

murray & associates
landscape architecture

ARBORICULTURAL INVENTORY AND RECOMMENDED WORKS

Incorporating a
TREE PROTECTION STRATEGY

At

GROUNDS OF KATHARINE TYNAN HOUSE,
KINGSWOOD, DUBLIN 24.

FOR

HIBERNIA REIT

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ISSUE SHEET

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Introduction

The trees and hedgerows were surveyed on the 9TH April 2021 by the undersigned. The findings of this survey and assessment have been summarised and recorded in the following report. A number of mature trees on the development site area were surveyed and assessed. This report details the existing tree and hedgerow cover on the site and the recommended works for these trees. A number of the trees on the site date from the time of the main Katharine Tynan House and the focus of the report is their conservation and future management. Some of the trees in the vicinity of the house are seedlings and are interfering with the structure of the building and will need to be removed/dismantled. There is also evidence of damage and vandalism to a number of the veteran trees which is of great concern.

Scope

The subject site is the subject of planning permission for the restoration of the farmhouse and the creation of a cultural centre. The site contains a number of mature trees and this report has been commissioned to provide an arboricultural assessment of the site to assist the design team as they prepare detailed plans for the new development and to set out the recommended works to the trees to ensure their future conservation.

This report should be read with reference to the findings summarised and recorded in the Tree and Hedgerow Assessment report, conducted on 9th April 2021. The report should also be read in conjunction with the following drawings:

Landscape Plan (REF: 1860_PL_P_01);

Tree Survey: (REF. 1860_TS_P_01);

Arboricultural Impact Plan: (REF. 1860_TS_P_02);

Proposed Development

The proposed development consists of the reconstruction and restoration of Katharine Tynan House and the associated ancillary garden restoration and visitor facilities.

The site is located to the west of Ballymount Road and to the North of Belgard Road. The site is currently disused and the buildings have fallen into disrepair. The proposed plan is to restore the existing buildings and create new visitor facilities which will be focused around the life and work of Katharine Tynan.



Figure 1 – Site location plan

A review of the 1888-1913 Osi map shows that there were a number of trees present on the site which appear to have survived to the current time. In particular, there is a line of trees shown along Ballymount Road, a number of which survive in mature form.



Figure 2 – Osi Historic Map

Methodology Employed

An initial tree survey and visual condition assessment was undertaken on the 9th April 2021. For the purpose of this report the trees were assessed in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction. Only trees with diameters of 75mm or greater were surveyed, and those smaller than this were noted in the survey. In accordance with section 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups.

Section 4.4.2.3 of BS 5837: 2012 states:

Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).

NOTE: The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories.

Tree Survey Methodology

Tree Species

Common and botanical names of the tree species were recorded.

Tree Crown Dimensions

Tree height (Ht), crown clearance (Cl) and crown-spread (NESW cardinal points) measurements are in metres and are estimated.

Stem Diameter (Dbh)

Measurements are in millimetres and taken at 1.5m from ground level, multiple stems (St) are recorded as a function of the BS:5837 RPA formulae described below.

Tree age classes were recorded as:

Y	Young	Recently planted (with 5 years or so)
SM	Semi-Mature	Well established young tree
EM	Early Mature	Established tree not yet fully grown
M	Mature	Full or near full grown tree
LM	Late Mature	Older specimen in full maturity
OM	Over Mature	Reached full maturity now declining through natural causes
Vet	Veteran	Notable due to large size, old age, ecological importance

Tree Physiological and Structural condition was graded as :

- Good: No obvious defects visible, vigour and form of tree good.
Fair: Tree in average condition for its age and the environment.
Poor: Tree shows signs of ill health/structural defect
Bad: Tree in seriously bad health/major structural problem

Work Recommendations

Preliminary management recommendations are made where necessary and pertain to current site conditions unless otherwise stated.

Estimated Remaining Contribution (ERC)

The approximate number of years that a tree should continue to live and contribute amenity, conservation or landscape value to the site under current site condition.

The tree retention category system grades a tree's suitability for retention within a development:

- A** Indicates a tree of high quality and value. These are trees that are particularly good examples of their species, which also provide landscape value. These trees are in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)
- B** Indicates a tree of moderate quality and value. Trees that might be included in the high category, but are downgraded because of impaired condition. These trees are in such a condition as to make a significant contribution. (A minimum of 20 years is suggested)
- C** Indicates a tree of low quality and value - trees with an estimated remaining life expectancy of at least 10 years, or trees with a stem diameter of below 150mm and/or <10m in height.
- U** Trees that are 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.

