Trees at 121 – 123 Tunstall Road Knypersley,
Stoke-on-Trent.

Tree Report Rev. D.

For

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Job no. 710.

Trees at 121 – 123 Tunstall Road Knypersley.

A tree survey for this site was undertaken on 8th October by Paul Beckmann of Agathoclis Beckmann Ltd. Landscape Architects for Mr and Mrs Critchlow of the above address. Following concerns regarding the variation in the RPAs (Root Protection Areas) of T5 and T4, a meeting was held on site on 17th March 2016 between Paul Beckmann and Steve Massey (Arboricultural Officer for Staffordshire Moorlands District Council). It should be noted that BS 5837:2012 provides some guidance on measuring tree stems (Annex C), but there is no standard method of measurement, so some variation is quite likely, as has occurred with these trees. This report has been amended in accordance with the agreed dimensions.

Tree Survey.

The attached schedule indicates detail on the trees surveyed, their condition and proposed future management. Not all the trees on the site were surveyed, only those which had trunks substantial enough to be considered for Tree Preservation Order (TPO) purposes. Conifers which are part of hedges were not included in the survey.

Methodology.

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to design, demolition and construction – Recommendations' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection and, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

BS5837 Scope.

This standard recognizes that there can be problems of development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

Soil conditions.

The site is underlain by sandy sub soil, the topsoil is a good fertile loam. No samples were taken or test pits dug.

Climatic conditions.

The site is sheltered to a great extent from prevailing south-westerly winds by suburban housing and the trees in adjacent gardens.

Site description.

The site comprises of an area of land east of and abutting Tunstall Road and the southern half is roughly rectangular. To the north the site tapers off to a triangle. To the east of the site, the land belongs to the James Bateman School and is used as sports field and recreation grounds. To the south the site abuts the local churchyard of St John's Church to the southwest and again part of the James Bateman School to the south. The churchyard has a recently built brick Church Hall close to the site boundary. The school grounds adjacent to the southern boundary are used for staff car parking.

The existing entrance, to the northwest of the site, is very close to the exit of the by-pass roundabout / St Johns Road junction.

The western site boundary (to Tunstall Road) up to the site entrance is a close-boarded fence standing on a low stone wall with a total height of 1.8m; the southern half of the site is also backed by a substantial conifer hedge of approximately 5m high. The section of the western boundary from the entrance gate to the apex of the site to the north is a 1.2m high stone wall.

The central section of the eastern boundary comprises of a 1.5m high brick wall and again the southern half, which rises to 1.8m high, is backed by a 5m high conifer hedge. The northern part of the eastern boundary comprises of a 1.2m high brick wall. The land to the south, both the church yard and the school grounds are separated by a Victorian stone wall, approximately 1.5m high. Projecting from the southern boundary is a small, rectangular enclave into the school grounds.

123 Tunstall Road is a substantial two storey, detached Edwardian dwelling. Previously a doctor's residence with linked surgeries, there was significant demolition and remodelling in the early 1990's. The dwelling has a number of single storey outbuildings. 121 Tunstall Road is smaller detached dwelling built within the grounds of 123 Tunstall Road and standing close to the eastern boundary of the site.

Tree and site History.

Trees within the site area were made the subject of a Tree Preservation Order (TPO) in 1969. Tree Preservation Order no. 1 included trees both within and around the site. The TPO refers to specific trees within the site (of which there are 6no.) and also to two 'Group' or Block TPOs, one of which runs along the southern boundary of the site and another along the northeastern and part of the eastern boundary of the site.

A copy of the TPO issued by Biddulph Urban District is attached. The Local Authority is now Staffordshire Moorlands District Council and the TPO map on their website http://www.staffsmoorlands.gov.uk/smdc-aurora is exactly the same as that issued by Biddulph Urban Council. As the TPO is now 46 years old, several of the trees are either missing or no longer appropriate to be covered by a TPO or continue to thrive. These issues will be covered later in the report.

