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**PRE-DEVELOPMENT IMPACT
ASSESSMENT AND REPORT ON TREES**

AT

**LAND R/O 35 SOUTH CLIFF ROAD
KIRTON IN LINDSEY
GAINSBOROUGH
DN21 4NR**



CLIENT - MR M ALLISON

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1.0 INTRODUCTION

1.1 Purpose of the Report

This report is intended for use by my clients as a pre-development impact assessment of trees in relation to proposals to convert an existing detached domestic garage into residential accommodation. It shall not apply to any other use or purpose.

1.2 Terms of Reference

I am instructed to prepare the report by my client -
Mr Matthew Allison, 65 Lincoln Crescent, Kirton in Lindsey, North Lincolnshire DN21 4PZ.
The instruction was confirmed in a signed agreement dated 7 January 2021.

1.3 Documents Received

A plan drawn and issued by my clients' agent TAS Building Design, Brigg has assisted in the preparation of this report. The drawing is numbered 18309/A0001.

1.4 Scope of the Report

I have agreed with my clients that I adhere to the following brief when preparing the assessment and report;

- 1 Visually assess 7 trees and 1 group growing within and beside the proposed development site.
- 2 Comment on its condition and suitability for retention.
- 3 Provide a report complying with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' which gives management recommendations to assist in mitigating any potentially adverse effects of the development, including a summarised arboricultural method statement and a tree protection plan.

1.5 Limitations

The report is limited to describing the trees identified in the report, the potential effects of the construction and methods by which to mitigate their impact. The visual inspection was made from ground level. No other tests have been conducted, either by myself or by others under my direction, nor have I recovered any samples for testing by a third party.

2.0 SITE DESCRIPTION AND PROTECTED STATUS OF TREE

2.1 Site description

The proposed conversion stands to the north of Dunstan Hill close to its junction with South Cliff Road. The site is secluded behind walls of limestone and the brick rear elevation of the garage which has two indentations formed to accommodate a pair of elms removed in the late 1980s. The single storey building stands near the top of the Lincoln Edge and looks into the triangular plot which was formerly part of 35 South Cliff Road. Trees exist on the site boundaries and beyond it in the neighbouring garden to the north.

2.2 Protected status of the trees

The trees within the site are not afforded the protection of a tree preservation order. However, those growing in the grounds of the adjacent property (35 South Cliff Road) stand within the Kirton in Lindsey Conservation Area. This information was confirmed by reference to the North Lincolnshire Council website on 5 February 2021.

3.0 DISCUSSION

3.1 Overview of the trees

3.1.1 Trees within the development site

The largest tree on the site is a sycamore standing beside an unfinished access from Dunstan Hill which was formed through the limestone boundary wall. The tree grows on the top of the wall and major support roots measuring up to 200mm in diameter have been severed at this point. The elevated site and the precarious location in which the sycamore is rooted are cause for concern regarding its future stability. Other trees on the site are low-grade specimens, particularly the suckering holly T2 which has self-set in the gap where an elm once stood. A better quality holly, T4, grows within 10cm of the existing north elevation of the garage but its upper trunk is currently 5cm from the wall. Its crown has been badly pruned in the past but it remains healthy. The tree will begin to exert pressure on the structure as it continues to add annual growth rings. Two short unkempt sections of Leyland cypress hedge exist to either side of the access.

3.1.2 Third party trees bordering the development site

Four significant trees grow within the grounds of 35 South Cliff Road immediately beside or near the boundary. Two fully mature beech and a fully sycamore overhang the northern boundary (T5 - T7). A sycamore in early maturity (T3) stands within 1m of the garage with roots in contact with its north-east corner. The latter is most likely to conflict with the existing garage and is already having an adverse effect on the boundary wall of 35 South Cliff Road. The roots have developed under the foundation and the tree is lifting and pushing the wall outwards into the street. Other hollies and yews exist as a group beyond the boundary fence in the adjoining property. They are relatively small trees in early maturity and are healthy, growing in locations close to the tarmac forecourt. In this respect, they will not be affected by the project as no excavations are proposed in this area. The size of their trunks and crowns indicates their root zones will be relatively compact. They have been excluded for the survey for this reason.

