

SF3125 6 Kirk Lane, Eastby

ARBORICULTURAL SURVEY REPORT | BS 5837:2012

Revision A - December 2020

SMEEEDEN FOREMAN

Landscape Architecture • Ecology • Arboriculture

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Document Check Sheet

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1.0 Introduction

Smeeden Foreman Ltd has been appointed to undertake an arboricultural survey of trees at 6 Kirk Lane, Eastby.

The survey was undertaken on 30th October 2020 and was based upon topographical survey plan S11905 produced by Stirling Surveys. The trees have been surveyed in accordance with BS5837:2012. The limitations of survey techniques and analysis are included in Appendix A.

1.1 Site Description

The site is located at land at 6 Kirk Lane, Eastby (see Figure 1). The site comprises an existing detached dwelling with gardens to the south. The survey is focused on the trees adjacent to the existing garage in the north west corner of the site.

1.2 Legal status of trees

Trees T1, T2 and T3 are subject to a Tree Preservation Order, Ref: TPO No.2 1971- G14 (sycamore). The site is not situated within a Conservation Area (Digital mapping provided by Craven District Council, accessed 11.11.2020).

Trees may be subject to legal protection under a range of legislation, which is aimed at wildlife and habitat protection, particularly nesting birds and bats.

No work should be done to any trees until either suitable permission has been granted or it has been verified that the intended work does not require permission.



Figure 1 – Location Plan

2.0 Aims and Methodology

2.1 Aims

The aims of the survey are to undertake a non-invasive survey of the identified trees and any trees which have the potential to be affected by future works within the vicinity. The Tree Constraints Plan shows the location and category of the surveyed trees.

2.2 Survey Methodology

The survey was carried out to British Standard 5837:2012 using the categories explained below:

2.2.1 The trees were assessed visually from ground level. Where potential problems were identified, further inspection by tree climbing is recommended. No digging or drilling methods were employed during this survey

2.2.2 The tree numbers or group numbers within the schedules refer to the order in which the trees were recorded and shown on the tree survey plan

2.2.3 The approximate height of each tree is measured from ground level to top of canopy using a clinometer;

2.2.4 The diameter of each tree is measured at 1.5m above ground level. Where a tree stem divides below 1.5m each stem is measured at 1.5m above ground level in accordance with Annex C of the British standard. The diameter of trees where the trunk was inaccessible have been estimated and marked as such within the schedules.

2.2.5 The age of each tree is based upon our experience and is divided into young, semi-mature, early-mature, mature, over-mature.

2.2.6 The water demand of each tree (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2) noted on or adjacent to the site is recorded. Shrinkable soils are subject to changes in volume as their moisture content is altered. Soil moisture content varies seasonally and is influenced by a number of factors including the action of tree roots. The resulting shrinkage or swelling of the soil can cause subsidence or heave damage to foundations, the structures they support or services.

Engineers should consider the soil condition and the potential impact of the species of the trees/hedges on and adjacent to the site when preparing building/structure design.

2.2.7 The physiological condition of the trees is based upon our experience and is an assessment of the health and vigour of the tree.

2.2.8 The structural condition and description is also based on our experience.

2.2.9 Estimated remaining contribution and category/rating of each tree is based on our experience;

2.2.10 The retention category of each tree or group of trees is based upon the information detailed above using the following categories:

- A Trees of high quality and estimated remaining life expectancy of at least 40 years (Light green on plan)
- B Trees of moderate quality and estimated remaining life expectancy of at least 20 years (Mid blue on plan)
- C Trees of low quality and estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm Grey on plan)
- U Trees cannot realistically be retained as living trees in context of current land use for longer than 10 years (Dark red on plan)

2.2.10 The following subcategories have been used in rating tree value:

- 1 Mainly arboricultural value
- 2 Mainly landscape value
- 3 Mainly cultural values, including conservation

