TREE REPORT

Reference

120906

Site Address

The Mount
Barnetby Lane
Elsham
North Lincolnshire

Prepared for

Mr & Mrs Burke

Date of Inspection

6th September 2012

Surveyed by

Emily Wilde

Lincolnshire Tree Services Ltd
Jim's Yard
Bully Hill Top
Tealby
Market Rasen
Lincolnshire
LN8 6JA

Checked by

James Kendall

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1.0. SURVEY DETAILS

Client Name:	Mr & Mrs Burke.
Site Address:	The Mount Barnetby Lane Elsham North Lincolnshire.
Date of Inspection:	6th September 2012.
Surveyor:	Emily Wilde.
Purpose of Survey:	Carry out a tree report as per BS 5837:2012 - Trees in Relation to Construction – Recommendations 2012 (with appropriate measurements) of trees in the area proposed for new development and make recommendations for remedial works where necessary.
Survey Method:	Visual inspection from ground level only, including: - Measurements for height, stem diameter and crown spread - The physiological and structural condition of the tree - To look for visible defects of the tree - To comment on the condition of the tree and make recommendations for removal or retention, and remedial works where necessary.
Weather:	Warm and mild, with good visibility
Plans:	Site Plan as Existing 1:200 Site Plan as Proposed 1:200

2.0. INTRODUCTION

2.1. Ingleby & Hobson Ltd Architects have commissioned this report on behalf of Mr & Mrs Burke, to provide a tree survey and arboricultural method statement, in accordance with BS 5837:2012 – Trees in Relation to Construction – Recommendations 2012, for the site at the Mount, Barnetby Lane, Elsham.

2.2 The report will include:

- The tree condition, quality and amenity value
- Root Protection Area (RPA) of the surveyed trees
- Recommendations, if any, for future management
- Demonstrate the trees' appropriateness for retention during the proposed development
- Protection measures for the trees during construction.

2.3. The report is based on data collected on a site visit by Emily Wilde, who inspected the trees on 6th September 2012. Weather conditions were warm and mild, with good visibility.

2.4. The site is situated off Barnetby Lane, Elsham. Contained within the site is the main building, The Mount, to the east of the site. Two disused stables are situated to the west of the site and a concrete tennis court is also located within this area of the site. The majority of the trees run along the northwest boundary, with three further trees located to the south, which are within close proximity to the tennis court.

2.5. References used: BS 5837:2012 Trees in Relation to Construction – Recommendations 2012 and BS 3998:2010 Tree Work – Recommendations 2010.

2.6. The tabular element of the report within the appendix records each individual tree and group with appropriate measurements, defects and characteristics worthy of note and recommendations for retention, remedial work or removal as applicable.

3.0. LIMITATIONS

3.1. The tree assessment was carried out from ground level only, using Mattheck's Visual Tree Assessment. A Thor hammer was used during the inspection and diameter measurements were taken using a DBH tape. Height measurements are approximate, using rule of thumb. No internal measuring devices were used during this assessment. The survey was carried out in accordance with the principles of BS 5837:2012 – Trees in Relation to Construction – Recommendations.

3.2. As trees are static objects, they are liable to change within the space of a short time, sometimes unpredictably. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, no responsibility can be accepted for damage or injury sustained as a result of the failure of any tree due to faults not apparent upon a visual, ground level inspection carried out, or to faults developing subsequent to the survey. Similarly, no liability can be accepted for the condition of the trees that are obscured in part or in whole (dense ivy or foliage). Nor for any that proved inaccessible to the inspector. Certain features that might provide evidence of on going decay or decline (such as fungal fruiting bodies, damage to foliage, insect emergence holes etc.) may not have been in evidence. Only those features that are apparent at the time of inspection could be assessed. Trees should be inspected regularly; this is the responsibility of the tree owner. Therefore this report is valid for 12 months.

4.0. IMPLICATIONS ASSESSMENT

4.1. The following implications assessment should be accompanied by an appropriate tree constraints plan to identify:

- The position of the existing trees
- Below ground constraints: Root Protection Area (RPA)
- Above ground constraints: Crown spread
- The category grading of the tree.