Sub Categories

Tree categories may be further categorised using the following sub-categories (e.g. C1, C2 or C3)

- 1 mainly Arboricultural qualities,
- 2 mainly landscape qualities,
- 3 mainly cultural values.

The Root Protection Area (RPA) is the minimum area around individual trees to be protected from disturbance during construction works; RPA is recorded as a radius in metres measured from the tree stem and is shown on the tree survey/constraints drawing as a circle with the tree stem in the centre. For single stem trees, the root protection area (RPA) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

For trees with more than one stem, one of the two calculation methods below should be used. The calculated RPA for each tree should be capped to 707 m².

For trees with two to five stems, the combined stem diameter should be calculated as follows:

$$\sqrt{((\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \dots + (\text{stem diameter } 5)^2)}$$

For trees with more than five stems, the combined stem diameter should be calculated as follows:

$$\sqrt{((\text{mean stem diameter})^2 \times \text{number of stems})}$$

The survey concentrated primarily on the significant trees located within the development area. The objective of this survey was to gather information regarding the tree's location on the proposed development site and the impact the proposed development may have on the trees. Please refer to appendix 1 for the tree inventory. Significant trees can be equated as those trees whose visual importance to the surrounding area is enough to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the age of the tree, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature. Tree diameters (DBH) were estimated at 1.5 meters above grade as per standard arboricultural practice. Tree height was measured with the use of a digital clinometer.

The trees were categorized in accordance with BS5837:2012.

Tree Survey Results

Category	Number of trees	Trees to be removed
A	10	1
B	8	3
C	9	4
U	0	0

Table 1. Category of the Trees surveyed (BS 5837:2012, Item 4.5 Tree categorisation method)

The trees within the site area are in fair to good condition. Some of the existing trees are seedling Sycamore which have established on the site after 1995 (see the aerial image of the site below from 1995) are causing damage to the structure of the existing house and should be removed.



Figure 3 – 1995 Aerial Survey

The main tree groups are the black pines to the north of the existing house and the Beech along the main driveway and also along the road boundary. All of these trees are Category A. There are further specimens of Sycamore dotted around the site area, and these are seedlings that have established in the site post 1995. A number of these trees are interfering with the structure of the building and will need to be removed.

In relation to the Ash on the site, a number of these specimens are showing signs of Ash Dieback (Chlara). This is a serious disease that causes rapid decline and failure of Ash. The main recommendation of this report is that the Ash on site need to be monitored for this disease and removed if they succumb to it. While it is a notifiable disease, it has become so endemic in the wider landscape that it would be academic at this point to report an occurrence of it.

Protected Tree Zone/Construction Exclusion Zone

Trees that are destined to be retained must be protected by barriers, signage and/or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected.

Barriers should be fit for the purpose of excluding construction activity. The tree protection zone shall be set out as (figure 4).

D1 TREE PROTECTION FENCING
 D1 Scale 1:20

TREE PROTECTION FENCING - BS 5837:2012 Trees in relation to design, demolition and construction

All tree protection works to be in accordance with BS 5837:2012 and approved by Contract Administrator / Project Arborist / Landscape Architect.

All trees to be retained on site are to be protected by effective fencing defining the Construction Exclusion Zone (CEZ). The fencing excludes construction activities from the Root Protection Area (RPA) which contains sufficient rooting volume to ensure the survival of the tree.

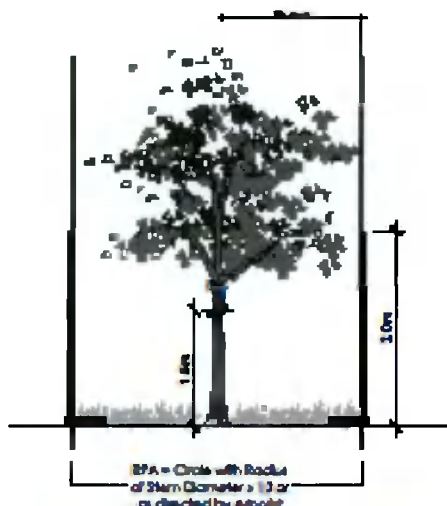
Fencing is to be installed before any materials or machinery are brought onto the site and before any excavation or development commences.

