Tree Method Statement

Proposed tree protection measure for a development at
West Lane, Kirkbride, Cumbria.

Report Undertaken for:
Mr. Derek Tweddle
West Lane
Kirkbride
Wigton

Surveys undertaken by
OpenSpace
October 2009, November 2010 and January 2011
To complete the objectives stated in this report, it was necessary for OpenSpace to base our conclusions on the best information available during the period of the project and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. We therefore cannot guarantee that the investigations fully identified the degree or extent of e.g. species presence or habitat management efficacy described in this report.
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Tree Method Statement for West Lane, Kirkbride, Cumbria.

1 PROJECT BACKGROUND
This tree method statement is required in relation to a proposed new development at West Lane, Kirkbride, Cumbria. A tree survey was undertaken by OpenSpace (2009) to assess the impact on a number of trees. This method statement summaries the findings and sets out appropriate mitigation and protection measures.

2 SITE DETAILS & DEVELOPMENT
General Description of Site and Surroundings
The development site is located on the western edge of Kirkbride in Cumbria. Most of the site comprises of hard standing and warehouse. These cover about 60% of the survey area with the remaining land use as rough grassland. Two mature Sessile Oak (Quercus petraea) trees are growing along the field boundary of the site. There is an area of scrub and small trees growing on a small bank but are not considered large enough (below 75mm main stem diameter) to be surveyed individually. A number of trees are growing on the northeastern bank of Monks Dyke but will not be affected by the proposed development.
The two surveyed trees were the two mature Oak trees T1 and T2.

**Description of Proposed Development**

The proposal is the reuse of a previously developed site for a housing development. The development comprises of 19 houses and impacts on two trees and some scrub areas. The design of the build is shown on site plans.

**Designations Relating to Trees**

The site is not situated in a conservation area; however, Tree 2 is subject to a Tree Preservation Order.

**Implications of Proposed Development**

**Direct Loss of Trees**

It is proposed to remove one tree to allow development of the site. The tree removed for construction is T1.

Table 3.1 shows the field survey data. It is considered that the impact from the loss of trees will be low to moderate and that new planting will mitigate this.

**Moving or Re-planting trees**

No trees are to be moved or re-planted.

**Indirect Impacts**

**Digging within Root Protection Area**

The proposed new buildings are a standard block/brick and mortar design with standard foundation. The layout of the new buildings and paving has aimed to reduce the impact of RPA of retained tree T2. However, the foundation of dwelling No.7 falls within the RPA of Tree T2. Since the tree is open grown the 20% offset RPA is applied. There is no digging within the 20% offset RPA. The proposed path is located within 20% RPA but this will be taken over the surface with little impact.

**Changes in Ground Level within Exclusion Zones**

The land within the development site is currently hardstand of concrete. This will be removed by a small excavator with no digging in this area. The concrete will be cut by hand held stone saw and the concrete lifted by hand and small digger. The concrete will be scraped up with no digging below the bottom of the hardstand. This will expose the soil and there is a requirement to add about
150mm of new top soil. This will return the surface level to current levels and it is considered this will improve the aeration of the soil since the concrete has been removed. Picture Two shows the hardstand area adjacent to Tree T2.

**Structures within Exclusion Zones**
No large structures are proposed within the exclusion zone.

**Services**
No underground services are to be routed through exclusion zones.

Overhead services will be taken from the front of the new building and no overhead services will affect any tree branches.

**Change in Site Use and Tree Management Implications**

**General**
Future management requirements resulting from the proposed development will be little more than a reinstatement of past management techniques with new planting proposed. The new building will have minor impact on the character of the retained tree. The 5-metre buffer zone offers protection to retained tree and canopy. To maintain the tree, possible future work of limited pruning is likely to be required over an 8-10 years rotation to cut back from the new building. This would be subject to application as the tree is under a TPO. The pruning will be of a low impact.

**Roads, Footpaths and Parking Bays**
Tree T2 will be affected by new paving within the RPA. The impact is considered low since the installation requires a no dig technique.

**Potential Root Damage to Infrastructure**
Site investigations indicate that the site is not affected by shrinkable / expandable clay soil and therefore no problem with tree root related subsidence is anticipate.

Tree root barriers will be not be required for the new buildings. The proposed design will allow for root movement with most root area considered away from these structures.

**Potential Nuisance**
The current development layout provides reasonable separation between the new buildings and the retained tree and conflicts should therefore, be minimised. Possible future work of limited
pruning is likely to be required on all trees. New planted trees will be low growing species and planted an appropriate distance from buildings to reduce nuisance.

