order to:

1. Record principle attributes (species, height, crown spread and stem diameter).
2. Determine their quality and value.
3. Identify their remaining contribution and retention grading.
4. To identify the level of tree retention and removal and to illustrate on a tree retention and removal plan.
5. To appraise the impact of tree losses arising as a result of the proposals.
6. To appraise the impact of the proposals on the retention trees.

1.5 **Purpose of the report:** This report utilises the tree survey data to detail the arboricultural impact of the proposed layout.

1.6 **Caveats:** This report is only concerned with trees in relation to construction. It includes a detailed assessment based on the site visit and the documents provided, listed in 1.3 above. All my observations were from ground level without detailed investigations. Aerial tree inspection, invasive procedures and sub-soil investigations are outside the scope of the report. Should further assessment involving any of these be required it will be highlighted in the report.

2 BS5837:2012 - THE ITERATIVE PROCESS

2.1 Trees and the planning system – BS5837 Annex B

2.1.1 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

2.1.2 The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term "minimum detail" is intended to reflect information that local authorities are expected to seek, whilst the term "additional information" identifies further details that might reasonably be sought, especially where any construction is proposed within the Root Protection Area (RPA)[1].

2.1.3 Table B.1 Delivery of tree-related information into the planning system

Stage of process	Minimum detail	Additional information
Pre-application	Tree Survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions) Tree retention/removal plan (finalised) Retained trees and RPAs shown on proposed layout Strategic hard and soft landscape design, including species and location of new tree planting Arboricultural impact assessment	Existing and proposed finished levels Tree protection plan Arboricultural method statement – heads of terms Details for all special engineering within the RPA and other relevant construction details
Reserved matters/planning conditions	Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method Dimensioned tree protection plan Arboricultural method statement – detailed Schedule of works to retained trees, e.g. access facilitation pruning Detailed hard and soft landscape design	Arboricultural site monitoring schedule Tree and landscape management plan Post-construction remedial works Landscape maintenance schedule

[1] Root Protection Area is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

2.1.4 In support of the application the following documents have been prepared:

a. Tree survey compliant with BS 5837
b. Arboricultural Impact Assessment
c. Tree Protection Plan (including an arboricultural method statement).

3 THE TREE SURVEY

3.1 Tree survey methodology

3.1.1 A tree survey was carried out compliant with BS5837. The collected data is included below and the pertinent information is shown graphically on the Tree Constraints Plan (Appendix 1).

3.1.2 Trees are categorised in accordance with the cascade chart in Table 1 of BS5837:2012. The purpose of the categorisation process is to differentiate the quality and value of the existing tree stock so that informed decisions can be made on the retention or removal of trees.

3.1.3 The tree categories are summarised thus:
Category U: Trees unsuitable for retention that will be lost within the short term for reasons of physiology or structural integrity.
Category A: Trees of particularly high quality in arboricultural, landscape or cultural/conservation terms
Category B: Moderate quality trees downgraded from the high category because of significant defects, groups with a collective value through numbers rather than individual tree quality or trees with identifiable cultural or conservation values.
Category C: Trees with low value in arboricultural, landscape or cultural/conservation terms. Also includes young trees with a stem diameter of less than 150mm.
For trees in categories A – C subcategories 1, 2 & 3 are given to reflect arboricultural, landscape and cultural values respectively.

3.2 Findings of the survey

3.2.1 In the course of the tree survey we identified **10 individual trees and two hedges**. Of these it was found that they fell into the following quality and value grades:

QV Category	Description	No. of trees	%	No. of Hedges	%
U	Trees lost in the short term (<10 years)	1	10	0	0
A	Trees of particularly high quality	0	0	0	0
B	Trees of moderate quality	4	40	0	0
C	Trees of low quality	5	50	2	100
		10	100%	2	100%

