



Arboricultural Impact Assessment

Tree Survey at:

Watermill Gardens

Penistone

Sheffield

S36 8AJ

Job Ref: 22037

Client:

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Introduction

1 Purpose and content of this report

- 1.1 The purpose of this report is to assess the impacts to the existing tree stock that will arise from the proposed development at Watermill Gardens, Penistone. In the first instance this report will detail the impacts to trees; those to be removed, retained, or pruned as necessary. Secondly, any proposed mitigation, compensation or protection measures will be listed, along with an overall assessment of the arboricultural impacts.
- 1.2 This impact assessment follows a BS5837 Report, provided separately. We refer the reader to the BS5837 Report for details relating to the existing tree stock. However, copies of the Tree Schedule and Tree Constraints Plan are included at **Appendix 1** and **2**, for ease of reference.
- 1.3 The Tree Schedule at **Appendix 1** includes all the data gathered during the survey. The Tree Impact Plan at **Appendix 3** overlays this information with the proposals and shows what the impacts are on the existing trees.

2 Baseline data

- 2.1 Tree Survey Solutions (T.S.S) have been instructed by the client to provide an Arboricultural Impact Assessment (AIA), including a Tree Impact Plan.
- 2.2 In order to conduct the assessment, we have been supplied with a copy of the proposals (drawing ref: 1286.04 REV 0) which, along with any discussions we have had with design team members and/or local authority officers forms the basis of the Tree Impact Plan at **Appendix 2**.

3 Proposed development

- 3.1 The proposed scheme is a residential development of 17 dwellings, with associated access, parking and garden facilities.

Arboricultural Impact Assessment

4 Tree removals for development

- 4.1 The layout has been designed to avoid any tree removals and so none are required to implement the proposed scheme. The development will therefore have no negative impact on the tree stock of the local area.
- 4.2 Please note that one tree (T7) was recommended for removal during the tree survey as it is almost completely dead. Therefore, its removal is recommended irrespective of the development proposals.

5 Tree works to retained trees

- 5.1 No pruning works are prescribed to facilitate development in this case.

6 Access/hard surfaces

- 6.1 No hard surfaces are proposed within the RPA of retained trees. Therefore, a traditional construction method utilizing excavation will be arboriculturally acceptable. No specialist materials will be required to reduce the impact of compaction within RPAs.

7 Demolition

- 7.1 No demolition activities are proposed within appreciable distance to retained trees. Therefore, no mitigation is prescribed for this purpose.

8 Construction/foundation design

- 8.1 The proposed structure/s are located sufficiently far from retained trees that specialist foundations are not required to minimize excavation within RPAs. However, specialist foundations may be needed for other purposes. The NHBC water demand of each tree is listed at **Appendix 1** for use by the appropriate structural expert.

9 Utilities

- 9.1 We have not been supplied with utility proposals at the time of writing. Therefore, the default position will be that no new utility routes are to enter the RPA of retained trees. When utility drawings become available, these must be provided to the consulting arboriculturist so that any tree impacts can be assessed in detail.

10 Site compound

- 10.1 The site compound, typically comprises the mess facilities, toilets, chemical/material storage and other construction-related facilities. All of these will be located outside of the RPA of retained trees throughout the construction process.

11 Landscaping & ground level changes

- 11.1 No ground level changes are permitted within the RPA of retained trees unless otherwise specified in this report. During the landscaping phase, some planting may be required within the RPA of retained trees. Planting pits/holes within RPAs must be dug with hand tools and kept as small as possible to accommodate the planting. Care must be taken not to damage existing tree roots. If any are found, the planting pits/holes must be re-located as necessary to avoid tree roots.

12 Protection, mitigation and compensation measures

- 12.1 The retained trees are located sufficiently far from proposed structures that no protective measures are deemed necessary in this case. Off-site trees along the northern boundary will be protected by the existing dry-stone wall which is to remain in place. This is considered sufficient as no RPAs extend into the site beyond the line of the dry-stone wall.
- 12.2 No arboricultural mitigation or compensation is considered necessary for this scheme. However, the Detailed Landscape Proposals (Drawing ref. 4015/1) specifies a range of new planting including 26 trees 251 shrubs and a number of hedgerows throughout the site. With no trees requiring removal to facilitate the development, all of these represent a net gain in tree/shrub numbers for the site.