4.2. The proposal for this site is for the conversion and extension of the existing stable buildings to form one new dwelling house, along with a landscaped courtyard. The hard surfaced tennis court is to be removed. A garage is to be sited along the northwest boundary along with access from Barnetby Lane, and continuing down the garden, creating a driveway and car turning area, which will also lead into the garage.

4.3. T1, T4, T5 and T10 have all been assigned a category grading of C, due to their condition and their limited input within the surrounding area. These trees should not dictate the final layout of the site.

4.4. T2, T3, T7, T8, T12, T13 and G14 have been assigned a category grading of B due to their valuable contribution within the surrounding environment, either for wildlife, screening or aesthetic purposes. These trees should be retained if possible.

4.5. T6, T9 and T11 has been assigned a category grading of R and requires removal, due to their poor and declining condition.

4.6. The proposed development is likely to have a direct impact upon T1 to T4, T7, T9, T10 to T13 and G14 as the new layout will overlap with the RPA's of these trees.

4.7. The new garage will affect T1 to T4. T3 will need to be removed and it is recommend that T4 is also removed due to its limited contribution within the site. If T4 were removed, then it would be possible for the garage building to be moved and erected so as not to be within the RPA of T2. If T4 is to remain, the foundations of the building will need to be modified i.e. floating foundations, to eliminate any excessive impact upon the roots of T2 and T4.

4.8. The proposed driveway is likely to have an effect upon T1, T2 and T7 to T10. T8 will also require removing for development to go ahead. The impact upon these trees and the need for invasive work can be reduced by using sensitive hand dig methods to carry out the work, and by using Cellweb TRP, a cellular confinement system to reduce the compaction of the soil around the tree roots.

4.9. The tennis court is on a lower level than that of the surrounding trees, and is therefore unlikely to affect the RPA's of the surrounding trees.

4.10. The proposed footpath across the lawn area is in close proximity to the RPA of T11 and T12. T11 has been recommended to be removed due to its poor condition and the RPA of T12 should be avoided if possible by re-directing the footpath slightly to protect the root system of this tree.

4.11. It is important that if this application is to proceed, then any trees and hedges removed will have to be replaced once the development is complete.

4.12. Within the proposed site layout, there are areas allocated for new planting. These areas are situated within the courtyard area to the south corner of the site.

4.13. Post construction, a Laurel hedge will be erected around the east side of the site to separate the new building from the neighbouring property.

4.14. A Construction Exclusion Zone (CEZ) will need to be created around the trees that are to have no work carried out within their RPA's. This is by means of protection barriers. This will prevent the soil around the roots of the trees becoming compacted from passing construction.

5.0. METHOD STATEMENT

5.1. The following arboricultural method statement should be accompanied by an appropriate tree protection plan to identify:

- Trees to be retained
- Trees to be felled
- Construction exclusion zones (CEZ)
- Position of protective barriers.

5.2. The purpose of this method statement is to aid the preservation of the trees by setting out tree protection methods and working practices that are to be adopted in their vicinity. Most tree roots will be found in the top metre of soil. Continuous movement over the roots of trees can cause severe compaction, and can be damaging to the tree if not carried out correctly. The preservation of the retained trees is dependent upon these methods being adhered to by the developers and by any visitors to the site.

5.3. The CEZ is informed by the RPA and is adjusted where necessary to allow for works to take place within this zone. The CEZ are to be afforded protection at all times to prevent compaction to the soil or severance of the tree roots.

5.4. Any tree works that need to be carried out should be done so before any construction work is started and before the tree protection is installed. In this case, any trees that are to be removed should be done so, and all trees with a crown clearance of below 3m would require canopy lifting to 3m.

5.5. Fences are to be erected around the RPA of T12, T13 and G14 and Cellweb TRP ground protection is to be laid around T1 to T10. This should take place before any construction work commences.