3.3 Tree Survey Schedule Explanatory Notes

- **ID no.**: Trees are recorded using a site-specific unique identification number. This identification number is used for all references throughout the report and associated plans
- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicate it with a '?' after the name in order to avoid delay in the production of the report. The species listed for groups and hedges represent the main component and there may be other minor species not listed.
- **Estimated dimensions:** Estimated dimensions are *italicised.*
- **Height:** The height of the tree in metres.
- **Stem diameter(s):** This is measured at 1.5m above ground level and recorded in millimetres. Trees with low crowns are measured just above the root flare. For trees with multiple stems see 3.2.2 in main text. For groups the stem diameter for 80 percentile member is recorded
- **NSWE:** The branch spread is measured in metres at the four cardinal points of the compass to derive an accurate representation of the crown.
- **Ht 1st branch**: Height above ground in metres of attachment point of first significant branch (cardinal point may be given indicating direction of lowest branch).
- **Crown Clearance:** Height of the crown above ground level at the lowest point.
- **Life Stage:** Assessed as **Y**oung, **S**emi-**M**ature, **E**arly **M**ature, **M**ature, **O**ver **M**ature and **V**eteran.
- **Phys. condition:** An assessment of the physiological condition (i.e. health/vitality) status of the tree summarised into:

  Good: Generally in healthy condition
  Fair: Condition satisfactory though below mean species performance
  Poor: Tree in decline
  Dead: Self-explanatory

- **Structural condition & Notes:** Notes on the structural integrity of the tree based on visual tree assessment, including damage, decay fungi, pests, etc. as appropriate, plus other pertinent observations
- **Management recommendations:** Recommendations for retention or removal in light of the development proposals.
- **Ret. Span:** An estimate of the remaining contribution span that the tree or group of trees is expected to have, based on species, condition and context. The following longevity bands are used, categorised accordingly:

  <10 Tree is dead, dying, has a severe structural defect, or will become exposed following inevitable loss of companion shelter. Possibly requires sanitation felling Unsuitable for retention

10+ Short-term longevity only: replacement planting generally appropriate
20+ Mid-term longevity
>40 Good longevity

- **QV Grade:** Quality & Value grade classification according to BS5837
  U - Unsuitable for retention
  A - High retention priority
  B - Moderate retention priority
  C - Low retention priority
  +subcategories 1, 2 & 3 reflecting arboricultural, landscape and cultural values respectively.
- **Retention / removal colour code:**
  Trees and groups to be retained
  Trees and groups to be removed to facilitate development
  Trees and groups to be removed for arboricultural reasons