13 Discussion of impacts/assessment

- 13.1 The proposed scheme will have no negative arboricultural impact; there are no RPA intrusions, no trees are being removed for development and no works required to facilitate the proposals. The landscaping proposals will greatly increase the biodiversity and tree stock of the site for the long term. Accordingly, there are no arboricultural reasons why this development should be rejected.

Conclusions

14 Conclusion

- 14.1 In accordance with BS5837:2012, we have assessed the arboricultural impacts arising from the proposed development at Watermill Gardens, Penistone. The tree schedule at **Appendix 1** contains a full list of the data gathered during the survey and a visual representation of the trees is presented on the Tree Impact Plan at **Appendix 2**.
- 14.2 The impacts of the proposed development on the existing trees are assessed in the section titled '**Arboricultural Impact Assessment**'. **Section 12** highlights any mitigation, compensation and protective measures proposed and **Section 13** summarises the overall impacts.

15 Further advice

- 15.1 This report accords with the requirements of BS5837:2012, in assessing the impacts of the proposed design. Following this, the LPA may also require an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) to be provided. If so, this will typically take the form of a reserved matters condition. An AMS contains full details of the proposed protective measures to trees, as well as timings and other information to be utilised throughout the construction period. T.S.S can provide an AMS upon request.
- 15.2 Following completion of the proposed development, it is advisable to conduct a final arboricultural assessment of the trees prior to occupation/use. This is to highlight any damage which may have been caused during construction, identify health and safety issues and any desirable tree works.

16 Final considerations/limitations

- 16.1 Our on-site assessment represents a 'snapshot' of the existing vegetation as it is now. Trees are dynamic organisms; their health & structural integrity can change due to a large number of factors including age, pests and diseases, the effects of wind, human activities and many others. For this reason, this report is only valid for a period of one year from the date of issue. Furthermore, we cannot be held responsible for events that occur due to factors that were not apparent at the time of surveying. If any events occur which cause concern relating to the trees, please don't hesitate to contact us and we will be happy to provide advice.
- 16.2 We should also draw your attention to the fact that tree owners are required to have their trees inspected for safety/risk assessment purposes. This is a requirement under the Occupier's Liability Acts 1957 and 1984 and is also a well-established duty of care under common law. This report does not attend to this purpose; however, we can provide risk assessment surveys so please contact us for further information.

If further clarification or advice is needed, please don't hesitate to contact us.



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Appendices

17 Appendix 1: Tree Survey Schedule

Appendix 1: Tree Survey Schedule

Tree Reference no.	Common name	Height(m)	Crown Spread(m)			Stem diameter/s 1-5(mm)	Root protection radius(m)	Physiological Condition (Good, Fair, Poor, Dead)	Structural Condition (Good, Fair, Poor, Dead)	Observations	Preliminary management recommendations	NHBC water demand	Remaining life expectancy	Retention category	Sub-category		
		Crown Height(m)	NW	N	NE						Priority of works						
	Botanical name	First significant branch height(m) and aspect (NESW)	W	E													
	Age class		SW	S	SE												
T 1	Field maple	4		2		70				Small, recently established off-site tree. Limited access prevents a detailed inspection at base. Appears to be in good condition.	No works required.	No data	40+	C	1		
	<i>Acer campestre</i>	2	1.5		2.5			0.8	G		G						
	Y	1.5 n/a		2												N/A	
G 2	Species: Sallow, elder, wild cherry, orchard apple.	8.5	See plan for canopy extent			80			1.0	G	G	An off-site, linear group of mixed boundary shrubs and trees. Unmanaged and overhanging the site boundary. Offers screening benefit.	No works required.	Mod	40+	C	1;2
	<i>Mixed</i>	1.3									N/A						
	SM	0 n/a															
G 3	Wild cherry	11	See plan for canopy extent			380				G	G	Three off-site trees in close proximity to each other, forming a homogeneous canopy. Significantly overhangs the site boundary. Limited access prevents a detailed inspection. Previously topped.	No works required.	Mod	40+	B	1;2
	<i>Prunus avium</i>	1.4						4.6	G	G	N/A						
	EM	3 W															
G 4	Species: Elder, wild cherry.	8	See plan for canopy extent			220	130	130		G	F	Off-site cherry and elder overhanging the boundary. Elder has significant bark wounds at base. Minor deadwood. Limited access prevents a detailed inspection.	No works required.	Mod	20+	C	1;2
	<i>Sambucus nigra</i> & <i>Prunus avium</i>	1.3						3.4	G	F	N/A						
	EM	1.3 W															
G 5	Wild cherry	14	See plan for canopy extent			380				F	F	Off-site group of three larger cherries. Densely covered in ivy, preventing a detailed inspection. Canopies significantly overhang the site.	No works required.	Mod	40+	B	2
	<i>Prunus avium</i>	1.5						4.6	F	F	N/A						
	EM	3 S															
G 6	Species: Bird cherry, Scots pine, oak, ash, sallow, rowan, silver birch, field maple, common alder	9	See plan for canopy extent			120				G	G	A linear mixed shelterbelt situated off-site, slightly overhanging the boundary. Provides excellent screening benefit.	No works required.	High	40+	B	1;2
	<i>Mixed</i>	0						1.4	G	G	N/A						
	SM	1 n/a															

