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Arboricultural Report and Impact Assessment to BS 5837:2012

Site Address:

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Prepared For:

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1. Introduction

1.1. Purpose of the Report

- 1.1.1. This report is required to provide detailed, independent, arboricultural advice on the trees present in the context of potential development.
- 1.1.2. The purpose of this report is to outline the condition of the existing vegetation on site and to define areas where development and existing trees have the potential to conflict. In addition, recommendations will be made based on the current context of the site.

1.2. Terms of Reference

- 1.2.1. We have been instructed to conduct a tree survey and prepare an arboricultural report for the site. The arboricultural report is to include an impact assessment based on the design proposal provided. The arboricultural survey and report conforms to the most recent specifications outlined in BS 5837: 2012 Trees in relation to design, demolition and construction - Recommendations.
- 1.2.2. We have been supplied with a drawing (no. 526.PD.02) which details the proposed development. This provides the basis for which this Arboricultural Impact Assessment has been prepared. The tree data has been overlaid onto the proposed designs to create the Tree Protection Plan, which can be found at in the appendices.
- 1.2.3. In the absence of a topographical survey a Trimble TDC100 has been used to capture northing and easting coordinates for each tree and key site features. As the stated accuracy of the device is 1-2 meters, tree positions should be considered indicative only. Where a specific design proposal is being considered, trees likely to be in conflict are located to an accuracy of 0.5m with measurements from existing site features.

1.3. Scope of the Report

- 1.3.1. This report is compiled in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' and is based on an objective assessment of the existing vegetation.
- 1.3.2. Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover and to uphold the interests of health and safety.
- 1.3.3. All trees within the survey area with a stem diameter above approximately 75mm are included.
- 1.3.4. Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, are included.

1.4. Survey Details

- 1.4.1. The survey took place on the 17th February 2021. The weather was dry and overcast with light winds.
- 1.4.2. During this survey, all trees were inspected from ground level. Further investigation, such as climbed inspections or decay detection surveys, have not been undertaken but may be recommended where this is considered appropriate.

1.4.3. Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible, measurements were estimated to the best ability of the surveyor. We endeavour to provide accurate information and will always take measurements unless inhibited by restricted access or other mitigating circumstances.

2. Site Description

2.1. Land Use

2.1.1. The site identified for survey is a private garden on a residential street in a rural village.

2.2. Topography and Geology

2.2.1. Generally speaking, the site is level and at the time of survey appeared to be well drained.

2.2.2. A desktop investigation was made into site geology using the British Geological Survey iGeology application. The local geology was defined as clay and silt over a mudstone siltstone bedrock.

2.2.3. As significant clay deposits may be present independent expert advice should be sought to better define site geology. Where significant clay content exists, due consideration must be given in relation to foundation design in close proximity to trees. Failure to do so may lead to subsidence and heave related issues.

2.3. Treescape & Visual Amenity

2.3.1. The surrounding residential area is interspersed with a significant number of semi-mature to mature trees.

2.3.2. The trees subject to survey form a significant green feature when viewed from the primary highway through the village. The trees form a significant part of the local treescape.

2.3.3. Trees T1 and T2 are specimens of reasonable quality and size that are clearly visible from the immediate surrounding area. These trees have a moderate to high visual amenity value.

2.4. Rooting Conditions

2.4.1. In areas likely to be affected by tree rooting the site is free from significant subterranean structures and changes in ground level. As such the Root Protection Areas of all trees surveyed is assumed to be symmetrical and centred on the trees' stems.

3. Status of the Trees

3.1. A status check was made on 23rd February 2021 with South Holland District Council via their online planning portal. We are informed that there is a Tree Preservation Order (TPO) in force on this site covering T1 and T2.

3.2. Before any work is organised on these trees, an application must be submitted to the Local Authority, outlining all the proposed works along with suitable justification. No work must be done to any trees until permission has been granted. The removal of dead branches from a living tree is permitted without prior notice or consent.

