Arboricultural Report

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Proposed development
Land between Clay Lane and Sagars Road
Handforth
Cheshire

For the purpose of evaluating a report submitted in accordance with BS5837:2012 Trees in Relation to design, demolition and construction: Recommendations to support the development.

Commissioned by:	**Surveyed by:**
Handforth Parish Council	David Bailey *BSc (hons), M.Arbor.A, cert.Arb.*(RFS)
Survey date: 1st September 2017	Report date: 4th September 2017

Contents

1 Qualifications and Experience

1.1 My name is David Bailey. I am the owner of Old Oak Tree Care, an arboricultural consultancy business based on the Staffordshire/Shropshire border. I have run my business as a contractor since 2004 and progressed to work as a consultant since 2008.

1.2 I attained the honours degree in arboriculture at Myerscough College, Lancashire at an upper second level in 2011 after completing the foundation degree in arboriculture at merit level from Myerscough College, in 2008. I attained the certificate of arboriculture from the Royal Forestry Society in 2006.

1.3 I am a professional member of the Arboricultural Association and hold professional indemnity insurance to £1million.

1.4 Old Oak Tree Care carries out work for government agencies, county councils, town/parish councils, architects, development companies, NGO's, The Forestry Commission and private individuals.

1.5 In my work as a consultant, I have carried out surveys of trees in relation to construction, large scale health and safety investigations, private consultancy work, LPA appeals and work as an expert witness.

2.0 Instructions

2.1 I am instructed by Ashley Comiskey Dawson, Clerk to Handforth Parish Council, to undertake a desktop and site review of an arboricultural report supplied to Cheshire East Council to support an outline planning application at the indicated site. I am also to comment on the wider planning application and supporting documents, in relation to trees and green space. It is required to produce a report to give my findings and comment upon them.

2.2 It is proposed to develop 8.35 hectares, three fields between Clay Lane and Sagars Road to build up to 250 houses.

2.3 There are a number of trees on site. Some may be affected by the proposed development.

2.4 I am therefore to carry out an appraisal of the original report, visit the site to carry out my own assessments and produce a report, together with plans, to give my opinion on the arboricultural aspect of the proposed development. I am also to give my opinion on the future tree cover and green space.

2.5 The survey is to be appraised in relation to BS5837:2012 Trees in Relation to design, demolition and construction: *Recommendations.*

3.0 Summary

3.1 The proposal to build up to 250 dwellings on the site is supported by a tree report which on the whole is accurate but does over-simplify some groups of trees, misjudges some factors and, in parts, does not accurately interpret the site and data.

3.2 I am in general agreement with the tree quality ratings. I strongly disagree with the report's findings that no individual, group or hedge on site has good health or structural form. I found most trees to be healthy and in good condition. Some of the grouping of trees have not accurately reflected the root protection area (RPA) or crown dimensions of some trees. Maps produced illustrate this.

3.3 Interpretation of the data has, in places, been poor. The influence of roads, tracks, level changes and watercourses have not, generally, been accounted for by the re-shaping of RPAs.

3.4 Access, part of the consideration of this planning application, has misjudged the RPA of a high quality tree, T3. The RPA has been estimated too small and drawn incorrectly. 12% of the RPA of this tree lies within the access route, the garden of 15 Hampson Crescent. Should the tree constraints not be sufficiently considered, it is likely that physiological, and perhaps, structural damage to it will occur. No detail has been supplied and it is not definite that the road could be built without significant damage to the tree.

3.5 The illustrative lay out retains virtually all trees on site. However, should this design go ahead, a number of trees are likely to be put under great pressure due to poorly drawn RPA or crown dimensions within the tree report. The rating of none of the trees as good, either physiologically or structurally causes an undermining of the status of the trees although the quality assessment does not take notice of this oversight.

3.6 Although some provision is made for green infrastructure within the design and access statement (DAS), this is mainly around the edge of the site, generally in proximity to the larger houses, and is fragmented. No provision is made for play areas or a focal point within the development. Indicated tree planting is very sparse and not evenly distributed, not matching the aspirational pictures of the DAS.

3.7 It is recognised that this is an outline planning application, with all matters reserved except access. However, the aspirations of the DAS seem lacking in relation to trees within the site. Well publicised and free to obtain best practices are not recognised and the plans do not give many trees enough space to form a suitable juxtaposition between them and the proposed new environment.

3.8 It is suggested that the development team re-assess the trees to provide greater and more accurate detail which can then inform a possible re-jig of the lay out. A re-design might include, more tree planting, distributed more evenly around the site, more open green space with trees within the site and by the developer using some of the innovative integration of street trees as shown by TDAG. The possibility of entering the site over the RPA of T3 may, or may not, be possible without causing significant or irreparable damage to the tree. Significant detail needs to be produced to ensure this proposal is realistic and achievable.

4.0 Extent of Survey

4.1 The survey was undertaken on 1st September 2017. Weather conditions were dry and fine with little wind

4.2 The survey covers only arboricultural matters on, or adjacent to the site. A full survey was not undertaken, rather an overview of the findings of the original survey.