3.2 Potential impact of the construction on the trees

The footprint of the existing garage is not being altered. Trial holes have confirmed the foundation base of the north elevation is approximately 800mm below ground level. Alterations within the building will lower the floor level at the north end of the building. However, there is likely to be limited rooting under this area as the depth of the existing footing will be close to the bedrock limestone. This is likely to have discouraged growth and contained the spread of any active roots from developing laterally under the floor area. The existing tarmac forecourt will remain, although the ageing surface may be lifted and replaced by permeable block paving towards the end of the project. Resurfacing the forecourt with a permeable surface will benefit the adjacent trees by improving the access to soil oxygen and rainwater to the roots.

3.3 Mitigating the effects of the construction

The key trees near the project are the three fully mature beech and sycamore (T5 - T7). They will also be the most sensitive to alterations in ground conditions. As trees at full maturity, they will not have the resistance, vigour and adaptability to recover from root damage or changes in soil levels. Such actions would lead to a marked decline in their condition. For this reason, construction works must be kept outside the root protection area (RPA). British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations', lays out specific guidelines for excluding access to RPAs by using protective fencing. It specifies that all site accommodation, spoil, materials and chemicals or fuels should be stored outside the RPA. The reason is to safeguard against accidental spillage of toxic liquids and prevent further soil compaction around the roots. The extent of the RPA is marked on the tree protection plan. Secure protective fencing compliant with the Standard must be erected along this line before any work begins. The fencing must also remain in position until the project is complete, other than any light soft landscaping works required in that area.

4.0 CONCLUSIONS

4.1 Trees beside the garage

The trees closest to the garage are low grade individuals which are either damaged, are causing and furthering existing structural damage or are generally poor specimens growing in inappropriate locations beside the building. The sycamore T1 should not realistically be retained. It has suffered significant root severance and stands on a wall in a position at the top of The Cliff where it is exposed to potential windthrow in storm conditions. The holly T2 is an indifferent example which is to be removed. This is to facilitate "squaring off" the indentation in building to continue a straight elevation beside Dunstan Hill. The vigorous sycamore T3 is uplifting the boundary wall of 35 South Cliff Road. If left unchecked, it will further destabilise the wall, leading to it collapsing towards the verge and footpath outside the property. The holly T4 is now 5cm from the upper courses of the brickwork and its retention in this position is unsustainable.

4.2 Mitigating the impact of construction on the retainable trees

Beech as a species is very prone to suffering lasting and irreparable damage on development sites. The two fully mature beech and the large sycamore should be safeguarded by the use of the protective fencing fixed in place for the duration of the project. The yews and hollies beyond the boundary will be unaffected by any work to reduce the garage floor level or the careful resurfacing of the tarmac forecourt. Their root zones will be interlocking and those of identical species are likely to be grafted in places helping to support and sustain their peers. No disturbance is proposed within the neighbouring garden where the bulk of their roots stand.

5.0 RECOMMENDATIONS

5.1 Tree management recommendations

The recommended tree removal works should ideally be completed before construction work begins.

5.2 Construction management recommendations

Appendix B gives specific recommendations for the method and sequence of operations for the construction. Its purpose is to guide the contractor in taking the most effective approach to conserving the retained trees, in particular the large beech T5.

John F Robinson NDArb
Arboricultural Consultant
10 February 2021



APPENDICES

APPENDIX A

TREE SURVEY TABLE AND GLOSSARY OF ABBREVIATIONS AND TECHNICAL TERMS USED

Tree No	Species	Age Class	Condition	Height (m)	Crown Spread (m)	DBH (mm)	Root Protect Radius (m)	Remarks / Recommendations	Retn Code
T1	Sycamore <i>Acer pseudoplatanus</i>	M	Phys Good/Fair Struct Fair/Poor	17	N - 7.5 S - 7.5 E - 8 W - 6.5	± 900 (ivy)	N/A	Root collar on top of limestone wall approx 1m above street level. Severe damage to SW where main roots cut 1m from root collar when access formed by previous owner. Severed triple cluster of roots measures 20cm across, single root is 17cm in diameter. Unidentified gelatinous fungal species present on cut surfaces and dead fibrous roots visible in same quarter. Trunk and major limbs totally obscured by dense ivy to 14m preventing clear inspection. Crown has been reduced around 13m in past. Shoot growth now shortening and decelerating. Tree badly damaged and sited in exposed location. Remove tree.	U
T2	Holly <i>Ilex aquifolium</i>	SM	Phys Good Struct Fair	9	N - 1 S - 1 E - 3 W - 1	Multi-stems	N/A	Thicket of around 3 stems. Appears to have self-seeded since removal of large elm in recess of building. Healthy foliage but poor form. Remove tree.	C1
T3	Sycamore	EM	Phys Good Struct Good	16	N - 2 S - 6 E - 5 W - 5	450	N/A	Third party tree. Growing 1m from garage with surface roots in contact with structure and causing upward pressure and outward rotation of boundary wall. Vigorously growing in unsustainable position. Remove tree.	C2