5.6. Cellweb TRP is to be temporarily removed where excavation within the RPA of T1 and T2 is to be carried out, to allow for the erection of the new garage building.

5.7. The Cellweb TRP is then to be replaced in position for the new driveway, which can be laid on top of the existing ground level, so that the driveway can be constructed.

5.8. The footpath across the lawn is to be constructed first, then it will be followed by the landscaping and new planting.

5.9. Protection barriers will be to the recommendations of section 6.2.2 of BS 5837:2012. A Root Protection Area is plotted around the circumference of the tree to prevent damage to the roots and is determined by the stem diameter (calculations are shown in Appendix 3 - Tree Categorisation and Appendix 1 – Tree Survey). The RPA is the ‘area surrounding the tree that contains sufficient rooting volume to ensure the survival of the tree.

5.10. The design of the weldmesh panels to go around the retained trees (a diagram is shown in Appendix 5 – Barrier Design) follows:

- All fences should be installed prior to any construction work being carried out on the site
- Fences shall be between 1.5 and 3 meters in height
- Standard scaffold poles should be used
- Uprights are to be driven into the ground by 0.6 meters, where possible. On hard surfaces, concrete or other weighted blocks can be used to support uprights and/or scaffold poles

- The panels need to be secured to the uprights and horizontals with wire ties and, where necessary, standard scaffold clamps.
- The wire ties need to be twisted and secured on the inside face of the fencing to avoid easy dismantling.
- Warning signs need to be attached to the fence panels to make contractors aware of the boundaries and to show that these areas are not to be penetrated.
- Barriers must remain in place until all demolition work is complete and until the local planning officer has given permission for them to be removed.

5.11. Cellweb TRP is a 3-dimensional cellular confinement system, which uses established principles of cellular confinement to maximise strength and spread any load. Perforations in the cell walls allow water and air to migrate laterally throughout the reinforced layer and they also increase the friction between granular infill and the cell web. This greatly increases the ability of the structure to spread any load from above.

5.12. The cellular mattress for this area will be the standard cell web with a depth of 100mm with a cell diameter of 259x224mm. This will be laid on a geotextile membrane and filled with a clean, angular, no-fines aggregate at 20-40mm. As the ground level will be raised slightly, a treated timber edge should be used around the Cellweb to restrict gravel movement.

5.13. Ground protection and protection barriers are to be sited in accordance with the TPP.

5.14. A Banksperson should always be employed when operating vehicles, to ensure the vehicle is as far away from the tree as possible. Although protection barriers are in place to prevent damage to roots, branches are sometimes likely to grow beyond this RPA. Any damage to the crown that does occur as a result of vehicle contact should be pruned in accordance to BS 3998 by an approved and competent arborist as soon as possible.

5.15. Access to the site will be through the existing access point, which is the driveway off Barnetby Lane. Contractors parking will have to be on Barnetby Lane, or within the site away from the CEZ. There is sufficient space within the site for any lavatories or site huts that may be required.

5.16. The storage of building equipment and machinery is to be stored away from the CEZ. Fuel needs to be stored and cement is to be mixed at least 10m away from the CEZ to prevent any run off from making contact with the RPA. There is sufficient space within the site for this.

5.17. All parties involved in construction should have a copy of the Method Statement provided or made available to them.

APPENDIX 1 – Tree Survey

Site: The Mount, Elsham **Client:** Mr & Mrs Burke **Date:** 31/07/2012										**Canopy Spread (metres)**							
Tree Ref No	**Species**	**Height (m)**	**Stem (diameter cm)**	**Age Class**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution (years)**	**Comments**	**Recommendations**	**Category Grading**	**North**	**South**	**East**	**West**	**Crown Clearance from ground (m)**	**Root Radius (m)**	**RPA (m^2)**
T1	Holly	7	26	Y	F	F	10-20	• A small tree, which is multi-stemmed from 0.5m. • A wound to the base of the main stem has decay present. • A compression fork is beginning to form. • The tree has crossing branches within the canopy. • A wound to the west side branch in the lower canopy can be seen.	• No remedial work is required.	C	2	2	1	2	1.5	3.1	30.5
T2	Yew	10	60	MA	G	F	40+	• This tree is in a good condition. • There are no major issues to report.	• No remedial work is required.	B	5	4	3	3	1.5	7.2	162.8
T3	Holly	10	39	MA	G	G	40+	• This tree is in a good condition.	• No remedial work is required.	B	4	3	2	2	1	4.7	68.8