4.3 A number of tree diameter at breast height measurements were taken as well as crown spread distances. Where trees are on the edge of the site, crown spread measurements were only taken where they encroached onto the site.

4.4 A number of trees were plotted on suitably scaled copies of the supplied tree constraints plan.

4.5 Statutory protection (either Tree Preservation Orders or Conservation Area Status), has not been officially investigated.

4.6 Trees were also surveyed to assess their health, structural condition, estimated remaining longevity and amenity value to the area.

4.7 Documents seen:

i) Arboricultural report produced by Tyler Grange to support planning application including site plans and proposed layout. Report number 2400_R07_JJ_JW

ii) Ecological report produced by Tyler Grange Report Number 2400_R05_HC-LP

iii) Design and Access Statement produced in July 2017.

iv) Planning and Affordable Housing Statement , Emery Planning, Ref: 15-010

4.8 Documents referred to:

- BS5837:2012 Trees in Relation to design, demolition, and construction - *Recommendations.*

4.9 It is recognised that the arboricultural report is produced to support an outline planning application with all matters reserved except access.

5.0 The Site

5.1 The site is three fields on the edge and to the west of Handforth.

5.2 To the north and east is a residential development with a deep ditch containing a stream, Dobbin Brook separating the site from them. The brook is wholly to the east and partly on the northern aspect. To the south is Sagars Road, an unmetalled road with what appears to be a golf course beyond it. To the west is Clay Lane, another unmetalled road with agricultural fields beyond. The site could be described as semi-rural.

5.3 The profile of the site is fairly flat.

5.4 There are a number of trees on, and surrounding the site. Many are large and significant.

5.5 Viewing the Cranfield Soilscape map as supplied by the Cranfield Soil and Agrifood Institute (www.landis.org.uk/soilscapes), it appears that the soil is a slowly permeable, seasonally wet, acid, loamy and clayed soil. Fertility is registered as moderate. Soil of this kind provides a good medium for the growth of trees. Vegetation sourced soil shrinkage and heave is not associated with this soil.

5.6 As long as there are no buried obstructions, severe soil compaction or historical root damage, a typical root distribution could be expected for all of the trees on site. The deep set stream and un-metalled roads present factors that will influence root distribution on a wide range of tree species.

6.0 Assessment of survey

6.1 BS5837:2012 Trees in relation to design, demolition and construction: Recommendations gives a recommendation on how tree surveys should be carried out to support a planning application. In Great Britain this is considered the only way to consider trees, a material factor, within the planning system. Any movement away from these recommendations requires suitable justification.

6.2 Information provided in Appendix 2 of the original report complies, in the main, with the requirements of BS5837:2012. Measurements taken by myself show measurements expressed in the original report are, in the main, accurate. However, interpretation of the data is lacking, for which I will explain.

6.3 I am in general agreement with the quality assessment given to the trees. There seems to be an over-reliance on the use of B grading for many specimens, some I would classify as A, others as C, but this is a very small note, due to tree quality assessment being a subjective matter.

6.4 I am in strong disagreement with the report in its assessment of tree physiological function and structural status. Not one individual, group or hedge is classified as good for both categories in the original report which contradicts itself on this matter. Table 1 and 2 shows the original findings and my own assessment.

	Good	Fair	Poor	Poor to good	Poor to fair
Physiological condition	0	20	5	2	15
Structural condition	0	19	6	2	15

Table 1: Original tree report findings of health and structural status

	Good	Fair	Poor	Poor to good	Poor to fair
Physiological condition	34	8	0	0	0
Structural condition	37	5	0	0	0

Table 2: My assessment of health and structural status

6.5 A strong difference is recorded in the two sets of data which is further compounded by the use of groups which may hide extremes in position (there are a few category U trees within groups).

6.6 The use of groups for large numbers of trees reduces the ability of readers of the report to assess these trees which have been grouped purely on their position rather than quality, species, condition or size footing. It appears these trees have had a correct RPA (for a standard circular RPA) plotted but crown dimensions, in some circumstances do not appear correct. This grouping does not amount to an effective way to protect the trees on the western and southern boundaries (G7 and G12 respectively). Many of these trees should have been recorded as individuals although a number of trees could have been grouped.

6.7 RPAs have, in the main, been plotted as standard circles as specified in section 4.6 of BS5837:2012. Section 4.6.2 states that where pre-existing site conditions or other factors exist where rooting has occurred asymmetrically, a polygon of equivalent area should be drawn. This approach has been carried out on T1 and T2 due to the presence of a road presenting poor rooting potential within it. However, there are many other on site factors which will influence tree rooting potential and require RPAs to be polygonised.

6.8 Section 3.7 of BS5837:2012 defines a root protection area (RPA) – 'layout design tool indicating the minimum area around a tree deemed to contain sufficient rooting volume to maintain the tree's viability and where protection of the roots and soil structure is treated as a priority'. With this in mind, the need to correctly identify where a tree is likely to find the best rooting potential is of great importance for the future viability of it.

6.9 Tarmac roads will present very poor rooting potential. Roots are sometimes found under roads, but these are usually nothing more than a conduit to areas of better rooting potential.