NB: Cells highlighted in orange represent estimated dimensions.

Dimensions highlighted in grey are usually not required.

Appendix 1: Tree Survey Schedule

Tree Reference no.	Common name	Height(m)	Crown Spread(m)			Stem diameter/s 1-5(mm)			Root protection radius(m)	Physiological Condition (Good, Fair, Poor, Dead)	Structural Condition (Good, Fair, Poor, Dead)	Observations	Preliminary management recommendations	NHBC water demand	Remaining life expectancy	Retention category	Sub-category
		Crown Height(m)	NW	N	NE								W				
	Botanical name	First significant branch height(m) and aspect (NESW)			SW	S	SE										
	Age class																
T 7	Common elder	5		2		130	130	90	3.9	D	D	Largely dead specimen of limited arboricultural value.	Remove.	Low	<10	U	
	<i>Sambucas nigra</i>	1	2.5		2.5	250							Priority 4: Low				
	LM	1 n/a		2													
T 8	Sycamore	16		6		570			6.8	G	F	Larger off-site boundary tree. Dense epicormic growth at base. Substantial hollowing in main stem at base. Good rolls of occlusion forming. Appears to be in acceptable condition at present.	Monitor annually.	Mod	20+	B	2
	<i>Acer pseudoplatanus</i>	3	7		6			Priority 4: Low									
	M	2 W		4													
T 9	Common lime	15		6		600			7.2	G	G	Larger off-site boundary specimen. Dense epicormic growth at base (typical of species), together with limited access prevents a detailed inspection. Epicormic growth in crown. Appears to be in good condition.	No works required.	Mod	40+	B	2,1
	<i>Tilia europaea</i>	0.5	7		6			N/A									
	M	3 n/a		5													

NB: Cells highlighted in orange represent estimated dimensions.

Dimensions highlighted in grey are usually not required.

18 Appendix 2: Tree Impact Plan



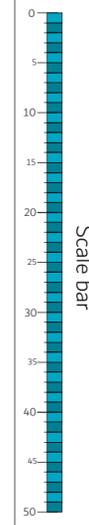
Appendix 2: Tree Impact Plan

Site: Watermill Gardens, Penistone, Sheffield, S36 8AJ.

Project Ref:	22037	Drawing Ref:	002
Scale:	1:500	Printing size:	A2

T1 Tree reference number. Sequential number preceded by item type: T=individual tree, G=group, H=hedge, W=woodland group.

- Retained trees
- Trees removed
- Root protection area (RPA)
- Root protection area (RPA) prior to offsetting



*This plan should be printed in colour; a monochrome version should not be relied upon.

*This plan should be read alongside the associated arboricultural report which will detail the protective status of the trees.

*Any development proposals should be designed with consultation with the appointed arboriculturalist to avoid delays/rejection at planning or breach of tree-related legislation.

19 Appendix 4: Explanation of Tree Schedule

Measurements/ references

Tree reference number: Each item (i.e. tree, group, hedge or woodland group) is assigned a sequential reference number, proceeded with a letter to identify what type of vegetation is being assessed. T = individual tree, G = group of trees, H = hedge and W = woodland group.

Species – common and botanical name: The species of each item is identified by its common name and botanical/scientific name, in accordance with the ICN (International Code of Nomenclature for algae, fungi and plants) or the ICNCP (International Code of Nomenclature for Cultivated Plants) as appropriate. Where multiple species are identified, the common names are listed in the 'Observations' section and the botanical names are omitted and replaced with '*Mixed*'.

Age class: Is listed as young, semi-mature, early-mature, mature, over-mature, ancient or dead. For groups, hedges and woodland groups the age may be listed as a range (e.g. young to early-mature).

Height: Measured from ground level in metres. For groups, hedges and woodland groups the height listed may be in the form of a range (e.g. 8-15m), an average or the highest tree encountered, to the discretion of the surveyor.