T4	Yew	9	28	Y	F	F	20-40	• A small tree, which is being slightly supressed by T3. • It is unlikely that the tree will reach its full potential.	• No remedial work is required.	C	3	2	2	1	1.5	3.4	35.5
T5	Lilac	6	29	M	F	F	0-10	• Slight dieback in the top of the crown can be seen.	• No remedial work is required.	C	2	3	3	2	1.5	3.5	38.1
T6	Holly	7	11	Y	P	F	0-10	• A poor condition tree. • The tree has sparse foliage and deadwood is present within the crown.	• Fell.	R	2	2	1	1	2	1.3	5.5
T7	Holly	6	27	MA	G	F	10-20	• A good condition tree, which leans to the east.	• No remedial work is required.	B	3	3	3	3	1.5	3.2	32.9
T8	Holly	10	27	Y	G	G	40+	• A good condition tree, which is being slightly supressed by T9.	• No remedial work is required.	B	1	2	1	1	1.5	3.2	32.9
T9	Yew	8	50	MA	P	F	10-20	• Dense Ivy is present in the whole of this tree, which is suppressing the canopy. • The canopy is only mainly to the southeast of the tree.	• Fell.	R	1	4	1	1	2.5	6.0	113.1
T10	Yew	7	45	MA	F	F	20-40	• This tree leans towards the south. • It is not the most aesthetically pleasing specimen. • The tree has a slightly unbalanced crown.	• No remedial work is required.	C	1	2	1	1	-	5.4	91.6

T11	Rowan	11	37	M	P	P	0-10	• This is an old tree, which has a cavity and decay present at the base. • Bark necrosis can be seen up the main stem. • The foliage is sparse. • Dieback of the limbs can be seen all around the crown. • This tree is in a poor condition.	• Fell.	R	4	4	4	3	1.5	4.4	61.9
T12	Yew	14	70	M	F	F	20-40	• There are no major issues to report.	• No remedial work is required.	B	3	4	5	3	1.5	8.4	221.6
T13	Wellingtonia	20	132	M	G	G	40+	• There are no issues to report.	• No remedial work is required.	B	3	3	3	3	1.5	15	706
G14	Pine (x4)	20	55	M	G	F	20-40	• There are no issues to report.	• No remedial work is required.	B	4	3	4	5	4	6.6	136.8

APPENDIX 2 – Tree Survey Details: Explanation of Terms

Tree Number:	Relates to the tree number.	
Species:	Common name of tree.	
Height:	Measured using a rule of thumb and taken to the nearest half metre.	
Diameter:	Measured at 1.5m above ground level or immediately above the root flare for multi-stemmed trees.	
Age Class:	Young trees (Y) Middle aged trees (MA) Mature trees (M) Over mature trees (OM) Veteran (V)	Less than 1/3 of expected lifespan Half of expected lifespan More than 2/3 of expected lifespan Reached expected lifespan Exceeded expected lifespan and is in decline.
Physiological Condition:	Categorised to: Good (G) Fair (F) Poor (P) Dead (D)	
Structural Condition:	Description of the condition of the tree and whether any decay or physical defects are present. Categorised to: Good (G) Fair (F) Poor (P)	
Estimated Remaining Contribution in years:	Categorised to: Less than 10 10-20 20-40 More than 40	
Management Comments and Recommendations:	Remedial tree work required (if any) and the potential for wildlife habitat.	
Category Grading:	R, A, B or C category grading. A copy of the BS5837 category explanation table is attached at the end of this report.	
Canopy Spread:	Measured from the stem to the North, South, East and West in metres.	
Crown Clearance:	Measured in metres from the ground.	
Root Radius:	Measured in metres.	
Root Protection Area:	Measured in metres squared. (RPAs are to be protected by weldmesh panels).	