3.4 Tree Survey Schedule

FTC Ref. No. (autoincrements)	Species	Ht.	Crown Spread (m)				Ht. 1st Br.	Ht. Can.	Stem Count	Stem Dia. (mm)					RPA Rad.	RPA Area	Life Stage	Phys. Condition	Structural condition & Notes	Management recommendations	Ret. Span	QV Grade
		(m)	N	S	W	E	(m)	(m)		1 / mean	2	3	4	5	(m)	(m2)	Y-SM-EM-M-OM	G-F-P-D			<10, 10+ 20+, >40	U-A-B-C
1	Snake bark maple	2.8	1.4	1.8	1.4	1.5	1.2 - W	1.5	2	105	75				1.55	8	EM	F	Twin stems from ground level with included union where stems meet. twisted stems, but generally attractive form. No observed dieback or disease	No action required at time of survey	20+	C1
2	Common line	15.8	5.2	4.4	3.7	4	4.4 - E	4	1	*600*					7.20	163	M	F	Cannot fully assess base of tree as tree is on 3rd party land. Upright stem leads to historically reduced crown. Regrowth from reduction is good with no significant dieback or decline evident through crown. Epicormic growth on lower 4m of stem is only foliage present below major limbs at c.4.4m. No sign of basal decay	Remove epicormic growth on lower stem to facilitate access and reduce potential of damage	20+	B1
3	Variegated holly	9.4	2	1.7	1.9	1.6	1.6 - W	1.4	1	200					2.40	18	EM	F	Single stem becomes twin leader from 1.7m with included union where stems meet. No observed dieback or disease and no sign of obvious decay	No action required at time of survey	20+	B1
4	Apple	7.2	1.8	2.2	2.9	2	1.6 - W	1.6	1	210					2.52	20	M	P	Crown almost completed dominated by ivy with little healthy foliage remaining. No sign of basal decay	Fell to as low as reasonably practicable	<10	U
5	Norway maple	8.4	3	2.8	2.5	3.2	1.6 - E	2.8	1	200					2.40	18	EM	F	Single stem becomes twin leader from 1.6m with included union where stems meet. No observed dieback or disease and no sign of obvious decay	No action required at time of survey	10+	C1
6	Silver birch	15.4	6.3	3.4	6.5	4.9	2.6 - E	2.4	1	*400*					4.80	72	M	F	Cannot fully assess base of tree as tree is on 3rd party land. Upright stem with full healthy crown. Ivy covered lower stem. No observed dieback or disease and no sign of obvious decay	No action required at time of survey	20+	B1
7	Hawthorn	6.7	1.9	2.2	2.1	1.8	2.20 - W	2.4	1	180					2.16	15	M	P	Historic stem failure of E most stem has left large decaying stump and skewed/imbalanced crown.	No action required at time of survey	10+	C1
8	Silver birch	11.6	4.9	4.5	3.8	4	1.7 - W	1.5	1	*320*					3.84	46	M	F	Cannot fully assess base of tree as tree is on 3rd party land. Upright stem with full healthy crown. No apparent significant defect.	No action required at time of survey	20+	B1
9	Whitebeam	4.7	2.2	2.5	1.2	2.3	1.6 - W	2.3	2	*200*	*180*				3.23	33	M	F	Cannot fully assess base of tree as tree is on 3rd party land. Historic heavy reduction evident with moderate regrowth, but decay apparent at several pruning wounds. No observed dieback or disease	No action required at time of survey	10+	C1
10	Flowering cherry	6.2	2.3	2	1.7	2.9	1.5 - N	1.8	1	330					3.96	49	M	F	Cannot fully assess base of tree as tree is on 3rd party land. Single low stem becomes multiple leader from 1.5m. Historic heavy reduction evident with reasonable regrowth apparent, but minor decay at pruning points present.	No action required at time of survey	10+	C1

3.5 Explanatory Notes for Hedges

- **ID no.**: Unique tree group or woodland reference number.
- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed. The species listed represent the main components and there may be other minor species not listed.
- **Estimated dimensions:** Estimated dimensions are *italicised. N*
- **Height:** Height is to the nearest metre.
- **Stem diameter(s):** Stem diameter at 1.5m above ground level for 80 percentile member of TG, WG of H. Trees with larger diameters are identified on the plan at Appendix 3.
- **Width:** An estimated mean width of the hedge for trees at the 80 percentile size
- **Life Stage:** Assessed as **Y**oung, **S**emi-**M**ature, **E**arly **M**ature, **M**ature, **O**ver **M**ature and **V**eteran.
- **Phys. condition:** An assessment of the physiological condition (i.e. health/vitality) status of the tree summarised into:

  Good: Generally in healthy condition
  Fair: Condition satisfactory though below mean species performance
  Poor: Tree in decline
  Dead: Self-explanatory
- **Structural condition & Notes:** Notes on the structural integrity of the tree based on visual tree assessment, including damage, decay fungi, pests, etc as appropriate, plus other pertinent observations
- **Management recommendations:** Recommendations for intervention (e.g. tree surgery, felling, etc) prior to any development. Immediately hazardous trees will be notified to the client separately.
- **Ret. Span:** An estimate of the remaining contribution span that the tree or group of trees is expected to have, based on species, condition and context. The following longevity bands are used, categorised accordingly:

  <10 Tree is dead, dying, has a severe structural defect, or will become exposed following inevitable loss of companion shelter. Possibly requires sanitation felling Unsuitable for retention
  10+ Short-term longevity only: replacement planting generally appropriate
  20+ Mid-term longevity
  40+ Good longevity

- **QV Grade:** Quality & Value grade classification according to BS5837:2012

  U - Unsuitable for retention
  A - High retention priority
  B - Moderate retention priority
  C - Low retention priority
  +subcategories 2 & 3 reflecting arboricultural, landscape and cultural values respectively.