2.3 **Key to Survey Schedules**

| | |
|---|---|
| Tree no. | Tree number as recorded on the plan: T1, T2 etc and for tree groups: G1, G2 etc. Hedges: H1, H2 etc. Woodland: W1, W2 etc. |
| Species | Common name / Scientific name |
| Height | Overall estimated height of the tree in metres (rounded up to the nearest metre for trees over 10m high). |
| Stem Dia | Stem diameter measured in millimetres at 1.5m above ground (on sloping ground measured on the upslope of the stem) in accordance with Annex C of BS5837:2012. |
| Branch spread | Measured in metres (rounded up to the nearest half metre) along the four cardinal points: north, east, south and west to derive an accurate representation of the crown. |
| Ht crown clearance | The existing height, measured in metres, above ground level of: the first significant branch and direction of growth and the canopy. |
| Age class: | |
| Young (Y) | Recently planted or establishing tree. Typified by vigorous growth and distinct apical dominance (definite, discernible leader). |
| Semi-mature (SM) | Tree that has not reached its ultimate potential height. Phase includes considerable girth thickening and the start of crown spreading. |
| Early mature (EM) | A tree that is reaching its ultimate potential height. The growth rate is slowing down but the tree, will still increase in stem diameter and crown spread. |
| Mature (M) | The tree has attained its largest proportions and has reached its ultimate height. The tree is typified by thicker bark plates and a large spreading crown. |
| Over-mature (OM) | The tree has attained its maximum height and growth rate slows considerably. Characterised by the loss of large limbs, large amounts of deadwood and decay. Limited safe life expectancy. |
| Water Demand | High, Moderate, Low (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2) |
| Physiological condition | Good (G), moderate (M), poor (P), dead (D). |
| Structural condition | Overall form of tree, presence of any decay, any physical defects and observations |
| Preliminary Management Recommendations | Including any further investigations required, wildlife habitat potential, management or pruning works. |
| ERC | The estimated remaining contribution measured in years: <10, 10+, 20+, 20-30+, 40+ |
| Cat | Category U or A to C grading as defined in Table 1 BS 5837: 2012 |
| RPA | Root protection area measured in square metres, calculated according to BS 5837:2012 |

Other abbreviations used:

| | |
|--------------|----------------------------|
| N | North |
| S | South |
| E | East |
| W | West |
| GL | Ground level |
| Asym. | Asymmetrical (crown shape) |
| OSB | Outside site boundary |
| MS | Multi-stemmed |
| NWR | No work required |
| NVD | No visible defects |

3.0 Tree Survey Schedules

3.1 Individual Trees

| Tree No. | Species | Top Height (crown height) m | Branch Spread (m) | | | | Stem Dia. (mm) | Age Class | Water Demand | Condition | Comments | ERC (years) | Recommendations | Category |
|---------------|--------------------------------|-----------------------------|-------------------|---|---|---|----------------|-----------|--------------|-----------|---|-------------|--|----------|
| | | | N | E | S | W | | | | | | | | |
| T1 TPO | Acer pseudoplatanus (Sycamore) | 20(6) | 7 | 5 | 9 | 6 | 900 | M | M | Good | Stem divides above 1.5m.crown lifted. | 40+ | NWR | A2 |
| T2 TPO | Acer pseudoplatanus (Sycamore) | 20(5) | 6 | 5 | 7 | 3 | 750 | M | M | Good | Stem divides above 1.5m. Crown distorted due to group pressure. Crown lifted. | 40+ | NWR | A2 |
| T3 TPO | Acer pseudoplatanus (Sycamore) | 20(6) | 5 | 4 | 6 | 2 | 750 | M | M | Good | Crown distorted due to group pressure. Crown lifted. | 40+ | NWR | A2 |
| T4 | Taxus baccata (Yew) | 9(2) | 4 | 3 | 3 | 2 | 300 | EM | M | Good | Epicormics on stem. Stem divides above 1.5m. Unbalanced crown shape. | 40+ | Pruning work would be required to the east side of the crown to accommodate the proposed garage development. | B2 |
| T5 | Ilex aquifolium (Holly) | 2.5(0) | 1 | 1 | 1 | | 75 | Y | L | Good | Stem divides at ground level. Bushy form. | 40+ | NWR | C2 |
| T6 | Acer griseum | 10(2) | 4 | 4 | 4 | 3 | 300,250 | M | M | Good | Stem divides below 1.5m. Included bark present in fork. | 40+ | NWR | A2 |
| T7 | Fraxinus excelsior (Ash) | 18(4) | 5 | 8 | 8 | 5 | 500 | M | M | Good | OSB. Limited inspection. Stem divides above 1.5m. | 20+ | N/A | B2 |

| Tree No. | Species | Top Height (crown height) m | Branch Spread (m) | | | | Stem Dia. (mm) | Age Class | Water Demand | Condition | Comments | ERC (years) | Recommendations | Category |
|----------|-------------------------------|-----------------------------|-------------------|---|---|---|----------------|-----------|--------------|-----------|---|-------------|-----------------|----------|
| | | | N | E | S | W | | | | | | | | |
| T8 | Ilex aquifolium (Holly) | 10(4) | 3 | 2 | 3 | 2 | 200,80 | EM | L | Fair | OSB. Limited inspection. Stem divides at ground level. Unbalanced crown shape. | 20+ | N/A | B2 |
| T9 | Betula pendula (Silver Birch) | 18(1) | 4 | 6 | 6 | 8 | 800 | M | L | Good | Leaning South. Tree has developed the lean and unbalanced crown shape due to previous competition from other mature tree, which has since been removed. | 20+ | NWR | B2 |