- 3.3. The presence of a TPO represents the Local Authority's desire to retain trees within the landscape. As such, trees covered by a TPO are generally more likely to require retention within a proposed scheme and this should be taken into account during the design process. In some cases, the removal of TPO trees may be agreed upon, providing the benefits of the proposed development are deemed greater than the material loss of the trees. The value of existing vegetation is just one factor in the decision making process; all benefits of the proposed development will be taken into consideration in the usual manner.
- 3.4. A status check was also made on 23rd February 2021 with South Holland District Council via their online planning portal. We are informed that the site is not within a Conservation Area.

4. Discussion

4.1. Tree Condition & Recommended Works

- 4.1.1. During the survey the details of two individual trees were recorded. Both were identified as retention category B.
- 4.1.2. During the survey the details of one hedge was recorded. This hedge was identified as retention category B.
- 4.1.3. Within the survey, tree works may have been identified for reasons of public safety, to ensure the long-term health of the trees or for general maintenance purposes. Such recommendations have been made without regard to any projected layout and should be undertaken irrespective of development. These are summarised in the following sections.
- 4.1.4. For the full details of all vegetation surveyed and recommendations made, please refer to Appendix 1.

4.2. Removals Irrespective of Development

- 4.2.1. On this occasion, no trees have been identified as category 'U' and as such no trees are recommended for removal in the current context of the site.

4.3. Remedial Tree Works Irrespective of Development

- 4.3.1. Deadwood present in the crown of T1 extends over the adjacent highway. Although the risks posed are tolerable the owner may wish to further reduce the risk by having the deadwood removed as detailed in Appendix 1.

4.4. Monitoring/Further Investigations Irrespective of Development

- 4.4.1. In this case, no monitoring (re-inspecting and re-assessing) or further investigation works are considered necessary. However, all trees to be retained within the proposed development should be inspected on a regular basis in the interests of risk management.

5. Arboricultural Impact Assessment (AIA)

5.1. Proposed Development

- 5.1.1. The proposal for the site includes the demolition of the existing extension to the north of the property and the installation of a larger extension in the same location.

5.1.2. This Arboricultural Impact Assessment is based on drawing no. 526.PD.02, which forms the basis for the Tree Protection Plan that accompanies this report.

5.2. Tree Removals for Development

5.2.1. No tree removals are required to facilitate development.

5.3. Remedial Tree Works and Pruning for Development

5.3.1. To provide adequate clearance above and adjacent to the northern elevation of the proposed extension T1 will require crown lifting as detailed in Appendix 1. The works are minor in nature and will result in no lasting ill effects.

5.4. Monitoring/Further Investigations to Accommodate Proposed Development

5.4.1. No monitoring or further investigations are required to facilitate the development.

5.5. The Protective Barrier

5.5.1. In order to ensure the effective protection of retained trees during development, a protective barrier will be installed, in accordance with BS5837: 2012 and may comprise of protective fencing and/or ground protection. This will be the first job on site following any necessary tree works. The fencing and ground protection should be positioned to protect the entire crown and Root Protection Area (RPA) of the retained trees unless stated otherwise in this document or in an accompanying Arboricultural Method Statement.

5.5.2. Routes for pedestrian and site traffic should ideally be located outside, and diverted away from, the RPAs of the retained trees. Where this is not possible, temporary protective surfaces (ground protection) must be laid over the exposed RPAs which will distribute the weight of site vehicles, machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces should be constructed in accordance with BS5837: 2012.

5.5.3. The position of protective fencing and ground protection are detailed on the Tree Protection Plan. The specifications for the construction of the protective fencing can be found in the Appendix 3.

5.6. Access/Construction of Hard Surfacing

5.6.1. To allow construction access into the RPA of T1 and T2 temporary ground protection must be laid. This surfacing must be installed using a 'no-dig' technique and must be able to adequately distribute the weight of site traffic. Failure to protect the ground in this manner may lead to the compromised condition and early loss of the trees.