3.6 Hedge Survey Schedule

FTC Ref. No.	Species	Ht. (m)	Mean Width (m)	Length (m)	Mean Stem Dia. (mm)	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Structural condition & Notes	Management recommendations	Ret. Span <10, 10+ 20+, >40	QV Grade U-A-B-C
H1	Cherry laurel	1.7	1.5	16.5	75	M	F	Gaps along length of feature and varying height indicate a lack of long term management. No observed dieback or disease	Remove to facilitate development	10+	C1
H2	Cherry laurel	3.2	2.2	5.3	65	M	F	Short section of dense, but under managed hedge.	Remove to facilitate development	10+	C1

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 Tree retention and removal

4.1.1 The proposal is to construct a pair of four-bedroom detached houses within part of the existing rear gardens of 10 and 12 Broadhalgh Road. The proposal also includes construction of an access drive from the frontage along Broadhalgh road through ground adjacent to no.12 and to the rear of both existing properties. An area of parking is also proposed to the front of the new buildings. A signification portion of the existing gardens of no. 10 and 12 will be retained and gardens will be created to the front and rear of the proposed new buildings.

4.1.2 The proposal involves the removal of two short category C1 hedges (H1 and H2) to provide room for the proposed driveway and parking areas. A new, longer more continuous, hedge of similar suitable species such as hornbeam or cherry laurel is proposed to replace these lost features.

4.1.3 A single tree, T4, will be removed also, but this is due to its unsuitability for retention (category U). It is in significant decline and it unlikely to be retained for a significant amount of time. It is prudent to remove this tree before it becomes a greater hazard to users of the site.

4.1.4 All other trees on the site and immediately adjacent to the site are to be retained.

4.2 Construction in Root Protection Areas

4.2.1 Four instances of construction within the root protection area (RPA) are proposed. These are within the RPA of trees 1, 2, 5 and 6. Tree 1 is small twin-stemmed snake bark maple at the corner of the current drive entrance to no. 12. The proposed driveway to access the new properties would encroach within the RPA and change the surface make-up of 15% of the total area, well below the maximum of 20% recommended within BS5837:2012. Due to the location of this tree and its prominence beside the road, the most suitable method of construction would be a standard driveway construction of digging out and setting a solid aggregate layer then laying blocks or tarmac on top of this. To minimise the impact of the tree all digging within the RPA of this tree should be undertaken by hand and any roots <25mm diameter should be severed cleanly using by-pass loppers or secateurs. However, it is unlikely that many significant roots are found within this area due to the historic usage of the area as the driveway/entrance way to the former garage beside no.12.

4.2.2 Tree 2 is a 3rd party mature tree that has its root protection area partially under the path of the proposed driveway. The total change in surface coverage is detailed within the table below. The total area change is 18% which is, again, below the maximum recommended surface change of 20% found within BS5837:2012. The most appropriate means of construction is a no-dig

method using a load-bearing cellular confinement system. The levels on site are well suited to the use of a no-dig system and I do not envisage any issues with installation.

4.2.3 Tree 5 is a relatively small twin stem category C Norway maple on 3rd party land. Its RPA extends under the proposed footing of the Northern most proposed dwelling. The area covered is approximately 3.4m^2. This represents a significant change in open ground cover, but at 19% of the RPA it is still below that of maximum 20% set out in BS5837. Tree 6 is immediately adjacent to this and as a result small portion of its RPA, 2.1m^2/3%, is under the proposed construction. This small area is well under the previously stated maximum ground coverage change. The trees are on a raised section of 3rd party land relative to the ground level of the proposal site, as a result the majority of surface roots are likely to be found upon the 3rd party land. During excavation for the foundations in this area, all work must be undertaken using hand tools only. If/when roots are found, any under 25mm in diameter must be severed cleanly using by-pass loppers or secateurs. Any roots with a diameter greater than 25mm should only be cut after consultation with a qualified arboriculturalist.