Once erected, fencing is to be regarded as permanent and should not be removed or altered without the prior consultation with the consulting Arborist or Landscape Architect.

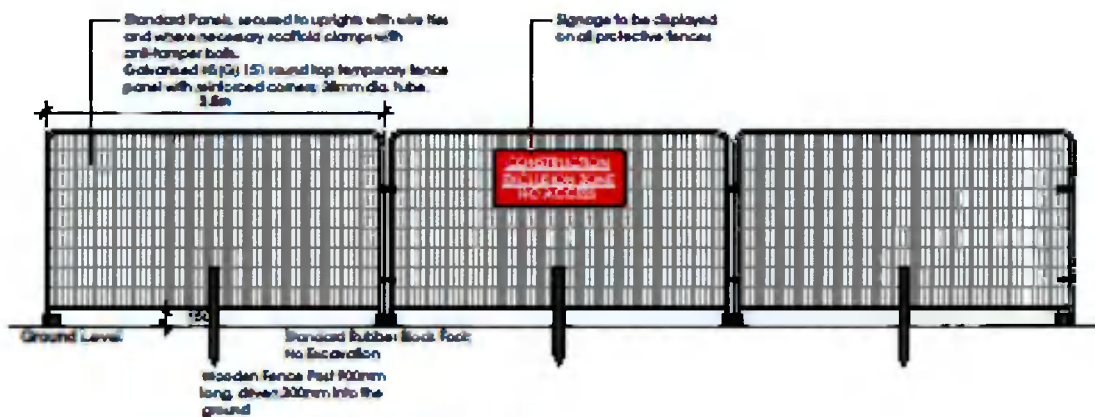
No access is to be permitted for workers to areas behind fencing (except for specific works such as construction of to-dig paths or planting) or with written authorisation from Contract Administrator / Project Arborist / Landscape Architect; no works may be carried out in this zone, no materials, machinery, tools, soil or other objects are to be stored here and machinery or excavation may be carried out.

Protective fencing should consist of galvanneal steel mesh panels in accordance with drawing (RPA) comprising a vertical and horizontal framework, staked in place and braced to resist impact.

Notices should be erected on the fence with following wording:
CONSTRUCTION EXCLUSION ZONE: NO ACCESS



TREE PROTECTIVE BARRIER - BS 5837:2012 TREES IN RELATION TO CONSTRUCTION
 Item Nos. 4.6 Root Protection Area



TREE PROTECTIVE BARRIER - BS 5837:2012 TREES IN RELATION TO CONSTRUCTION
 Item Nos. 6.2 Technical Design and 7 Demolition and construction in proximity to existing trees

Figure 4 : Construction Fencing Detail

A notice 'Construction Exclusion Zone' shall be placed on tree protection fencing at regular intervals along the protective fencing. This notice shall include contact details for the Site Arborist. The noticed should say 'Strictly no access should be permitted to the R.P.A. unless instructed by the Site Arborist.', 'No materials of any kind are to be stored within the R.P.A.', 'No "Spilling out" of materials shall take place within the R.P.A.' and, 'No fires are to be lit within the R.P.A.'

The Contractor is to maintain the protective fencing in good condition to the satisfaction of the Site Arborist for the duration of the contract. Any damage to fencing is to be reported to the Site Arborist immediately. Damaged fencing is to be repaired within 2 hours of the damage occurring. All works within the vicinity of the damaged fencing are to be suspended until the fencing is repaired.

Ground Protection

Although works within the RPA are not recommended should essential works be required within the RPA. The installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading. Any works within the RPA must be undertaken with prior consultation with the arborist.

Arboricultural Method Statement/Tree Protection Strategy

The object of this arboricultural method statement/tree protection plan is to provide information for the building contractor/site manager on how the trees or hedgerows on the site need to be protected pre, during and post development works so that they can prepare their own site specific detailed method statement for their works

It is necessary for the protective fencing to be erected and all other mitigation measures required to be put in place prior to any development works commencing on site to ensure all retained trees and their critical rooting zone are protected for the duration of the works. Refer to tree protection details () for the position of protective fencing and additional mitigation measures

The protection for trees and hedgerows shown for retention will occur in three stages known as pre, during and post development.