Crown height: The height at which the main canopy begins. For off-site trees which overhang the site, the height listed is the height at which they overhang. Where the canopy is at different heights, the measurement is either the lowest crown height or the average height, to the discretion of the surveyor. For groups, hedges and woodlands groups, the crown height is often '0' as the crown heights fluctuate throughout the group, starting from ground level.

First significant branch height and aspect: Height at which the first significant branch emerges from the main stem/s and the aspect using the cardinal points (NESW). Where multiple branches emerge at the same height from different aspects, 'N/A' is typically used. Most groups, hedges and woodland groups have no prevailing significant branch height and direction, so 'N/A' is used in this case also.

Crown spread: Crown spread is typically measured using the cardinal points (NESW) for individual trees. For groups, hedges and woodland groups several different methods may be employed. The appropriateness of each one is to the discretion of the surveyor. For small groups, the furthest extent of the crown to each aspect may be measured and then drawn around to create an overall spread. Alternatively, an average crown spread may be listed. For linear features such as hedges, an average width may be stipulated. Otherwise, 'See plan' is used where the canopy has been plotted using the topographical survey, GPS, estimation (to the best ability of the surveyor) or a combination of these.

Stem diameter: The diameter of the main stem/s at 1.5m above ground level is listed in millimetres. Where more than five main stems are encountered, an average stem diameter is used. For groups, hedges and woodland groups, the diameter listed is typically an average or the largest stem encountered, to the

discretion of the surveyor. In some circumstances multiple diameters may be recorded for groups and plotted separately on the Tree Constraints/Protection Plan.

No. of stems: The number of main stems which are being measured for their diameter.

Root protection radius (RPR): A calculation based on the No. of stems and the stem diameter/s. The radius is the extent of the Root Protection Area (RPA) expressed as the diameter of a circle. It applies to individual trees and individual trees within groups. NB: The RPA shown on the Tree Constraints/Protection Plan takes precedent over the RPR listed in the Tree Survey Schedule. This area should be avoided to prevent damage to retained trees.

Evaluations

Physiological condition: Describes the physiological health/vitality of the tree as good, fair, poor or dead.

Structural condition: Describes the biomechanical integrity of the tree as good, fair, poor or dead.

Observations: A description of the item being surveyed including the most notable defects or characteristics relevant to the assessment.

Preliminary management recommendations: Work recommendations made with reference to the existing condition of the tree in the current context and usage of the site.

Priority of works: Where preliminary management recommendations are made, a priority rating is assigned to guide the client to allocate their resources in a targeted manner. The four priority ratings are as follows: Priority 1: Urgent, Priority 2: High, Priority 3: Moderate, Priority 4: Low.

Remaining life expectancy: Is described as dead, <10, 10+, 20+ and 40+ years. It is an estimation only, based on the condition of the tree and the current context of the site.

Retention category: A categorisation method to identify the quality and (non-fiscal) value of the item being surveyed, in accordance with BS5837:2012, as follows:

Category U – “Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years”.

Category A – “Trees of high quality with an estimated remaining life expectancy of at least 10 years”.

Category B – “Trees of moderate quality with an estimated remaining life expectancy of at least 20 years”.

Category C – “Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm”.

Sub-category: Trees that are retention category ‘A’, ‘B’ or ‘C’ are then assigned a sub-category (or multiple sub-categories) which justify their categorisation. ‘1’ = mainly arboricultural qualities, ‘2’ = mainly landscape qualities and ‘3’ = mainly cultural values, including conservation. The number of sub-categories assigned to a tree does not confer on them greater value than those with fewer sub-categories.

20 Appendix 5: Glossary of common tree defects/observations

Bark wounds: Damaged caused to a tree stem or branch where the bark has been damaged or removed, often exposing the underlying wood.

Canker/s: Damage caused by disease (principally fungi or bacteria), leading to deformed areas of bark and usually confined to the outer edges of the stem/branch.

Cavity/decay pocket: holes or entrances leading into the interior parts of the tree timber, either caused by, or accelerated by decay (principally decay fungi).

Chlorotic: Discolouration of leaves due to some form of ill-health in the tree. Can be caused by a number of factors including nutrient deficiencies, disease or damage to the root system.

Coppice/d: Coppicing is an ancient and still widely utilised tree management practice whereby trees are felled nearly to ground level and then allowed to regrow; often with multiple shoots arising from the edges of the original tree stump.