Tree No	Species	Age Class	Condition	Height (m)	Crown Spread (m)	DBH (mm)	Root Protect Radius (m)	Remarks / Recommendations	Retn Code
T4	Holly	M	Phys Fair Struct Good	13	N - 1 S - 5 E - 2.5 W - 2.5	310	N/A	Self-set tree located 10cm from garage wall projection at root collar and 5cm beside top of wall. Sound root collar and vertical trunk to 4m where it has been topped. Healthy crown biased to S, poorly pruned with old stubs present at lower levels. Growing in unsustainable location. Remove tree.	C2
T5	Beech <i>Fagus sylvatica</i>	FM	Phys Good Struct Good	22	S - 10 E - 11 W - 7	± 850	10.2	Third party tree. Root collar and trunk appear sound when viewed from site. Light ivy to 12m. Major and secondary limbs removed from S face at 5m where initial decay now establishing. Lower branches badly lifted above adjacent shed leaving pruning stubs. Evenly-distributed crown supported by upright, sound limbs and overhangs site to SW. Dead wood exists to 75mm dia. Canopy making active growth all round. Retain tree.	A2
T6	Beech	FM	Phys Good Struct Fair/Poor	21	S/W - 9	± 750	9.0	Third party tree. Appears sound from sound when viewed from site. Vertical trunk with light ivy to 9m. Crown deviates from 11m with majority of growth to NE. Single light lateral branch extends above site to SW. Canopy making active growth all round. Retain tree.	C2
T7	Sycamore	FM	Phys Good Struct Good	22	S/W - 11.5	±1100	13.2	Third party tree. Large, bulky tree appears largely sound when viewed from site. Stout trunk with fully occluded scars and compartmentalised cavities. Sound multiple forks exist at 6m. Spreading crown limited to E by T6/T7 with 2 abrading branch in W quarter and dead wood to 50mm. Domed canopy to S, W and N, still making slow but active growth. Overhangs site to SW. Retain tree.	A2

Tree No	Species	Age Class	Condition	Height (m)	Crown Spread (m)	DBH (mm)	Root Protect Radius (m)	Remarks / Recommendations	Retn Code
G1	Leyland cypress <i>Cupressocyparis leylandii</i>	SM	Phys Good Struct Poor	7	2.5 Max spread	N/A	N/A	2 short and unkempt sections of hedge rooted in limestone boundary wall to either side of access. Minimal amenity value. Remove trees.	U

GLOSSARY OF TECHNICAL TERMS USED

TREE RETENTION CATEGORIES

The tree retention categories are taken from BS5837:2012 and are described in simplified terms below;

- U Unclassified
Trees with significant structural defects, or of such poor health or form as to make them undesirable for retention within a built environment.
- A Trees of high quality and value with at least 40 years of useful life expectancy and landscape contribution.
- 1 Particularly good examples in open setting or essential components of groups.
 - 2 Trees or groups providing screening or softening effect at the site margins, or form otherwise visually important features.
 - 3 Trees with significant cultural value eg. conservation, historical or commemorative.
- B Trees of moderate quality and value (at least 20 years useful life expectancy).
- 1 Trees which would otherwise qualify for an A category rating but are impaired by minor remediable defects.
 - 2 Trees forming part of a group or otherwise located within the site (thereby affording limited landscape value to the wider locality).
 - 3 Trees with clearly identifiable conservation or other cultural benefits.
- C Trees of low quality but retainable in short - medium term (at least 10 years).
- 1 Trees not qualifying for the higher categories.
 - 2 Trees in low-grade groups or those offering temporary screening benefits.
 - 3 Trees with very limited conservation or other cultural benefits.

AGE CLASSIFICATIONS

EM	Early maturity	Tree exhibiting good or moderate vigour and aged between 30% - 50% of projected normal life expectancy.
M	Mature	Tree exhibiting moderate vigour and aged between 50% - 80% of projected normal life expectancy.
FM	Fully mature	Tree exhibiting reduced vigour or static growth signifying its full size has been attained.
SM	Semi-mature	Tree exhibiting good or moderate vigour and aged between 15% - 30% of projected normal life expectancy.