6.10 With this in mind, the un-metalled roads of Sagars Road and Clay Lane will also present poor rooting potential but perhaps less so than a metalled road as water and air penetration will be increased for roots below.

6.11 Dobbin Brook sits within a deep ditch which increases with depth as it moves through the site from north to south-east. At the north-east corner, it is approximately 2 metres deep. The level change and presence of water at the bottom will present a very effective boundary to root penetration to most species of trees. Riparian trees, such as alder and willows are less likely to be deterred by the presence of water, given their success in wetland areas.

6.12 With this in mind, the RPA of the following trees do not appear to have been plotted correctly, T2, G4, G5, T5, G6, T7, G7, G12, T13, T15, T16 and T18. Although these 12 individuals and groups are just ¼ of the 42 recorded individuals, groups or hedges, they make up the majority of trees on site and include virtually all of the better specimens.

7.0 Evaluation

7.1 Any evaluation of a report is likely to bring up mistakes or oversights, but the crucial question is whether any of these make a material impact upon the proposed development that the report supports.

7.2 The grouping of trees in G7 (Map 3) has not sufficiently recorded crown dimensions. The presence of Clay Lane has not been taken into account when plotting RPAs. On my map I have plotted the crowns as a circle to the size where they overhang the site. Given the unmetalled nature of Clay Lane, I have plotted RPAs as reaching into the middle of the lane, as some roots are likely to be found here or reaching across the road. It appears that crown size causes much more of a constraint on many of these trees. It appears that there would be many conflicts between infrastructure and houses shown on the Tree Loss and Impact Plan, indicating the proposed development.

7.3 As already put forward, I am in general agreement with tree quality assessment with perhaps just a few differences of opinion. No benefit is to be gained in arguing these.

7.4 The tree quality assessment does not seem to take into account the universally poor tree health and structural condition found in the original report. My findings found very few trees to be in either poor health or structural condition. Many of the horse chestnuts on site were suffering with horse chestnut leaf miner *Cameraria ohridella*. No evidence is available to suggest that this annual disfigurement of the trees leaves has any significant impact upon the tree's health. The presence of this pest might be compared to a human getting an annual cold.

7.5 Few trees are proposed for removal to instigate the proposed lay out. However, to identify virtually all trees as being either unhealthy or structurally poor undermines the value of them and provides unfounded evidence should the developer or residents of the new development wish to remove the trees.

7.6 Grouping in G12 has not, in a similar way to G7, paid sufficient attention to some of these trees which have good form and have a high amenity value. Map 5 shows a similar arrangement as set out in Map 3, with a similar relationship between Sagars Road and RPAs adopted. Crown spread into the field is again underrepresented in the original report, but RPA spread seems to be the main area of constraint on this row of trees. Conflict between trees and the proposed development is likely here.

7.7 The plans appear to show the access road entering the site through 15 Hampson Crescent and over Dobbin Brook into the site. The RPA is drawn as a circle on the original plan, however the presence of the steep bank into Dobbin Brook will provide an effective barrier to root growth. The diameter of the tree has been estimated, due to the difficulties and implication of access in the original report. This tree measures 1060mm in diameter, somewhat larger than the 890mm estimated in the report. This diameter of tree requires an RPA of 509m^2 not 359m^2 as specified in the original report. Map 1 shows the likely distribution of the 509m^2 RPA, indicating a significantly large amount of the RPA within the garden of 15 Hampson Crescent (12%) where the access road is to enter the site. Damage to the tree roots may cause structural and health issues for this visually important and mature specimen. This tree is visible from much of Hampson Crescent and Meriton Road providing a large and visually important tree.

7.8 No details on how the Dobbin Brook is to be bridged have been supplied with the planning application. No explanation is available to show how T3 will be protected through installation of the access route. The Planning and Affordable Housing Statement supplied suggests at 1.4 in its executive summary "The proposed access design has already been endorsed by the local highways authority and considered by the Local Plan Inspector through the examination for the Cheshire East LPS". With respect, both of these institutions are only able to judge the information put before them and that supplied by the original tree report into this development is lacking in regards to how Dobbing Brook can be spanned by a highway without causing damage to the large ash tree T3, 12% of its RPA being in the garden of 15 Hampson Crescent.

7.9 It is not clear whether access into the site can be achieved through this corridor whilst retaining T3, given level changes on site. A large amount of detail is required here. It may be that access from a different access point is a more workable solution.

7.10 Many of the trees, the majority high quality, on the north eastern and northern boundaries of the site have RPAs which need to be modified due to the presence of Dobbin Brook and the ditch it flows in. These trees in groups G5 and G6 together with T7 may be significantly damaged should the indicated design be instigated without properly assessing the RPAs.

7.11 Many of the trees proposed for retention will have an impact on properties or infrastructure proposed to be built close to them, for example T11. This may be through shade, seasonal nuisance from fruit or leaves or concerns about tree failures in proximity to houses. In a number of cases, a lack of specific recording of crown dimensions into the site within the original report have exacerbated this. Without accurate data, a proper assessment of the relationship between trees and the proposed development cannot be established.