4.2.4 Details of the open ground area changes of these trees can be found in the table below:

Tree no.	RPA (m^2)	Open ground in RPA (m^2)	RPA under proposed build (m^2)	Percentage
1	8	6.8	1.2	15%
2	163	119	21.5	18%
5	18	14.6	3.4	19%
6	72	69.9	2.1	3%

4.3 Pruning works to facilitate development.

4.3.1 Two incidents of pruning works would be required to facilitate this development. This would be the removal of epicormic shoots on the lower 4m of tree 2 that overhang the site and the crown spread reduction of the southern extent of tree 5. This is required to create a clearance of branches/foliage from the proposed access drive and dwelling that can be maintained in the future. Both trees are in fair health with no signs of dieback or decline and therefore minor pruning works such as these can easily be tolerated.

4.4 **Proximity of trees and structures.**

4.4.1 The majority of the trees that are present and to be retained on the site are situated along the Northern boundary (Tree 2 and 5-8) of the site on 3rd party land. As a result, they will not shade the proposed buildings in any significant way. Trees 9 and 10 are present on 3rd party land to the East of the proposed land. The limited shading potential of these relatively small and pruned trees will not impact the proposed dwellings as they are at the far end of the gardens, well away from the building. The single on site retained tree, tree 3 is situated at a significant distance

to the West of the proposed dwellings, this means that shading is unlikely to occur except in the early to late evenings and does not pose a significant issue.

4.4.2 The trees along the Northern boundary of the site, trees 5-8 may pose an issue with the guttering of the Northern most proposed building. It is prudent to install mesh gutter guards along at least the Northern edge of the building to minimise the risk of blockages.

4.4.3 The proposal includes planting of two semi-mature trees in the front gardens of the new buildings. These are going to a relatively slow growing and/or easily maintained trees, such as hornbeam, whitebeam or holly. This will limit their height and therefore the shade that they can cause as well as their ability to shed leaves into nearby guttering. Therefore, these trees will not pose a significant issue with shade or leaf fall.

4.5 **Tree protection during construction.**

4.5.1 Trees can be irreparably and unwittingly damaged in a few minutes during construction. Accordingly, a tree protection scheme and arboricultural method statement, has been prepared in accordance with the guidance of BS 5837 for the proposal to ensure the successful long-term retention of the tree on the adjacent property (Appendix 2).

5 ARBORICULTURAL METHOD STATEMENT

6 SUMMARY & CONCLUSION

6.1 The proposal includes the loss of a single category U tree (Tree 4) and a small amount of access pruning to epicormic growth of two other trees (2 and 5). There is also a very small amount of construction required in the RPA of three other trees (no. 1, 5 and 6), and changes in open ground areas of four trees (1, 2 5 and 6).

6.2 There will be some minor works in the RPA of trees 1, 2, 5 and 6; these works will not impact the structural stability or long-term health of the trees. An arboricultural method statement has been prepared to ensure the construction operations in the RPA of retention trees are completed using tree-focused methods.

6.3 A tree protection plan has been prepared to minimize harm to the retention trees during construction.

Hugh Wilson
Hugh Wilson MSc BSc M.Arbor A.
Director

7 APPENDICES

APPENDIX 1

TREE PROTECTION PLAN

Note this drawing is scaled for printing at A3 and is intended to be read in colour