CONDITION

Description	Physiological	Structural
Good	Tree exhibiting robust vitality with vigorous growth and healthy foliage. No discernible pathogenic (especially fungal) activity. Long projected life expectancy exceeding 25 years.	Tree in sound state with no discernible weaknesses or pathogenic activity. No alteration in adjacent ground conditions.
Good/Fair		
Fair	Tree of moderate or low vigour and reasonable health. No discernible pathogenic activity. Projected life expectancy of 10 - 25 years.	Tree in generally sound state with occasional minor rectifiable defect or storm damage. No discernible pathogenic activity or alteration in adjacent ground conditions.
Fair/Poor		
Poor	Tree of declining vitality with abnormally small or discoloured foliage. Fungal pathogens may/may not be present. Projected life expectancy of less than 10 years.	Tree exhibiting significant structural defects, storm damage and/or fungal pathogens. Crown can also be of poor form. Ground conditions may have been significantly altered so as to impair or weaken root structure.

N, SW, E etc.

Cardinal compass points

Canopy

The outer layers of the crown formed by the twigs and foliage.

Compartmentalisation

The process by which a healthy tree isolates and seals off an area of damage and subsequent decay.

Crown

The parts of the tree formed by the major limbs, secondary and tertiary branches (ie all the parts other than the trunk).

Crown lifting	The removal of lower branches to “lift” the lower crown level so as to remove growth causing an obstruction or allow the improved passage of daylight beneath the tree.
Occlusion	The sealing of a wound (eg pruning cut or other damage to the bark) by the formation of new growth around the wound margin.
Root collar	The trunk base where the root buttresses begin to flare outwards and descend into the soil.

APPENDIX B

SUMMARISED ARBORICULTURAL METHOD STATEMENT

Site – Land r/o 35 South Cliff Road, Kirton in Lindsey, North Lincolnshire DN21 4NA

Scope of Works

The proposal for the site is to convert an existing detached garage into residential accommodation. The purpose of this method statement is to raise awareness for conserving three trees in the neighbouring garden (within the Kirton in Lindsey Conservation Area) during the project by sequentially programming any potential aspects of the scheme which could adversely impact upon them. It gives recommendations and guidance to the contractor and should be followed accordingly.

- A Measure and mark out the root protection area (RPA) on the ground (as set out on the designer’s drawings).
- B Erect approved protective fencing along the line of the RPA. The fencing must be formed of HERAS panels fixed to the ground by stakes to prevent casual re-positioning. It must remain intact for the duration of the project and only dismantled once landscaping works (including the replacement of the tarmac forecourt surfacing) are to begin.
- C The tarmac forecourt surface should be taken up by hand to prevent any inadvertent root damage to T5 caused by deeper mechanical excavation. The replacement sub-base should comprise a supportive layer of geotextile fabric with density suitable for its application beneath the sharp sand on which the block paving is to be laid.
- D Complete the approved landscape finishes being careful not to deeply cultivate the soil within the RPA.

APPENDIX C

SURVEY CONDITIONS AND METHODS

1 Date of inspection

23 January 2021

2 Persons present

John Robinson	- Tilia Tree Consulting
Liz Woods	- Tilia Tree Consulting
Tom Slater	- TAS Building Design
Mr Matthew Allison	- Client

3 Weather conditions

Weather conditions at the time of the inspection were cold and overcast but bright with a light north-westerly breeze, becoming dull with occasional snow flurries later.

4 Survey methods

The trees have been visually inspected from ground level. Access to the grounds of 35 South Cliff Road was not obtained. Crown and stem diameter measurements for T5 - T7 have therefore been estimated.

5 Equipment used

The following equipment has been used during the site inspection to determine the data given.

Height -	Clinometer
Diameter at breast height (1.5m) -	Diameter tape measure
Crown spread -	Surveyor's tape measure

APPENDIX D

PHOTOGRAPHS



Picture 1 – showing the exposed rootplate of sycamore T1 beside the existing access. Severed major roots are circled.

TTC/2103/A
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Appendices



Picture 2 – showing sycamore T1 at the top of Dunstan Hill. The south east elevation of the garage is partly obscured by the holly T2.