Arboricultural Method Statement/Tree Protection Strategy – Management Stages		
Stage 1 – Pre development works	Stage 2 - The construction works stage	Stage 3-Post Development Works
1. Consultation with Arborist and developer	1. Protective Fencing – management and maintenance	1. Site inspection by arborist to ensure plan adhered to and trees protected
2. Site meeting - consultation with Arborist, developer, main contractor and sub-contractor	2. Excavations – works only commence when protective fencing in place	
3. Tree works – Appointment of professional tree surgeon	3. Working within the RPA – All works within the RPA to be discussed and agreed with the arborist	
4. Erection of protective fencing/Mitigation measures	4. Finished ground levels/Landscaping – All works to ensure the integrity of tree/s Protected.	

Table 3. Arboricultural Method Statement/Tree Protection Strategy – Management Stages

Stage 1 - Pre-Development Work

Prior to works commencing on site the following needs to be agreed and implemented

Appointment of an arborist (Site Arborist) to oversee all works relevant to trees;

Establishment of tree protection (refer to Drawing);

Monitoring of tree protection (adherence to the Tree Protection Code of Practice);

Supervision of works in the vicinity of trees;

Post construction re-assessment of retained trees

Site meeting

Prior to any works on site, it is necessary that a meeting be arranged between the project manager, site foreman, the project landscape architect, the project arborist and the local authority to identify and finalize the trees for removal and the line of protective fencing and any other mitigation measures.

Tree works

The Contractor shall take all precautions to ensure that any trees which are not required to be taken down under the contract shall remain undisturbed and undamaged. The Contractor must appoint a qualified arboricultural contractor to undertake all tree works subject to approval by the Consulting Arborist. The Contractor shall undertake no works to trees unless instructed by the Contract Administrator. Five working days' notice of intention to undertake works to be given.

The works are to be undertaken in accordance with BS 3998 2010.

Erection of protective fencing/Mitigation measures

The erection of protective fencing is to be erected to the fence line shown in tree protection plan. The fencing must adhere with BS 5837: 2012 (Figure 4 above). Signage must be placed on the fence to highlight its importance. Once the fencing is erected works can commence on-site.

Stage 2 - The Construction Works Stage**Protective Fencing**

During the course of the construction works the integrity of the fencing must be respected and remain in place at all times. No building materials or soil heaps are to be stored within this area. Should essential works need to take place with the root protection area the project arborist must be informed in advance and any mitigation measures are to be put in place. The protective fencing must remain in situ for the duration of the project and must only be removed upon completion of all works.

Excavations

Excavation works are only to commence once the protective fence line is in place. The excavations need to be viewed on site once marked out with the project manager, site foreman and the project arborist in advanced of excavation to determine the extent of the impact and the works space required to allow the construction works proceed and to assess any additional mitigation measures that may be required to protect the retained trees. In certain areas it may be necessary to use alternative methods of excavation to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls, no dig technique etc.

Working within the RPA

The Site Arborist should be given 5 days' notice of any works within or access required to this zone.

All works must be carried out manually root pruning is to be undertaken by an arborist using handheld equipment such as a handsaw. For pedestrian movements within the R.P.A. the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading.

Finished ground levels/Landscaping

Trees that are to be retained should be protected so that soil disturbance and changes in soil levels do not occur. The construction exclusion zone surrounding a tree should contain sufficient rooting volume to ensure the survival of the tree. The location and erection of protective fences is as specified in accordance with BS 5837:2012 "Trees in relation to Construction" and on the drawings (see drawing no. **1860_TS_P_02**). Where changes in level occurs, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. All finished surfaces are to be porous to allow the free movement of water and gaseous exchange to the roots.

Where hard surfaces are proposed within the Root Protection Area (RPA) a strict no dig design excavation must be adhered to, avoiding unnecessary root loss. In the event where excavation is essential a hand dig system must be undertaken under arborist supervision. The hard surface must be permeable to allow the roots moisture infiltration and gaseous diffusion. Structurally, the hard surface should be designed to avoid localised compaction, by evenly distributing the carried weight. The sub-base will consist of a three-dimensional cellular confinement system with the build up to the engineer's detail and approved by the arborist.

All operations to be in accordance with BS 5837:2012 Trees in relation to design, demolition and construction -Recommendations.