7.12 In the north-western corner of the indicated site lay out plans it appears that the aerial map used as a base line has either been altered, or is considerably out of date. The crown sizes of G7b, G7c, G7e, G7h, G7i and G7l are not that of which is shown in current aerial mapping or that which is recorded by myself. There is significant overlap between the built environment and tree crown spread.

7.13 In short, the majority of data recorded is correct with some problems occurring with over-generalisation of groups, a poor recognition of tree health/structure and inaccuracies from estimation. In some cases, serious problems from trees and future users of the site will occur should development be attempted whilst relying on the findings of the original tree report.

8.0 Provision of green space and trees within the development

8.1 Again, it is incumbent on me to acknowledge that the proposed design is purely indicative at the outline stage of this application. However, at this early stage, representation should be made to ensure green space and trees remain an important factor from the beginning of the planning process.

8.2 In recent years, the benefits of having trees, especially larger ones incorporated into development has been proved, quantified and adopted into government policy. The Trees and Design Action Group (TDAG) have produced a number of documents in relation to using trees within the urban landscape produce an enriched and sustainable landscape. Of particular note is TDAG's Trees in Hard Landscapes which encourages, and gives many examples of producing urban design with many trees increasing not only residential amenity but increased house prices.

8.3 The design and access statement (DAS) makes no mention of trees apart from stating that the majority of trees and hedges will be retained. No mention is made of tree planting. The illustrative lay out suggests it can deliver a transition from the more rural west to the urban landscape to the east. However, in the plan just 92 planted trees are shown within the development, many being on the edge, where trees already exist. This equates to tree planting at a density of 11 trees per hectare, much less than within the existing urban area to the east.

8.4 This is somewhat at odds with the pictures illustrating the character of the area in section 5. All of these images here show many trees present at a significantly higher density than 11 trees per hectare.

8.5 Most trees appear in garden plots with very few positioned in shared space. This is especially so at the entrance to the site which begs for a number of specimen trees to set the scene. The opportunity to plant trees in gardens of smaller houses will be limited due to small garden size. Very few trees are found within shared space around areas in proximity to smaller houses. Tree planting, where it is found, is heavily favoured in relation to the larger detached houses. Open green space is also more associated with the large houses on site. The benefits of the green infrastructure need to be equally enjoyed by all to create a well-designed and appreciated development.

8.6 The design shows a number of green areas which link in to the arboricultural and ecological report to allow retention of the majority of trees on site as well as easement for Dobbin Brook and retention of hedges for wildlife navigation. While this is to be praised, very little green space is left within the development to support large tree planting as well as play areas, especially for younger children who would not be considered old enough to leave the estate to play at Meriton Road Park. Unsupervised play for younger children within the estate is likely to take place within the small strips of land on the edge of the site with the possibility of conflict with neighbouring properties. This may also introduce risk to playing children from stranger danger given the quiet nature of the rights of way adjacent to these areas.

8.7 The fragmented nature of green space does not allow for a focal point of the development. Such a large number of houses should be served by a small park or play area which can also support planting of large trees.

8.8 From an arboricultural perspective, the hedge, H2, running through the site is not a quality, or sustainable proposition. However, the ecological benefits of it have been alluded to, ensuring it's retention. A more in depth ecological appraisal should be undertaken with this hedgerow and should the ecological use be of little value, removal of the hedge and a re-design of the site would produce a significant patch of land which could be dedicated to a play area and open green space with the planting of large trees.

9.0 Conclusion

9.1 The proposal to build up to 250 dwellings on the site is supported by a tree report which on the whole is accurate but does over-simplify some groups of trees, misjudges some factors and in parts, does not accurately interpret the site and data.

9.2 I am in general agreement with the tree quality ratings, I strongly disagree with the report's findings that no individual, group or hedge on site has good health or structural form. Some of the grouping of G7 and G12 have not accurately reflected the root protection area (RPA) or crown dimensions of some trees within this group.

9.3 Interpretation of the data has, in places, been poor. The influence of roads, tracks, level changes and watercourses have not, generally, been shown in the shape of RPAs.

9.4 Access, part of the consideration of this planning application, has not taken into consideration the RPA of T3. 12% of the RPA of this tree lies within the garden of 15 Hampson Crescent, where the access road will enter the site. Should the tree not be factored into the installation of the road it is likely that physiological, and perhaps, structural damage to it will occur.

9.5 The illustrative lay out retains virtually all trees on site. However, should this design go ahead, a number of trees are likely to be put under great pressure due to poorly drawn RPA or crown dimensions. The rating of none of the trees as good, either physiologically or structurally causes an undermining of the status of the trees, although the quality assessment does not take notice of this oversight. Crown dimensions of trees at the north of the site will have a much bigger impact on houses here than originally shown.

9.6 The illustrative lay out does not utilise best practice in working with trees to enhance the built environment. The DAS makes little reference to trees, although it uses heavily treed environments to frame the houses within it. Tree planting shown in the lay out is very sparse, occurring mainly in the part of the development with larger houses. Green space is fragmented and not conducive to unsupervised play by small children. There is no provision for a large green area for play and large tree planting.