APPENDIX 3 – Tree Categorisation

Category and Definition	Criteria
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse. 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 (e.g. Dutch elm disease).
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of forty years is suggested).	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue). Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested).	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage. Trees with clearly identifiable conservation or other cultural benefits.
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.	Trees not qualifying in higher categories. Trees with very limited conservation or other cultural benefits. NOTE: Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.

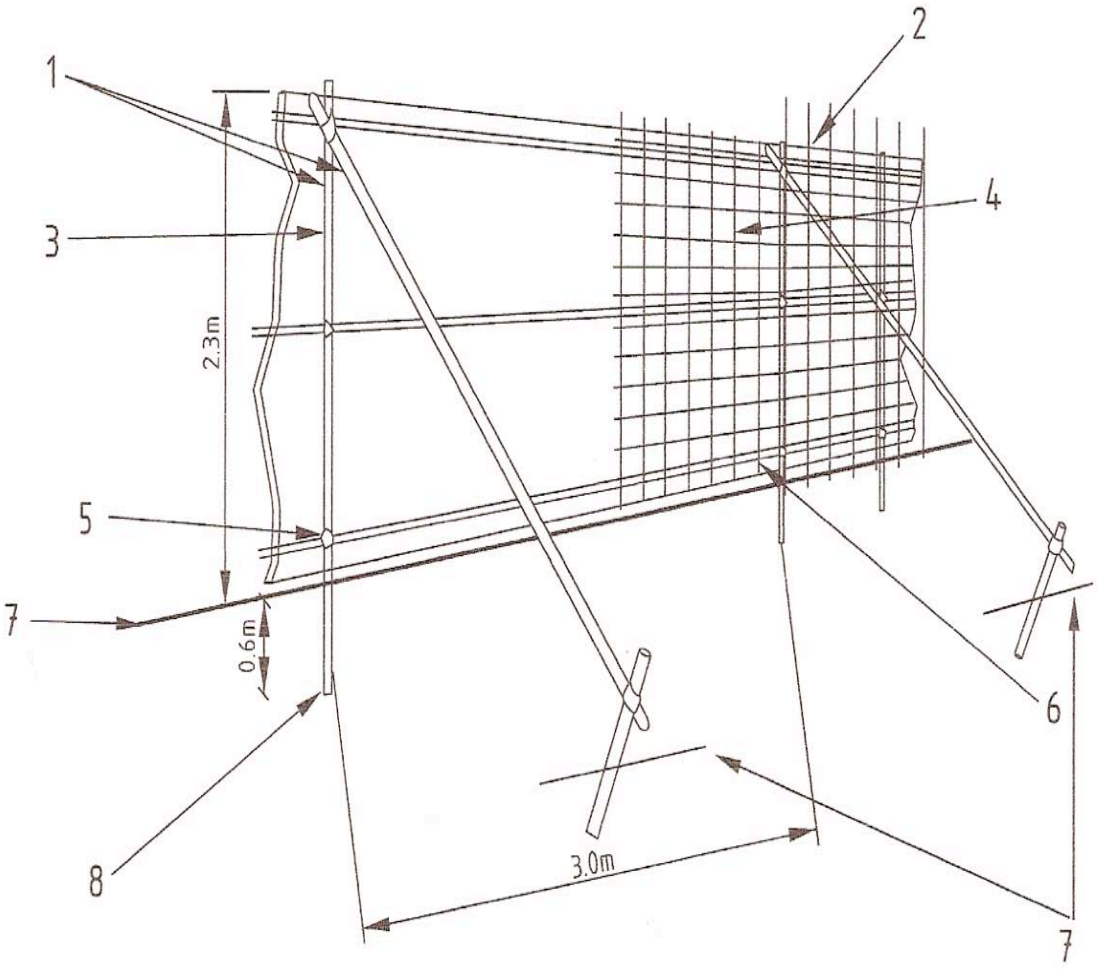
Calculating the RPA
Root Protection Area = $\frac{(\text{Stem diameter (mm)} \times 12)^2}{1000} \times 3.142$ - Calculation for a single stemmed tree.