Part of the site was a former tennis court adjacent to and parallel to Tunstall Road, disused for many years. Part of one of the 'Group' TPOs (G2) runs along the southern boundary of the former tennis court.

Vegetation

The whole site area is domestic garden, the majority of which is close mown lawn. Trees in G2 along the southern boundary of the site are in a wide shrub bed, all the other trees in the site are the lawn, with the exception of three trees behind one of the outhouses on the eastern boundary of the site.

Trees.

The tree schedule attached relates to drawing 710/01/T1D and these are the trees surveyed in areas E and F. These trees are those which may be affected by development as indicated on the Proposed Site Layouts, drawings no. 6305-AEW-XX-XX-DR-A-202 and 6305-AEW-XX-XX-DR-A-SK02 A.

Amenity Value of the trees.

The individual trees in the garden subject to TPO no. 1 of 1969 are now well beyond review date and three have died since the TPO was made. These are T3, a black poplar, T6, a sycamore and T9 a 'Jersey' Elm (Ulmus minor 'Sarniensis'?).

Of the three group TPOs (Nos. G1 and G3) G1 is recorded as being 'Group consisting of 7 sycamore, 2 Jersey elm, 2 Norway maple, 1 birch and 1 rowan'. The area covered by G1 now includes 6 sycamore and 1 Norway maple. Of these sycamore, 2 are not worth protecting and could be potentially dangerous.

Group G2 is recorded as a 'Group consisting of 3 sycamore and 2 rowan'. No rowan now exist (unsurprisingly as these are relatively short-lived trees) but two sycamores do exist although these are not particularly good specimens.

Group G3 is recorded as 'Group consisting of 2 sycamore, I birch, I Jersey Elm and 1 Norway maple'. The area covered by G3 now includes 2 sycamore, 1 Norway maple and 3 separate stems of Wych Elm. The original birch is now a dead stump. The Jersey elm has clearly died (doubtless through the Dutch Elm disease which was rampant in the 1970s) and the sucker growth from the original stump has been extremely strong. Unfortunately there is a strong probability that these stems will be effected by Dutch elm disease at any time in the future. One stem, leaning heavily to the south-south-west is extremely heavy and overhangs the adjacent school car park. I recommend that this should be felled as soon as practically possible to reduce the possibility of catastrophic failure.

The Planning Practice Guidance website, (www.planningguidance.planningportal.gov.uk/blog/guidance/tree-preservation-orders) states a propos Tree Preservation Orders and trees in conservation areas that 'The group category should be used to protect groups of trees where the individual category would not be appropriate and the group's overall impact and quality merits protection'. I suggest that the group category for G1 is now no longer appropriate and should be reduced in extent. Local Authorities have the power to vary or revoke a TPO the reasons including;-

- trees standing when the Order was made have been removed (lawfully or otherwise);
- trees, for whatever reason, no longer merit protection by an Order;
- new trees meriting protection by an Order have been planted;
- the map included in the original Order is now unreliable;
- the Order includes classifications that no longer provide appropriate or effective tree protection;

The amenity value of the trees present on the site today is possibly more limited than it was at the time when the TPO was created. As noted, group G1 is now two smaller groups, the best group being in the northern tip of site, there is a smaller group at the southern end of the original group, but these are not good specimens. Group G2 is now much reduced and has been interplanted with European larch and some Chamaecyparisus. The sycamores in this group have lost several large limbs along the southern boundary of the site. Group G3 is probably much as it was, except that at least two trees have died and the stump of one has regenerated to produce three stems (see above).

Of the individual TPOs, the best is T5 listed as a Scots pine, but more likely to be a Black pine. Given its size and form, this tree is fully mature and is probably beginning to decline, but it still has a useful life-span ahead of it. Its amenity value is average, reflecting limited views of the tree from outside the site, the fairly good form of the tree and its age.

T4, a Lime tree is also mature and has a useful life-span ahead of it, but has a poor branch pattern. Its amenity value is also average, reflecting fairly good views of the tree from outside the site, the average to poor form of the tree and its age. T4 has a substantial rib of 'reaction wood' directly below a large branch on the north-east side of its trunk, (an attempt by the tree to reinforce this branch as a result of stresses in the trunk).