9.7 It is recognised that this is an outline planning application with all matters reserved except access. However, the aspirations of the design and access statement seem lacking in relation to trees within the site. Well publicised and free to obtain best practices are not recognised and the design does not give a number of trees enough space to form a suitable juxtaposition between them and the proposed new environment.

9.8 In the matter of access, no consideration has been given to a large and prominent ash tree T3 which provides significant amenity to the area. No details have been provided to explain how the road into the site will not cause significant damage to the RPA of this tree.

9.9 It is suggested that the development team re-assess the trees to provide greater and more accurate detail which can then inform a possible re-jig of the lay out. A re-design might include, more tree planting, distributed more evenly around the site using some of the innovative integration of street trees as shown by TDAG. The possibility of entering the site over the RPA of T3 may, or may not, be possible without causing significant or irreparable damage to the tree. Significant detail needs to be produced to ensure the proposal is realistic and achievable.

The data, views and opinions of this report relate to the survey undertaken on the date shown and do not take into account effects of weather conditions, vandalism or accidental damage. Neither can the effects of tree surgery work, poorly executed or which does not comply with BS3998:2010, be predicted. Old Oak Tree Care cannot accept any liability in connection with any of these factors. This report becomes out of date and in need of renewal two years from the survey date. Data relating to tree health and condition will become out of date and in need of renewal six months from the survey date.

Map 1

Land between Clay Lane and Sagars Road, Handforth, Cheshire

Tree Constraints Plan with Proposed Development Showing newly plotted rown dimentions and RPA of trees where differences are found