4.0 Above Ground Constraints

- 4.1 The potential for retaining trees on a development site includes the extent of the influence of the tree at the time of survey. Consideration is also given to the effects of future growth within the context of the proposed development. In addition, the potential nuisance caused by shading to new buildings both after construction and also once trees reach their ultimate size is also considered.
- 4.2 The extent to which a tree may represent a constraint to development will depend both upon the location of the trunk and size and nature of the canopy and also the extent of the roots below ground. The tree constraints drawing (SF3125 TC01) plots the location and extent of the tree above ground.

5.0 Below Ground Constraints

- 5.1 The Root Protection Area (RPA) represents a potential constraint to development which may be modified in pattern, although not overall area, by existing site conditions such as structures and surfaces, soil types and drainage, and an appreciation of the nature of particular tree species and root morphology.
- 5.2 Within the tree root protection area there should be a presumption against excavation, excess vehicular or pedestrian movement, storage of materials, construction, or changes in ground level unless consideration is given to the potential effects on the tree to be retained and the efficacy of any construction techniques designed to reduce adverse effects on the tree.
- 5.3 The tree constraints drawing (SF3125 TC01) plots the location and extent of the tree below ground through application of the calculation provided in section 4.6 of the BS5837:2012 Trees in relation to design demolition and construction – Recommendations.

APPENDIX A

Tree survey to BS 5837:2012 -Trees in relation to design demolition and construction limitation notes

This survey to BS 5837:2012 is a visual assessment undertaken from ground level without any physical investigation and should be regarded as a preliminary overview of the trees on site. 'This term [visual] describes a general approach to tree surveying using visual observation and recording, combined with experience and knowledge of tree biology and structure to draw conclusions about tree condition'p8[1]

Observations on structural condition, preliminary management recommendations, (e.g. pruning) and the estimated remaining contribution are based on visual indicators present at the time of inspection (i.e. a single point in time).

It should be noted that numerous potential defects may not be detectable dependent upon timing of inspection, in particular wood decay fungi which may only occasionally produce external fructifications or may not provide external symptoms until an advanced state of invasion is achieved.

Trees are long lived organisms with a significant proportion of growth below ground, (in addition to what is evident above ground) that naturally lose branches and may potentially fail in many ways.

Risk Assessments

Whilst hazards may be identified in this document e.g. a defect 'that may cause harm'. The risk, (i.e. 'the chance high or low) that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be' is not assessed. [2]

Requirements for ongoing inspections (to monitor observed defects) and risk assessments will be suggested as necessary in the body of the report. The level and frequency of assessment required (in line with HSE advice) will depend on a range of factors for example 'the frequency of public access to the tree' p4 [3]. A balanced and proportionate approach to tree safety management is advocated in the National Tree Safety Group publication 'Common sense risk management of trees'. [4]

The health, (condition) and resulting safety of trees for a risk assessment should be checked on a cyclical basis, alternating between early and late seasons to ensure a full picture of the trees current health is established. Therefore the assessment of risk that trees present on a particular site would be additional to the scope of this BS 5837:2012 tree survey.

Arboricultural Impact Assessments, Tree Protection Plans, Method Statements, Tree Management Plans

These items are additional services identified relating to design demolition and construction in BS5837:2012 which may form part of a strategy to manage risks.

NHBC Guidelines

The technical requirements of the National House Building Council Chapter 4.2 Building near trees are not fully met under the requirements of BS BS5837:2012 in relation to shrinkable soils and 'vegetation surveys' (which include hedgerows and shrubs.). p4 [5]

References/ Further reading

[1] The Arboricultural Association Guidance Note 7 Tree Surveys: A Guide to good Practice.

[2] Health and Safety Executive Guidance <http://www.hse.gov.uk/risk/risk-assessment.htm>

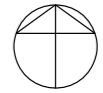
[3] HSE guidance on Tree Management SIM01/2007/05 Management of the risk from falling trees or branches.

[4] National Tree Safety Group Guidance – Common Sense Risk Management of Trees.






[5] National House Building Council Chapter 4.2 Building near trees (Part 4 Foundations).