Stage 3 - Post Development Works

The project is not to be considered complete until the arborist has inspected the site and is satisfied that all retained trees have been protected in accordance with the site specific Tree Protection Plan and there has been no negative impact on the retained trees on site as a result of the development.

Conclusions

The proposed development will have minimal impact on the existing tree cover on the site. Additional replanting works will mitigate any loss of trees as a result of the development and will be a net positive to the tree cover in this particular location. The proposed landscape plan details the planting of a significant number of new native broadleaf trees.

BS5837:2012 Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
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	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012] 4.5.7.</i></p>	
Trees to be considered for retention		
<p>1 Mainly arboricultural qualities</p> <p>2 Mainly landscape qualities</p> <p>3 Mainly cultural values, including conservation</p>		
Category A	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands of significant cultural value
Category C	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher conferring on them significantly greater collective categories	Trees present in groups or woodlands, but without this Trees with no material conservation or other cultural value
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm		landscape value; and/or trees offering low or only temporary/transient landscape benefit

Tree Survey Tables

Tree ID	Name	Common Name	Stem Diameter [mm]	Tree Height [m]	Spread (m)	E	S	W	Life Stage	Structural Condition	Physiological Condition	Quality Category	RPA [m]	Comments	Recommendations
T1	Pinus nigra	black pine	740	10	2	6	5	4	Mature	Good	Good	A2	8.88	Suppressed by ivy	Remove ivy and deadwood
T2	Pinus nigra	black pine	900	10	3	3	3	3	Mature	Fair	Fair	A2	10.8	Suppressed by ivy	Remove ivy and deadwood
T3	Pinus nigra	black pine	780	12	2	2	4	3	Mature	Good	Good	A2	9.36	Suppressed by ivy	Remove ivy and deadwood
T4	Pinus nigra	black pine	1250	13	5	5.1	5	5	Mature	Good	Good	A2	15	Suppressed by ivy	Remove ivy and Deadwood
T5	Populus tremula	Aspen	450	7	1	0.8	0.84	2	Early-mature	Good	Good	C1	5.4	Surrounded by willows	None
T6	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T7	Acer pseudoplatanus	Sycamore	670	4	2.13	2	2	2.1	Mature	Good	Fair	B2	8.04	Suppressed by ivy	Remove ivy
T8	Crataegus monogyna	Hawthorn	220	4	1.5	3	1.5	2	Early-mature	Fair	Fair	B3	2.64		Crown shape
T9	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house

T10	Fagus sylvatica	Common Beech	1640	12	4.53	4.5	3	5	5	Veteran	Good	Good	A2	15	Very suppressed by ivy Possible Lighting damage	All ivy to be removed
T12	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.6	3	3	3	Mature	Fair	Fair	B2	12.96	Coppice (possibly used for firewood)	Remove ivy and deadwood
T13	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.6	3	3	3	Mature	Fair	Fair	B2	12.96	Coppice	Remove ivy and deadwood
T14	Cupressus macrocarpa	Monterey Cypress	1870	17	4.65	5	5	4.6	4.6	Veteran	Good	Good	A1	15	Some dead wood in crown	Remove dead wood
T16	Acer pseudoplatanus	Sycamore	1080	9	2.63	3	3	2.6	2.6	Mature	Fair	Fair	B2	12.96	Some deadwood in crown	Remove deadwood
T17	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.6	3	3	3	Mature	Fair	Fair	B2	12.96		
T18	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T19	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T22	Fraxinus excelsior	Common Ash	970	9	3.6	4	4	4	4	Mature	Good	Good	B1	11.64	Suppressed by ivy. Monitor for signs of Ash Dieback	Remove deadwood

Disclaimers

This report is intended solely for the benefit of the parties to whom it is addressed, and no responsibility is extended to any third party for the whole or any part of its contents. The conclusions and recommendations in this report are only valid for a period of one year. This period of validity may be reduced in the case of any change in conditions to or in proximity to the tree. In the event of adverse weather conditions, there is the possibility of any tree despite good report surveys, falling over.

In the event of a falling tree causing damage to residential or non-residential buildings in their proximity, no liability will attach to this firm, in the event of damage by such trees, to any person, any building public or private, or any mechanical vehicle or otherwise. Recommendations made in this report are subject to the knowledge and expertise of the qualified Arborist that carried out the above inspections.

Signed _____

Dated: 25th May 2021

John Ward

ISA Certified Arborist