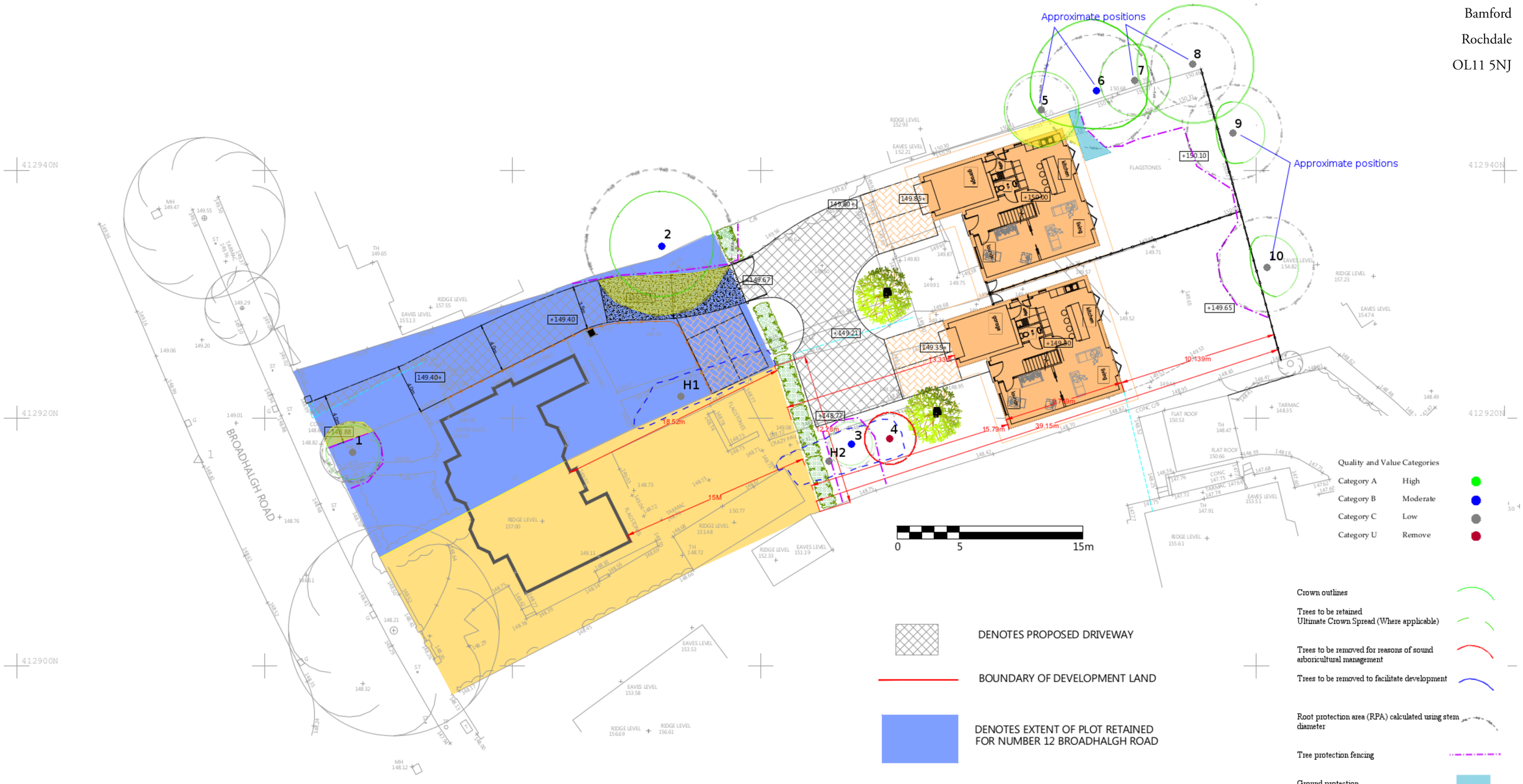
Tree Protection Plan

10-12 Broadhalgh Road

Bamford

Rochdale

OL11 5NJ



Quality and Value Categories

Category A	High	
Category B	Moderate	
Category C	Low	
Category U	Remove	

DENOTES PROPOSED DRIVEWAY

BOUNDARY OF DEVELOPMENT LAND

DENOTES EXTENT OF PLOT RETAINED FOR NUMBER 12 BROADHALGH ROAD

DENOTES EXTENT OF PLOT RELATING TO NUMBER 10 BROADHALGH ROAD

DENOTES PROPOSED HORNBEAM OR CHERRY LAUREL PLEACHED TREE HEDGE

+123.00 DENOTES PROPOSED LEVELS

Crown outlines

Trees to be retained
Ultimate Crown Spread (Where applicable)

Trees to be removed for reasons of sound arboricultural management

Trees to be removed to facilitate development

Root protection area (RPA) calculated using stem diameter

Tree protection fencing

Ground protection

Construction within CEZ

FOREST & TREE CONSULTING

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APPENDIX 2

ARBORICULTURAL METHOD STATEMENT
Note this drawing is scaled for printing at A3 and is intended to be read in colour