APPENDIX B

SF3125 TC01 Tree Constraints Plan



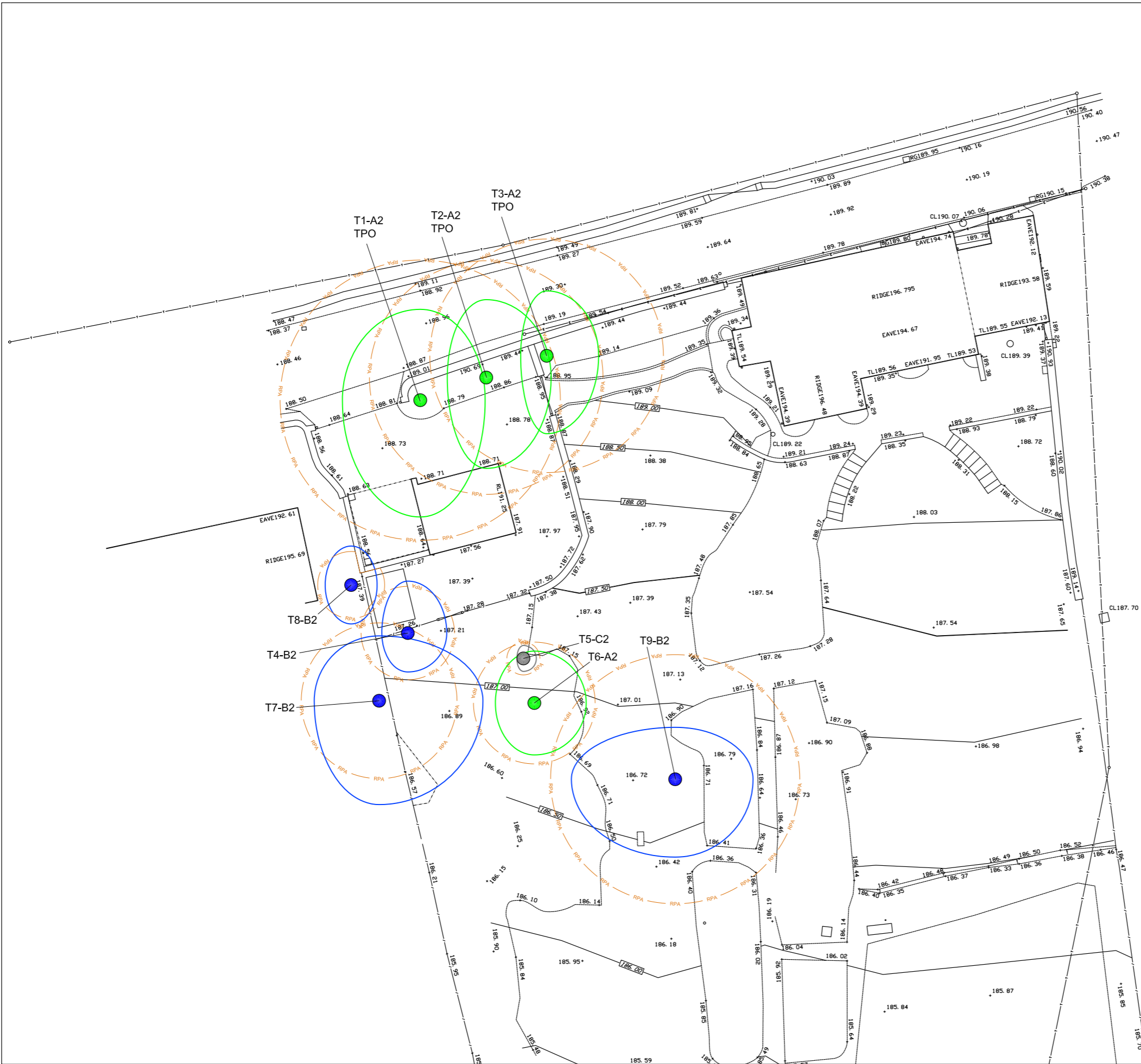
Key

-  **Tree retention category A**
High quality with an estimated life expectancy of at least 40 years
-  **Tree retention category B**
Moderate quality with an estimated life expectancy of at least 20 years
-  **Tree retention category C**
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm
-  **Tree removal category U**
Poor condition with an estimated life expectancy of less than 10 years
-  **RPA**
minimum Root Protection Area

Trees have been surveyed and categorized as per the recommendations and guidance in BS 5837:2012 Trees in relation to design, demolition and construction.