5.6.2. The location of the ground protection is highlighted on the Tree Protection Plan (TPP) at Appendix 6. The ground protection must be laid prior to the commencement of any demolition or construction works. The ground protection should must consist of a 75mm layer of wood chip covered with heavy-duty ply-board pinned/pegged in place to prevent movement. The ground protection is suitable for pedestrian use only. Self-propelled plant must not enter areas of ground protection.

5.7. Demolition

5.7.1. To prevent harm to tree roots in currently undeveloped areas any self-propelled plant used during the demolition of the existing extension must only operate from the exiting driveway or from within the

footprint of the existing extension.

5.8. Construction/ Foundation Design

5.8.1. The footprint of the proposed extension infringes 5% upon the undeveloped RPA of T1, and 2% upon the undeveloped RPA of T2. Given the modest size of the incursions these works are unlikely to result in the compromised condition or early loss of the trees.

5.9. Utilities

5.9.1. The routing of utilities is not available at present however there is no foreseeable reason why they should not be diverted away from the RPA of retained trees.

5.10. Landscaping

5.10.1. Any proposed fence lines may be constructed within the RPA if necessary, providing that appropriate considerations are made to the protection of the tree. This is providing that no continual trenching is undertaken (e.g. for small walls onto which panel fencing is installed). Excavation must be kept to a minimum and therefore only fence designs requiring intermittent posts will be acceptable within the RPA of retained trees.

5.10.2. Any patios, garden paths or other hard surfaces within RPAs which may not be shown on the plans provided may be constructed using no-dig techniques, providing that they do not cover more than 20% of the RPA of any tree and are implemented in accordance with BS5837: 2012. If there is any concern of damaging retained trees, further advice should be sought from a qualified Arboriculturalist.

5.10.3. No ground level changes are to be undertaken within the RPA of retained trees, unless otherwise stated or agreed with the appointed Arboricultural consultant or the LPA. The requirement to raise/lower ground levels within RPAs should be communicated to these parties at the earliest practical convenience.

5.11. Shading

5.11.1. In this instance there are no significant detrimental shading effects on the proposed habitation areas.

Appendix 1: Survey Schedule

Tree ID	Common Name	Maturity	Height (m)	Stem Diameter (mm)	RPA Radius (m)	Crown Spread (m)				Structural Condition	Category	Life Expectancy	Physiological Condition	Comment	Recommendations
						N	E	S	W						
T1	Norway Maple	Semi-mature	13	720	8.6	7	7.5	6.5	6.5	Good	B1/2	>40 yrs	Good	Stem measured below crown break at 0.5m. Crown break at 1m. Significant lower primary limbs to S, E and W. E lower limb with bark included union but strong natural bracing above. Intertwined twin leaders with bark included union between, adequate natural bracing above. Minor deadwood in crown with slightly sparse shoot structure in upper crown. A reasonable specimen.	Development Recommendation: Lift the outer 3m of southern crown from 2.5m to 3.5m (see Appendix image 1).
T2	Copper Beech	Semi-mature	15	920	11.0	7	6.5	8.5	7.5	Good	B1/2	>40 yrs	Good	Stem measured below main unions at 0.5m. Main unions at 1.5m with three leaders. Unions included but currently adequate with significant natural bracing above. Crown with a healthy shoot structure and a small volume of medium deadwood extending over road. Otherwise, a good specimen free from notable defects.	Discretionary Recommendation: Remove deadwood extending over road greater than 50mm diameter.
H1	A Hedgerow		2.25			1	1	1	1		B2	>40 yrs	Good	Well managed privet hedge with only one notable break. Provides very good screening.	