APPENDIX 4 – Glossary of Terms

Bark	All tissue on the outside of the trunk, roots, stem, branches and twigs.
Bark Necrosis	A disease in which the branches gradually dry up from the bark to the center.
Bulge	Young trees may flex in the wind causing the wood fibres to buckle in places. Subsequent growth may produce horizontal tyre-like bulges to compensate for this.
Buttress	A large root on all sides of a tall or shallowly rooted tree. They prevent the tree from falling over and help gather more nutrients.
Canopy	The part of the tree composed of leaves and twigs.
Canker	Defined as a localised lesion; a dead spot.
Cavity	An open wound characterized by the presence of decay and causing a hollow.
Crown	The main foliage carrying part of the tree.
Crown Lifting	The removal of the lower branches up to a specified height to provide clearance under the crown.
Crown/Limb Reduction	A shortening of lateral and vertical branches that make the entire crown or specified part smaller.
Crown Thin	The balanced removal of secondary, minor, live branch growth to reduce the leaf density evenly throughout the canopy or specified part without altering the tree's overall size and shape.
Decay	Rot. The process of degradation of woody tissues by fungi and bacteria through decomposition.
Epicormic Growth	Usually appears on the main trunk from dormant buds, which may be activated when a branch or branches are removed higher in the crown, resulting in a flush of epicormic shoots.
Failure	A partial or total fracture of woody tissues or loss of cohesion between soil and roots.
Fibre Buckling	A line of ridges in the bark of the trunk made up of strengthening wood laid down to support excessive loading.
Fungi	A group of organisms that obtain nutrients from dead or living organic matter.
Growth Ring	A sheath of cells appearing as one of a series of concentric rings in a cross-section of a woody stem. Each ring is usually the result of a single yearly growth flush starting in spring and ceasing in the late summer.

Hazard	Anything with the potential to cause harm.
Included Bark	Bark of neighbouring parts of the tree that are in face-to-face contact causing a weakness due to the lack of wood union.
Occluded	To seal a wound with the formation of new wood and bark.
Phototropic	Taking a particular direction under the influence of light.
Pollarding	A method of pruning that can obtain regulation of size and shape. It is also known as coppicing.
Pruning	The removal or cutting of twigs, branches or roots, often used to describe all kinds of work involving cutting.
Risk	The likelihood of a potential harm from a hazard becoming actual harm.
Root	Part of the tree that contains woody and non-woody tissues to absorb water and minerals from the soil, gases from the atmosphere, and support the trunk and crown.
Significant	Relates to health and safety – describing a condition, state, hazard or risk that is deemed to exceed accepted standards, thereby requiring remedial or preventative action.
Stem	The principle portion of the woody structure (the trunk) or one of a number of such portions with similar size and status.
Suppressed	Trees that have been over shadowed and whose crown development is restricted by neighbouring trees.
Tree	A woody plant that typically has a single self-supporting woody stem, attaining a height in excess of 4 metres in maturity with a stem diameter of at least 75mm.
Trunk	A single main self-supporting stem of a tree.
Wound	An injury that induces the tree to compartmentalize internally.