DN21 4NA



Picture 3 - showing the proximity of holly T4 adjacent to the projection wall of the garage.



Picture 4 - showing (right to left) beech T5, beech T6 and sycamore T7.

APPENDIX E

John Fraser Robinson

Professional qualifications and experience

Qualifications

National Diploma in Arboriculture (BTEC)
Professional Tree Inspection Award (LANTRA)

Experience

John Robinson has been working with trees since 1976.

1976 - 1978 Earl of Yarborough, Brocklesby Park, Lincolnshire
Forestry Department trainee woodman.

1978 - 1981 Merrist Wood College, Worplesdon, Guildford
Whilst on industrial placement during the second year of the 3 year course, he gained further experience as an arboricultural trainee with Sheffield City Recreation Department. Individual placements within the department yielded specific experience in tree surgery operations, tree inspections and surveys, plant material handling and nursery practices.

1981 - 2018 Lindsey Tree Services Ltd.
He established the company as a sole trader on leaving Merrist Wood College. Based in Grimsby, the firm served the northern parts of Lincolnshire and surrounding districts as arboricultural contractors and consultants. He successfully expanded the business and became managing director when the firm incorporated in October 2001. The daily organisation of the business yielded routine experience in hazard tree evaluation, decay detection assessments and in compiling arboricultural method statements and risk assessments. He retired from Lindsey Tree Services Ltd (which continues trading) in September 2018 to concentrate on his own arboricultural consultancy under the name Tilia.

2018 - present Tilia Tree Consulting

He has established his own consulting business, drawing on over 40 years of experience and knowledge of the specialist field of arboriculture.

He has advised and prepared reports on a wide range of tree issues since 1981. Clients include social housing providers, local authorities, utilities, health authorities, architects, developers and conservation organisations. Further wide experience has been gained in reporting for householders, landowners and their agents, consulting engineers, loss adjusters and solicitors. He has been called as an expert witness on a number of occasions, giving evidence both in court and to planning inquiries on matters involving trees and tree preservation order appeals.

Professional Association

He has been an Associate member of the Arboricultural Association since 1981 and subscribes to its programme of Continuing Professional Development. He served on the Association's Northern Branch Committee from March 2001 until February 2014.

DO NOT SCALE





SPECIFICATION & CONSTRUCTION NOTES:

GENERAL

1. These notes are intended to augment drawings and specifications. Where conflict of requirements exists the order of precedence shall be as shown in the specifications. Otherwise the strictest provision shall govern
2. This drawing is to be read in conjunction with all other relevant Engineering and Architectural drawings.
3. Drawings not to be scaled. All dimensions to be checked on site by the Contractor. Any discrepancies to be notified to the Building Designer and further instructions obtained before work is commenced.
4. The structure is designed to be self-supporting and stable after the building is fully complete. It is the Contractor's sole responsibility to determine the erection procedure and sequence and ensure that the building and its components are safe during erection. This includes the addition of whatever temporary bracing, gys or tie-downs which may be necessary, such material remaining the property of the Contractor upon completion.
5. This drawing represents a detailed dimensional measurement survey of the physical dimensions of the existing property. This drawing does not and is not intended to express any opinion on the physical, superficial or structural condition of the premises depicted.
6. This drawing is to be read in conjunction with all other relevant drawings.

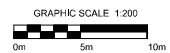
LEGEND

KEY TO RETENTION CODES UNDER BS 5837:2012:

-  'A' Category Tree
-  'C' Category Tree
-  Unclassified Tree
-  Location of tree root protection area and protective fencing



Site Plan
Scale 1:200



REV	DATE	BY	DESCRIPTION	CHK	APP
0	01.03.21	TAS	Initial Issue	TAS	TAS

DRAWING STATUS: **INITIAL ISSUE**

TAS Building Design
 FF2/2A School Court
 Wrowby Street
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CLIENT: **MR M ALLISON**

PROJECT: **LAND ADJ 35 SOUTH CLIFF ROAD, KIRTON NORTH LINCOLNSHIRE**

TITLE: **TREE SURVEY & PROTECTION MEASURES**

SCALE @ SIZE: AS SHOWN @ A1	CHECKED: TAS	APPROVED: TAS
DWG FILE: 18309/Dwg/Arch	DESIGN/JOURNAL: TAS/ls	DATE: MAR 2021
PROJECT No: 18309	DRAWING No: A0001	REV: -