SCALE at A4 : 1 : 1250

DATE : 12/09/2017

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Document ref: PC17/197/M1

N

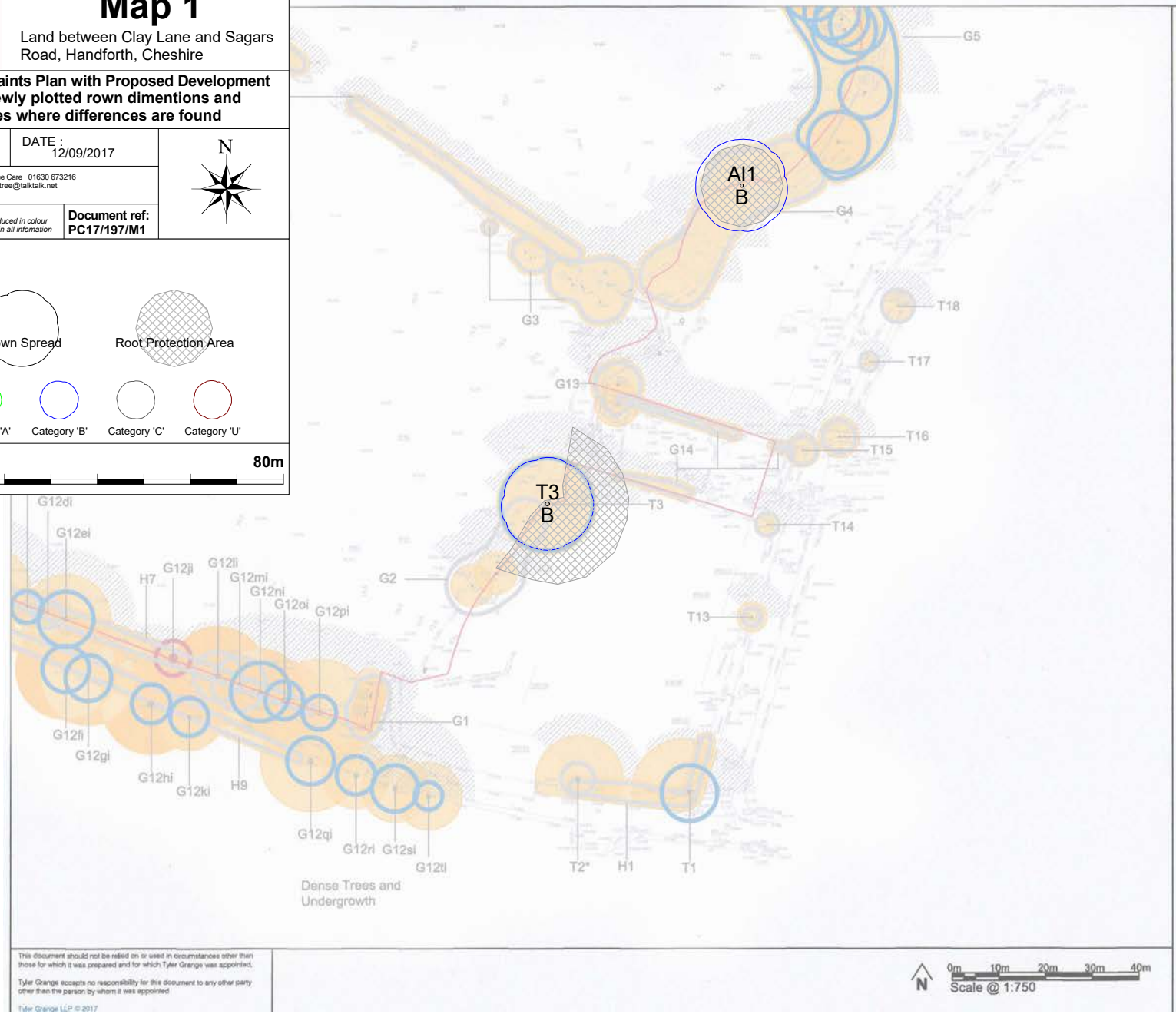
Legend

Crown Spread

Root Protection Area

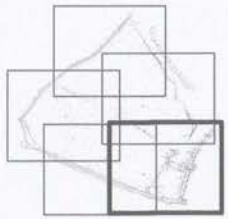
Category 'A' Category 'B' Category 'C' Category 'U'

0 80m



Key:

- Site Boundary
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
- Category U - Trees Recommended for Removal
- Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)
- BS 5837 Calculated Tree Shadow Constraints



Project Name
Land between Clay Lane and Sagars Road, Handforth

Drawing Title
Tree Constraints Plan
Sheet 5 of 5

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Scale	Date
1:750 @ A3	July 2017
Drawn by: HT	Checked by: JJ
Drawing No.: 2400/P10	Revison: -

N 0m 10m 20m 30m 40m
Scale @ 1:750

Map 2

Land between Clay Lane and Sagars Road, Handforth, Cheshire

Tree Constraints Plan with Proposed Development Showing newly plotted rown dimentions and RPA of trees where differences are found

SCALE at A4 : 1 : 1250

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Document ref: PC17/197/M2

N

Legend

Crown Spread

Root Protection Area

Category 'A' Category 'B' Category 'C' Category 'U'

0 80m

Key:

- Site Boundary
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
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Land between Clay Lane and Sagars Road, Handforth

Drawing Title
Tree Constraints Plan
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HT	JJ
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2400/P10	-

Map 3

Land between Clay Lane and Sagars Road, Handforth, Cheshire

Tree Constraints Plan with Proposed Development Showing newly plotted rown dimentions and RPA of trees where differences are found