APPENDIX 5 – Barrier Design



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

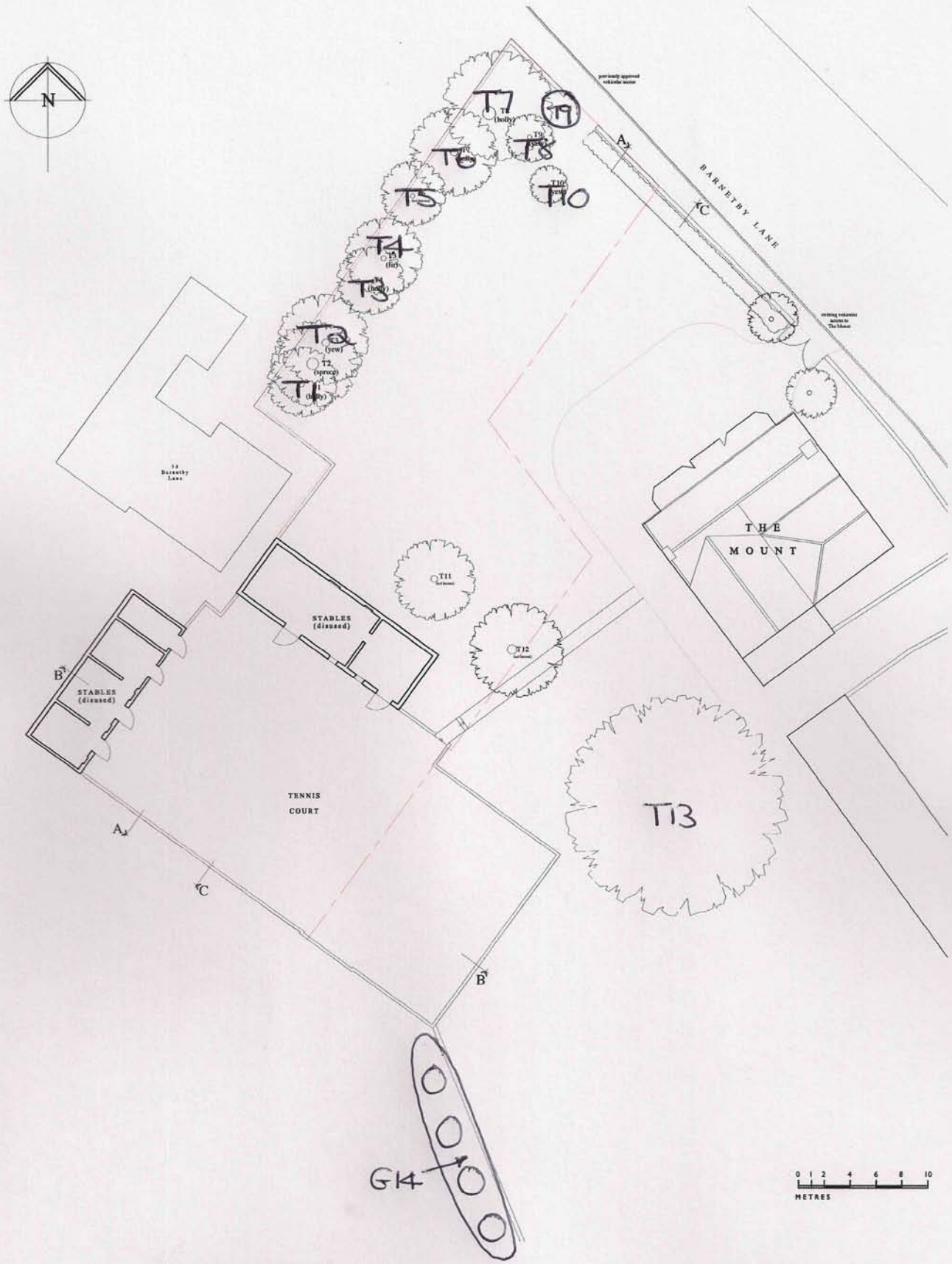
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling

7 Ground level

8 Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

To be added to the Tree Constraints Plan (TRP).