There is only one tree not covered by a TPO which has good amenity value. Tree 8, an excellent young oak tree, which when it matures could usefully replace those trees adversely affected by the construction of the Church Hall to the south and which ultimately will probably have to be removed as they may cause subsidence or their branches damage the roof of the building.

I recommend that the Planning Authority review the TPOs on this property as soon as practically possible and make the following adjustments;-

1. Confirm the removal (through death by natural causes) of T3, T6 and T9.

2. Reduce the area of G1, to include only the group of 3 sycamores and 1 Norway maple in the northern corner of the site. i.e. excluding the group of 3 sycamores near the southern end of G1.

3. Confirm the extent of G3 and its trees, subject to the removal of one elm stem.

4. In the case of all the retained trees allow crown cleaning and, where possible, rebalancing of the tree crowns.

I have checked some of the trees with TPOs on them using TEMPO, 'TREE EVALUATION METHOD FOR PRESERVATION ORDERS – TEMPO' which attempts to provide an objective formula to judge whether or not a tree is worth protecting with a TPO particularly where amenity values are concerned. I suggest that the Planning Authority may care to use the same system.

Root Protection Area and Recommended Protection.

The Root Protection Area (RPA) for these trees is calculated according to British Standard 5837:2012, which states;-

*'**4.6.1** For single stem trees, the RPA (see **3.7**) 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. In all cases, the stem diameter(s) should*

be measured in accordance with Annex C, and the RPA should be determined from Annex D. The calculated RPA for each tree should be capped to 707 m2.

a) For trees with two to five stems, the combined stem diameter should be calculated as follows:
√(stem diameter 1)² + (stem diameter 2)² ... + (stem diameter 5)²

b) For trees with more than five stems (not illustrated in Annex C), the combined stem diameter should be calculated as follows:
√(mean stem diameter)² × number of stems

***4.6.2** The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.*

***4.6.3** Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:*

a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
b) topography and drainage;
c) the soil type and structure;
d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.'

Drawing 710/01/T1A provides an indication of the root protection areas for the trees surveyed.

Summary.

The trees surveyed are generally not of high quality. However, there is fine juvenile oak tree (Tree 8) and the trees in the northern part of group G1 and in G2 which are worthy of retention. Almost all of the trees surveyed are in need of management to varying degrees and preliminary management recommendations are included in the Tree Survey sheets.

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Note on some of the tree species.

Acer pseudoplatanus - Sycamore. This species is often found as a 'weed' colonising hedge bottoms and waste ground. It was widely planted in Victorian times. It normally forms a large statuesque tree, but is very much lacking in insect species and is not particularly exciting in flower, fruit or autumn colour.

Common ash – (Fraxinus excelsior). A large native tree, common in the Derbyshire Dales. It will survive for hundreds of years if coppiced. The roots will cause structural problems in clay soils as the roots seek water.

Small-leaved Lime – (Tilia cordata). A large native tree. The species is extremely sensitive to changes in the water table. The leaves are often subject to aphid attack, the aphids excreting a sticky dropping which can be a nuisance when landing on vehicles or onto garden plants.

Survey methodology

This Individual tree has been identified in the following schedule and can be cross referenced with numbered positions plotted on the survey drawing no. 710/01/T1. Individual trees and hedgerows on the drawings have also been colour coded as per BS 5837 in Table 2.

For each tree an assessment has been made in the schedule of the following:

Species: Both Latin and common English names (where applicable) have been provided.

Size: Height and spread of canopy are given as approximate measures in metres. Tree trunk diameters are given at a height of 1 metre and may be approximate where twig or branch growth etc. restricts access.

Age: This is abbreviated in the schedule as:
Y = Young
SM = Semi-mature
M = Mature
O = Old

Condition: The condition of each tree has been visually assessed and classed as follows – subject to confirmation by qualified tree surgeon.