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Document ref: PC17/197/M3

N

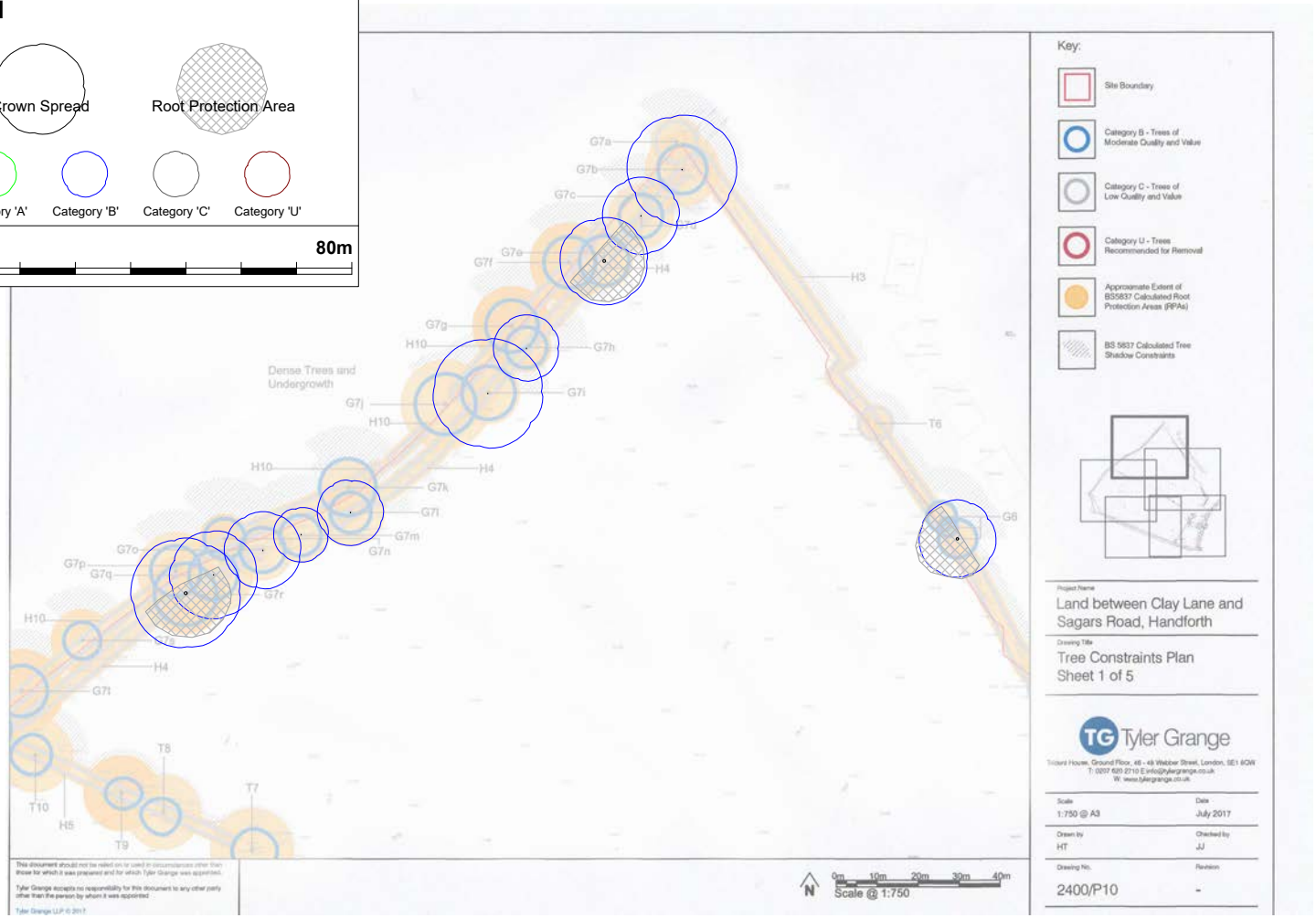
Legend

Crown Spread

Root Protection Area

Category 'A' Category 'B' Category 'C' Category 'U'

0 80m



Map 4

Land between Clay Lane and Sagars Road, Handforth, Cheshire

Tree Constraints Plan with Proposed Development Showing newly plotted rown dimentions and RPA of trees where differences are found

SCALE at A4 : 1 : 1250	DATE : 12/09/2017

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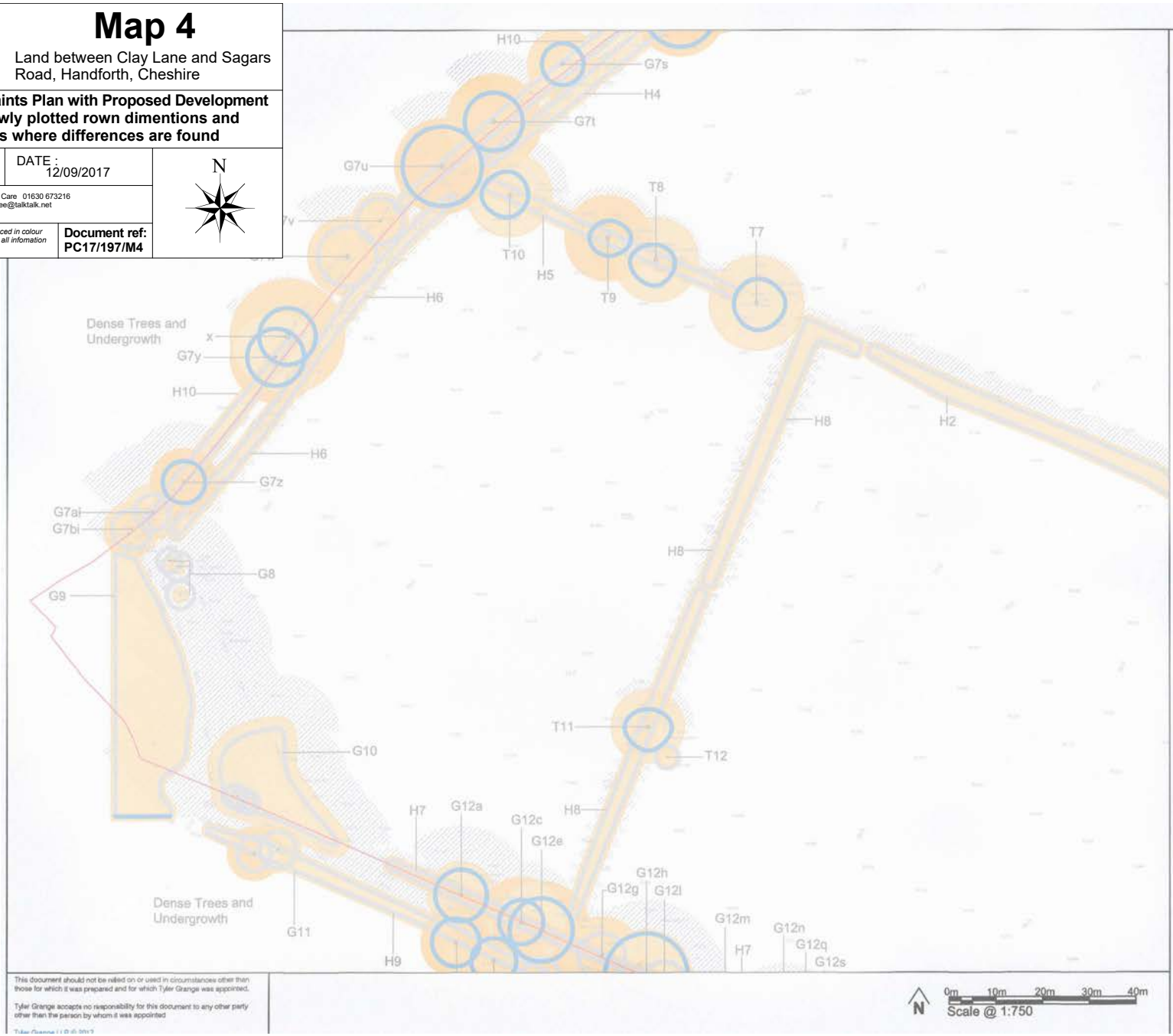
Document ref: PC17/197/M4