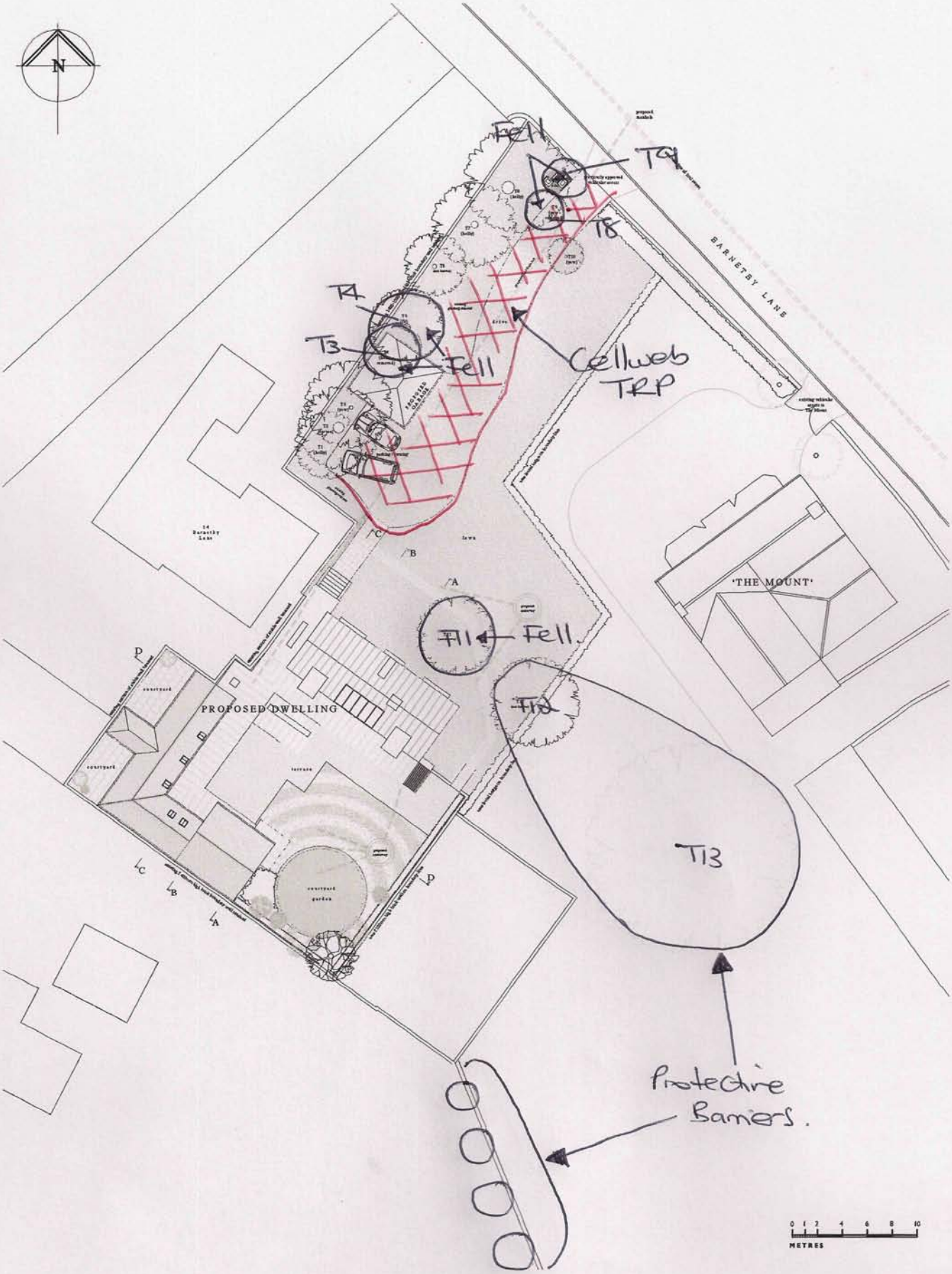


INGLEBY & HOBSON ARCHITECTS LTD 114 HOLME CHURCH LANE BEVERLEY EAST YORKSHIRE TEL: 01482 868690 FAX: 01482 863692 EMAIL: inghob@gmail.com

PROPOSED DWELLING in grounds of THE MOUNT BARNETBY LANE ELSHAM NORTH LINCOLNSHIRE for MR and MRS BURKE

SITE PLAN AS EXISTING SCALE: 1:200 @ A2 JULY 2012 DRAWN: RJW DRAWING NO: 1850/E11

To be added onto the Tree Protection Plan (TPP).



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