1. Sound and healthy.
2. Defective but defects can be rectified and trees should reach maturity.
3. Defective but tree cannot be rectified, although the tree still has a limited useful life.
4. Defective to the point of being dangerous.

A more detailed inspection in some cases may be required and further tests undertaken, such as trunk bores before finalising the trees condition class. Notes to this effect are given under comments/recommendations. Where test bores are recommended, comments regarding surgery/felling may alter following analysis of core samples.

Category grading: The category grading of each tree is based on a value judgement of its visual character, physiological condition and structural condition. It should be noted that the value of individual trees may increase following tree surgery. <u>It should also be remembered that trees of low category grading and often of poor condition may, in fact, be of very high wildlife value (see note under U in Table 1 below;-)</u>

Tables 1 and 2 9below) are copied directly from BS 5837 ‘Trees in Relation to design, demolition and construction – Recommendations’ (2012)

Table 1 Cascade chart for tree quality assessment

Category & Definition	Criteria (including sub-categories 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.	• 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. *Note: Where trees would otherwise be categorised as U, but have identifiable conservation, heritage or landscape value, even though only for the short term, they may be upgraded, although they might be suitable for retention only where issues concerning their safety can be appropriately managed.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
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)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable	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	Trees with material conservation or other cultural value	See Table 2

years	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	collectives but situated so as to make little visual contribution to the wider locality		
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 quality 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	See Table 2

Table 2 Identification of Tree Categories

Category (from Table 1)	Colour [A)]	RGB code [A)]
U	Dark red	127-000-000
A	Light green	000-255-000
B	Mid blue	000-000-255
C	Grey	091-091-091

[A)] Colours verified against http://safecolours.rigdenage.com/palettefiles.html#files (viewed 2012-03-26)

Table 3 Amenity Value of trees.

The following paragraphs are from http://planningguidance.planningportal.gov.uk in respect of 'What might a local authority take into account when assessing amenity value?' This has been consulted in assessing the Amenity values of the trees on the site.

'When considering whether trees should be protected by an Order, authorities are advised to develop ways of assessing the amenity value of trees in a structured and consistent way, taking into account the following criteria:

Visibility

The extent to which the trees or woodlands can be seen by the public will inform the authority's assessment of whether the impact on the local environment is significant. The trees, or at least part of them, should normally be visible from a public place, such as a road or footpath, or accessible by the public.

Individual, collective and wider impact

Public visibility alone will not be sufficient to warrant an Order. The authority is advised to also assess the particular importance of an individual tree, of groups of trees or of woodlands by reference to its or their characteristics including:

- size and form;
- future potential as an amenity;
- rarity, cultural or historic value;
- contribution to, and relationship with, the landscape; and
- contribution to the character or appearance of a conservation area.

Other factors

Where relevant to an assessment of the amenity value of trees or woodlands, authorities may consider taking into account other factors, such as importance to nature conservation or response to climate change. These factors alone would not warrant making an Order'.

E. P. Beckmann, CMLI, CIMSPA
Landscape Architect.

Definition of Physiological & Morphological Terms

Adaptive Growth - The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone.

Bifurcation – Forked or divided union.

Brown Rot - Form of decay where cellulose is degraded, while lignin is only modified.

Cankers (target or tumorous) - A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.

Cavity - An open wound, characterised by the presence of extensive decay and resulting in a hollow.

Chlorotic Leaf - Lacking in chlorophyll, typically yellow in colour.

Compartmentalisation - The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.

Coppicing - Is an ancient form of woodland management that involves repetitive felling on the same stump, near to ground level, and allowing the shoots to re-grow from that main stump. (Also known as the coppice stool).

Crack - Longitudinal spilt in stem or branch, involving bark and/or underlying wood. These may be vertically and horizontally orientated.

Decay - Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Deadwood - Deadwood is often present within the crown or on the stems of trees. In some instances is may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).

End Weight - The concentration of foliage at the distal ends of stems and deficient in secondary branches.