Instruction: 10-12 Broafhalgh Road, Bamford, OL11 5NJ
Ref: BHR 5837
Hugh Wilson MSc BSc M.Arbor A.
Forest & Tree Consulting Ltd, 40 Church Street, Trawden, Lancashire, BB8 8RU
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Arboricultural Method Statement

10-12 Broadhalgh Road

Bamford

Rochdale

OL11 5NJ



1. Prior to commencement of construction operations, a tree protection meeting shall take place attended by Forest & Tree Consulting, and the building contractor. This meeting will inform construction personnel on requirements for tree protection during construction. Pruning of epicormic growth on the Southern face of tree 2 and crown spread reduction of tree 5 to the South will be required to create clearance above the edge of the proposed construction areas. H1, H2 and tree 4 will be removed/felled prior to start of construction facilitate development and remove arboriculturally unsound features. All tree/ hedge cutting practices should conform to good practice as set out in BS3998: 2010 (Tree works. Recommendations).

2. Following completion of preparatory tree works, physical tree protection measures (fencing and ground protection) for the main build phase shall be installed in line with the provisions of BS5837 and at the locations show on this plan. These measures comprise of tree protection fencing to BS5837 figure 2 (adjacent) and ground protection areas as detailed in the diagram adjacent.

3. The fencing and ground protection system within the RPA comprise the Construction Exclusion Zone (CEZ). Within this zone, the following activities are strictly prohibited during primary construction (other than as described below):

   -Excavation/lowering of levels into rootable soil: removal of surface organic matter using hand tools is acceptable: scraping or reduction in depth of topsoil is not
   -Grubbing out of redundant buried services (see adjacent)
   -Installation of new services, including drainage
   -Formation of new hard surfaces or paths (='secondary construction':- see adjacent)
   -Operation, transit or storage of plant, and storage of materials, including during hard and soft landscaping, other than on ground protection boarding
   -Storage or handling of any chemical substance injurious to trees, including fuels, oils lubricants and cement washings

4. The CEZ shall be established site wide prior to the main build construction and shall remain in place throughout. No elements of the physical tree protection shall be removed or altered without prior written consent from the local planning authority. An area of ground protection is required to ensure that no damage is caused to trees 5 and 6 outside of the construction works within the CEZ. The area highlighted in pale blue shows where ground protection should be installed prior to any construction works starting. Ground protection should be implemented as shown in the adjacent figure

5. Within the CEZ, the few small areas of excavation work within the RPA of tree 1, 2, 5 and 6 will be supervised by Forest & Tree Consulting. Break out and replacement of existing hard surfaces and decommissioning of redundant services, including drainage structures, are also high-risk operations and shall be undertaken under site supervision by Forest & Tree Consulting. Redundant buried structures are preferably disconnected/ backfilled and retained in situ; further advice should be sought from Forest & Tree Consulting before consideration is given to grubbing them out. Any existing hard surfaces within the CEZ are to be retained and not demolished/removed until completion of main building construction.

6. Where construction is required within the CEZ (see highlighted yellow areas) it will be undertaken using hand tools only. No roots over 25mm diameter will be severed during this process. The area of construction within the CEZ around tree 2 will take the form of using a using a load-bearing cellular confinement system as shown in the adjacent figure.