This drawing is to be read in conjunction with the Arboricultural Survey report.

This drawing is to be reproduced in colour.



FOR INFORMATION

| Rev. | Date | Comments | Drawn | Chkd |
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| | | | | |

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Project: **6 Kirk Lane, Eastby**

Title: **Tree Constraints Plan**

| | | |
|------------------------|---------------------|-----------|
| Project No. SF 3125 | Drawing No. TC01 | Rev. - |
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| Scale 1:200 @ A2 | Date 11.11.20 |
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Smeeden Foreman Limited takes no responsibility for the use of this drawing for any purpose other than for that which it was intended.

All dimensions are in millimeters unless stated otherwise. All dimensions should be verified on site prior to commencement of works.

Do not scale from this drawing.

All works must be in accordance with British Standards, EC Standards, Health & Safety at work act & all other relevant regulations & Bye Laws. Any discrepancies should be brought to the attention of Smeeden Foreman Limited.

APPENDIX C

SF3125 AIA01 Arboricultural Impact Assessment Plan

ARBORICULTURAL METHOD STATEMENT

TREE PROTECTION FENCING

Tree protection fencing must be installed in the position as shown on the Tree Protection Plan before any other works on site can be undertaken. Offsets have been dimensioned from existing fixed points to enable accurate setting out on site.

Tree Protection Fencing should be set out as per Section 6.2 of BS5837: 2012 and will comprise a scaffold framework, consisting of vertical and horizontal scaffolds with vertical tubes spaced at a maximum of 3m intervals and driven securely into the ground. Weld mesh (Heras or similar) panels will be securely fixed on to this framework with scaffold clamps. Tubes will be firmed into holes in the ground made with post hole boring equipment. Bracing poles will be fixed to the inside of the barrier to ensure maximum rigidity, and should be located to avoid contact with structural roots.

See Detail 1 for details of the protective fencing to be employed in all circumstances, where existing site conditions allow. Fencing is to be erected as shown on the drawing. All fencing must be fixed in position with driven scaffold poles so that they cannot be moved during the construction period.

All-weather notices, A4 size, shall be attached to the tree protection fencing every 10m at 1.5m high with the words: 'Tree Protection Fence—strictly no access'.

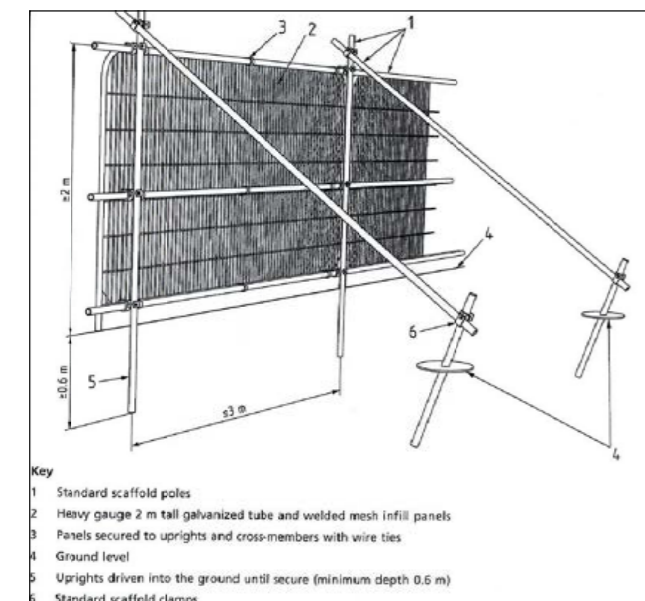
HAND EXCAVATION AND ROOT PRUNING IN THE RPA

The impact in the RPA of trees will be managed by hand digging and carrying out root pruning if required.

Excavations will be undertaken carefully within the RPA using either hand tools or an 'air spade' (a compressed air powered tool). Hand digging will commence using a fork to loosen the surrounding soil and expose any tree roots that may be present. The extent of excavation is to be the absolute minimum required to facilitate the construction.

The diameter of roots tends to taper rapidly at a distance of 2-3m from the tree, until they are only 2-5cm in diameter. Any roots smaller than 25mm diameter, may be pruned back if required. A clean cut must be made, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm must only be severed following consultation with an arborist, as they may be essential to the tree's health and stability.

Until such time as construction works in these areas are completed any severed roots, the ends of which may be exposed, are to be covered by dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling any hessian wrapping must be removed and retained roots will be surrounded with sharp sand (builder's sand must not be used due to its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced



Detail 1 - Tree Protection Fencing (NTS)