Crossing/rubbing branches or stems: This phrase refers to where branches or stems are rubbing against each other causing bark wounds by abrasion. Crossing/rubbing branches can also lead to the production of included unions (see below).

Deadwood: Completely dead sections of branch or stem, still present within the crown. Deadwood is often created by a natural process not linked with ill-health. However; if there is excessive deadwood within the crown of a tree it can be sign of stress. Deadwood is often described as 'minor' or 'major'. Within this report, 'minor' should be taken to mean up to a maximum of 7cm in diameter and less than 2m in length. 'Major' is greater than 7cm in diameter and/or greater than 2m in length. If there is a combination of both types within a tree's crown, then 'major' is used.

Decay: Decay describes a process by which woody tissues are broken down, principally by decay fungi and invertebrates. Where standing trees are subjected to decay, it can weaken their structure to the point where they collapse or break-apart so an assessment of the decay is needed by a specialist.

Decline: Trees in decline usually describe trees that are dying back from the tips of their branches, moving inwards to the interior of the crown. It may be the early signs of a tree's approaching death; however, it can also be part of a re-balancing process where the tree is reducing the size of its crown to something which it can better manage in terms of energy usage.

Epicormic growth: Small and often plentiful shoots that typically arise from the base of a tree, on the main stem or within the inner crown. For many species this is very common and not a cause of concern. However, in some cases it can be an indicator of stress.

Etiolated/drawn-up: These terms usually describe smaller trees that have been in heavy competition and shaded by larger specimens. This causes them to grow up towards the light, giving them a narrow crown and generally a poor shape/form. Additionally, 'etiolated' may indicate poor health, often as a result of becoming out-shaded, whereas 'drawn-up' usually describes a poor shape and form but with no significant health implications.

Fibre buckling: An acute bulge in a tree stem that is not due to the presence of underlying decay but to the localised compression of woody fibres. It is not generally a significant cause of concern.

Form: This principally describes the shape of the tree and how well it has developed.

Girdling roots: Roots which wrap around and restrict other roots or the main stem. Often caused by poor planting/nursery practices.

Hanger/s: Broken branches in the crown which are either still partially attached or have severed from the parent branch but are held up by other branches in the crown.

Hazard beam: A particular type of commonly occurring crack that occurs longitudinally along a bend in a branch.

Included bark/Included union: This occurs in tight branch/stem forks where due to radial growth of the two branches/stems, they rub against each other and meet. The bark of the two tree parts is then trapped and pressed together. In some cases, where the tree does not compensate for this properly, weak unions can occur which are predisposed to failure.

Lesions: Bleeding exudations, typically on the main stems of trees which indicates the presence of disease or ill-health.

Monolith: This can either describe a dead standing tree, or one which by tree surgery has had all branches removed back to a single standing stem.

Occluding/Occlusion: The process by which trees seal over wounds with new growth.

Pollard/ed: A tree surgery operation where the crown of the tree is reduced back to many small stubs, creating a crown reminiscent in shape to a candelabra. It is then allowed to regrow with new shoots forming from these pruning points. Over time this operation is repeated on a cyclical basis to create trees of formal shape and aesthetic.

Pruning wounds: The points in a tree's crown where pruning cuts have been made.

Reverting/reversion: A process where cultivated varieties of plants revert to their natural foliage colour and type.

Ring-barked: The removal of a 'ring' of bark around a tree stem, most commonly caused by vandalism or browsing damage by livestock.

Root plate: The root plate comprises of the main structural roots of the tree. Where uprooting occurs, these roots and the soil around them lifts up on one side like a plate.

Stub (branch): Either where branches have been cut horizontally and not back to a growth point, or the short section of a branch where it meets the main stem.

Tear wound/branch tear: The resulting wound where branches/stems have been torn off, often encompassing the branch stub.

Topped: The tree surgery practice of removing a tree's crown back to the main stem, or a fixed point. This is generally bad practice and is only advised in exceptional circumstances.

Vehicle strikes: Where vehicles have conflicted with trees, usually resulting in bark wounds.

Veteran Tree: A tree which displays many features characteristic of, but not necessarily exclusive to, ancient trees. These features are often in other contexts considered to be defects but are of ecological value and provide niche deadwood habitats. Such features include many of those defects listed here which in the right context can be retained to provide valuable wildlife benefits.

Vitality: The physiological health of the tree, expressed by the colour and size of the foliage, extension of shoot/root growth, proliferation of buds, creation of fruits and flowers and the speed of growth, including occlusion.