7. The recommendations of BS5837:2012 6.2.4.1 and 7.2 are to be strictly observed throughout the construction process

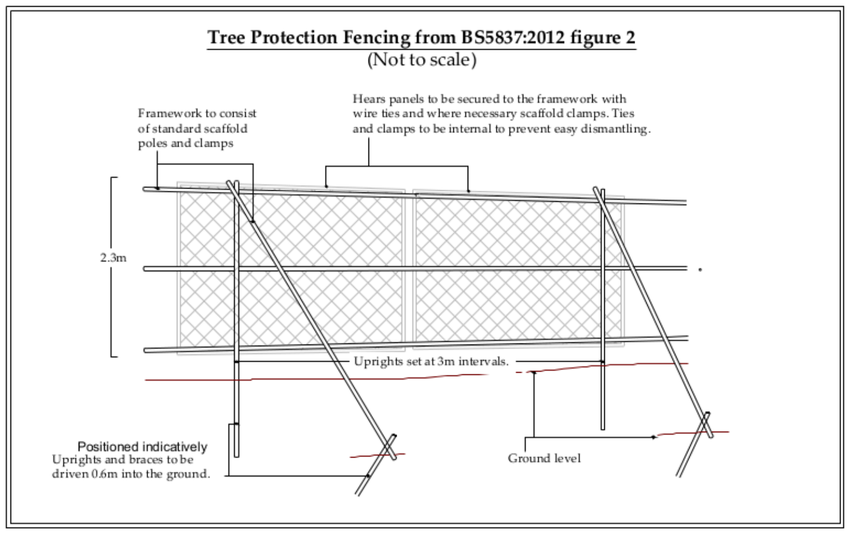
8. *BS5837: 2012 para—6.2.4.1—Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the tree and might make their safe retention impossible. Consequently, any transit or traverse of pant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance. BS 5837:2012 7.2. Avoiding physical damage to the roots during demolition or construction.*

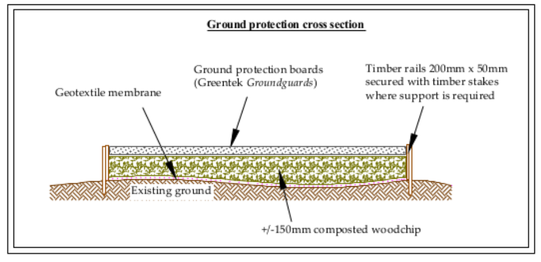
9. *Para 7.2.1 To avoid damage to tree roots, existing ground levels should be retained within the RPA intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.*

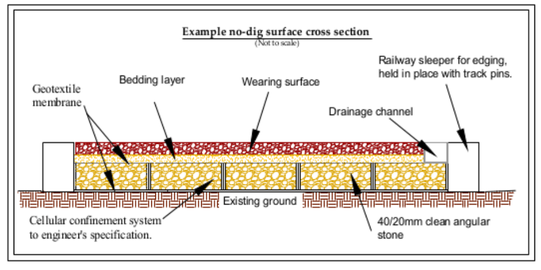
10. *Para 7.2.2 Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible.*

11. *Para 7.2.3 Roots smaller than 25mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25mm diameter and over should be severed only following consultation with an arboricultalist, as such roots might be essential to the tree's health and stability*

12. *Para 7.2.4 Prior to backfilling, retained roots should be surrounded wit topsoil or uncompacted sharp sand (builders sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots*







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APPENDIX 3

Brief qualifications and experience of Hugh Wilson

1. Qualifications
    a. MSc Forest Ecology and Management – University of Edinburgh
    b. BSc hons (2:1) Environmental Science – University of Nottingham
    c. Professional Tree Inspection

2. Practical experience
    a. Southwick Arboriculture Ltd: Tree care operative
    b. Marishal Thompson Ltd: Tree Surveyor/Assistant Arboriculturalist
    c. ADAS Ltd: Vegetation Management/Wayleave Surveyor
    d. Forest & Tree Consulting Ltd Ltd: Director/Principle Consultant

3. Continuing Professional development:
    Focused Forestry & Environmental Solutions is committed to continuing professional development to ensure all staff continue to learn and develop throughout their careers, so they keep their skills and knowledge up to date and are able to work safely, legally and effectively.
    Sample pf the seminars and conferences attended:

    - Practitioners guide to Visual Tree Assessment
    - Arboriculture Association conference 'New Horizons in Arboriculture'
    - Visual Tree Assessment, Tree Safety Diagnosis and Failure Analysis seminar by Dr. Claus Mattheck
    - The Institute of Chartered Foresters' conference Trees, People & the Built Environment

4. Membership of professional bodies:
    a. Professional member of the Arboricultural Association
    b. Associate member of the Institute of Chartered Foresters
    c. Member of the Royal Forestry Society
    d. Member of the Royal Scottish Forestry Society