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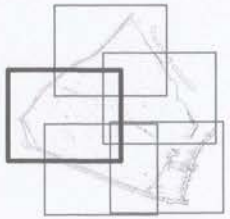

Project Name
Land between Clay Lane and Sagars Road, Handforth

Drawing Title
Tree Constraints Plan
Sheet 2 of 5

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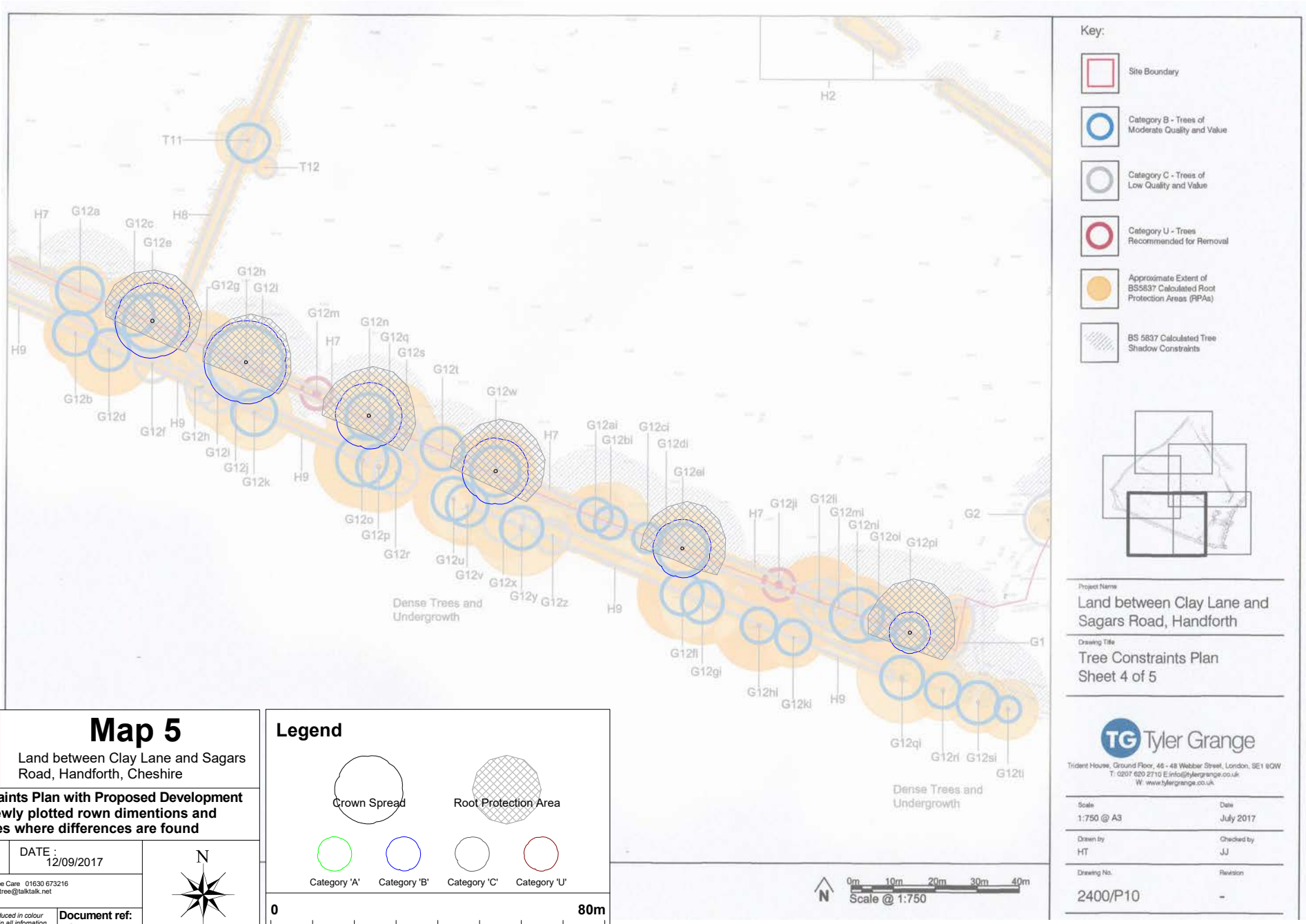
N

0m 10m 20m 30m 40m

Scale @ 1:750



Map 5

Land between Clay Lane and Sagars Road, Handforth, Cheshire

Tree Constraints Plan with Proposed Development Showing newly plotted rown dimentions and RPA of trees where differences are found

SCALE at A4 : 1 : 1250

DATE : 12/09/2017

N

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Legend

Crown Spread

Root Protection Area

Category 'A' Category 'B' Category 'C' Category 'U'

0 80m