Appendix 2: Retention Categories

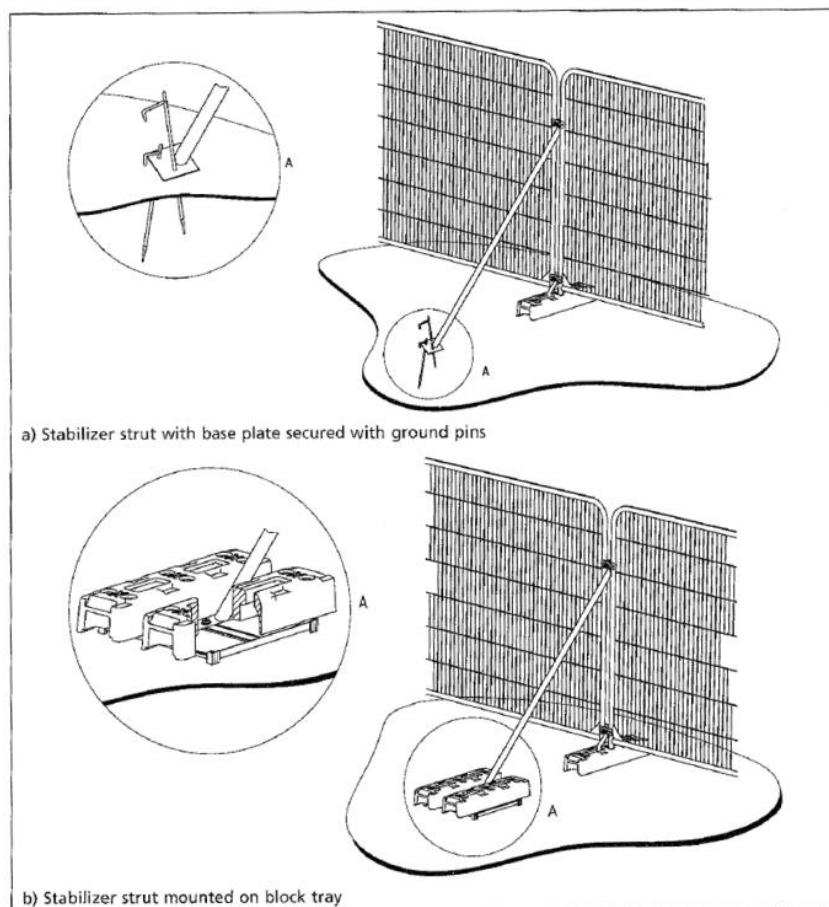
Trees Unsuitable for Retention	
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to 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. <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>

Tree to be Considered for retention	1 For Arboricultural Reasons	2 For Landscaping Qualities	3 For Cultural Values, Including Conservation
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years.	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.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

Tree to be Considered for retention	1 For Arboricultural Reasons	2 For Landscaping Qualities	3 For Cultural Values, Including Conservation
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	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, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.
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 150 mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

Appendix 3: Tree Protection Fencing

Figure 1. Specification for Above Ground Stabilised Protective Fencing



The protective fencing will be installed in accordance with BS 5837: 2012 and will comprise of weld mesh panel fencing, situated in rubber or concrete feet. Panels will be joined together using a minimum of two anti-tamper couplers, positioned so that they can only be removed from inside the barrier. The fencing will be supported at each joint (where two panels meet) with a stabiliser strut, attached to the fencing at one end and a base plate at the other, which will be secured with ground pins, driven into the underlying soil.

Figure 2. Example Signage for Protective Fencing



Appendix 4: Guidelines & Limitations

All work must be to BS 3998: 2010 - 'Recommendations for tree work'.

Staff carrying out the work must be qualified, experienced contractors, and should be covered by adequate public liability insurance.

This report is based upon a visual inspection. The consultant shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out as outlined and within the stated timescales.

It is advisable to have trees inspected by an arboricultural consultant regularly. In this instance it is recommended that these inspections are made as per the recommended re-inspection timings in this report. Furthermore it is recommended that trees be re-inspected following certain events. These include; severe weather events, significant changes to site usage, changes that affect wind loading on the trees (e.g. Removal of neighbouring trees, erection/demolition of buildings).

Appendix 5: Site Images



Image 1 – T1 showing existing crown spread and height