Epicormic shoots – Young shoots arising from the external tissue of a stem or trunk. They are commonly induced if a limb is broken off or if a tree is coppiced or pollarded

Girdling Root - Root which circles and constricts the stem or roots causing death of phloem and/or cambial tissue.

Hazard Beam - An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).

Included Bark Union - Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.

Ivy Growth - Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.

Live Crown Ratio - The relative proportion of photosynthetic mass (leaf area) to overall tree height.

Pollarding – The process of producing pole-sized epicormic branches for harvesting for use for fencing, fodder, building, charcoal etc.

Reduction Through Thinning (RVT) – The process of thinning out branches within a tree canopy first defined in 1988 and refined by David Lloyd-Jones in 2014. This is a process of tree management, not an outcome.

Reaction Wood – A larger than normal annual incremental ring, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.

Root Plate Lift - The physical movement of the rooting plate causing soils to shift and crack. This may occur during adverse weather conditions particularly on thin or sandy soils and particularly with shallow-rooted species such as beech. Trees may become unstable.

Structural Defect - Internal or external points of weakness, which reduce the stability of the tree.

Suppressed - Trees which are dominated by surrounding vegetation and whose crown development is restricted from above or the sides.

Topping - A highly disfiguring practise, likely to cause severe xylem dysfunction and decay in major structural parts of the wood. Not to be confused with pollarding

White Rot - Form of decay where both cellulose and lignin are degraded.

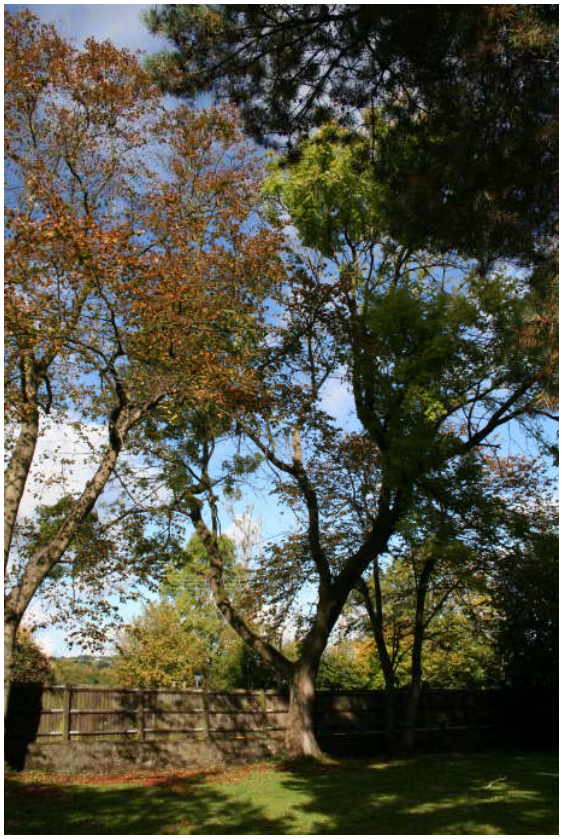
Wound - Any injury, which induces a compartmentalisation response.

Woundwood - Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term "callus."

Woodland Structure - The vertical and horizontal arrangement of trees within a group or woodland i.e. Dominant - trees with a crown above the upper layer of the canopy, Co dominant trees that define the general upper edge of the canopy, Intermediate trees that have been largely overgrown by others, Suppressed trees that have been overgrown and occupy an under storey position and grow slowly, often severely asymmetrical.

Note: The definitions described above, may not necessarily be included within the Arboricultural Survey Data.

Views of part of group G1 from the south, with the Norway maple G1d just turning red. To the west, trees 1 -3, a group of three larch trees.



View of T4 (a lime with a TPO) and tree 4 an ash from the south-east

View of (left) tree T5, a mature Black pine and (right) tree 6 an old beech tree.

Views of Group G1e, f and g at the southern end of group G1.

Views of the boles of G1e and f, showing extensive basal rot, probably from former coppicing.

Views of Group G3 with tree T7 to the right in front of the steeple.