**Construction / Implementation**

Most of the construction work can be carried out without entering exclusion zones of retained trees. There will be limited incursion in to the RPA of Tree T2. To reduce compaction of the soil a number of site boards will be laid over the exposed soil. If the appropriate protection measures are implemented the incursion in to the RPA is considered low impact.

Tree protection fencing will be erected as shown in Figure 4.1. Special arrangements will be required for installation of tree protection fencing and landscaping within exclusion zones.

**Arboricultural Planning Conditions**

"No development shall take place on site until a method statement for works affecting trees has been submitted to and approved in writing by the Local Planning Authority." This method statement has been prepared for submission to Copland Borough Council for approval.

**General**

This document sets out the methodology for all proposed works that affect trees on and adjacent to the site. Compliance with this method statement will be a requirement of all relevant contracts associated with the development proposals. Copies of this document will be available for inspection on site. The construction or design lead will inform the local planning authority within twenty-four hours if the arboricultural consultant is replaced.

**3  SCOPE OF SURVEY AND METHODOLOGY**

The following tree survey data was collected on 6th October 2009 by ground-level inspection only. All height measurements were made using a pocket clinometer and tape measure unless otherwise stated in survey comments.

The inspection method was a standard Visual Tree Assessment (VTA) from ground level. The survey investigated the condition of each tree, including tree species, tree health, evidence of pathogens, tree structure, tree age (estimate), tree size and other observations on condition and use. Tree categorization was in accordance to guidance within BS 5837:2005 ‘Trees in Relation to Construction’ and survey criteria followed as shown in Appendix One.

Mr Jonathan Rook (MEnvSc, Ad.EnvSc) undertook the inspections and has over 20 years tree survey experience.
Figure 3.1. Current tree locations with tree categories
<table>
<thead>
<tr>
<th>No</th>
<th>Species and location</th>
<th>Height (m)</th>
<th>Diameter @1.5m (mm)</th>
<th>No. of stems</th>
<th>N radius (m)</th>
<th>S radius (m)</th>
<th>E radius (m)</th>
<th>W radius (m)</th>
<th>Age Class</th>
<th>Tree age (years)</th>
<th>Remaining contribution (years)</th>
<th>Physiological condition</th>
<th>Structural condition</th>
<th>RPA radius (m)</th>
<th>RPA (m²)</th>
<th>RPA square (m)²</th>
<th>RPA 20%</th>
<th>Comments and observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sessile Oak (Quercus petraea)</td>
<td>18</td>
<td>1065</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>M</td>
<td></td>
<td>Circa 150-170 years</td>
<td>Over 20-40 years</td>
<td>F-G</td>
<td></td>
<td>12.8</td>
<td>513.2</td>
<td>22.7</td>
<td>2.6</td>
<td>The tree is growing on site by the boundary fence to a field. The tree appeared to generally healthy with a good foliage cover. Some dead branches were present. There are some signs of rot in the main stem and an old wound, which has healed. A single stemmed tree with a good canopy spread. However, the tree appeared to be lopsided with a large proportion of the lower branches present on the field side of the tree.</td>
</tr>
<tr>
<td>No</td>
<td>Species and location</td>
<td>Height (m)</td>
<td>Diameter @1.5m (mm)</td>
<td>No. of stems</td>
<td>N radius (m)</td>
<td>S radius (m)</td>
<td>E radius (m)</td>
<td>W radius (m)</td>
<td>Age Class</td>
<td>Tree age (years)</td>
<td>Remaining contribution (years)</td>
<td>Physiological condition</td>
<td>Structural condition</td>
<td>RPA radius (m)</td>
<td>RPA (m²)</td>
<td>RPA 20%</td>
<td>Comments and observations</td>
<td></td>
</tr>
<tr>
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<td>---------------------------</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sessile Oak (Quercus petraea)</td>
<td>15</td>
<td>960</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>M</td>
<td>Circa 140-150 years</td>
<td>Over 40 years</td>
<td>F</td>
<td>F-G</td>
<td>11.5</td>
<td>417</td>
<td>20.4</td>
<td>2.3</td>
<td>The tree is growing on site by the boundary fence, along a hedge and bank, to a field. The tree appeared to be generally healthy with a good foliage cover. There some damage to the base of the tree with a wire stock fence nailed in two places. This cuts into the tree. Some dead branches were present. A single stemmed tree with a good canopy spread. However, the tree appeared to be slightly lopsided with some of the lower branches present more on the field side of the tree.</td>
</tr>
</tbody>
</table>
4 ABORICULTURAL WORKS AND PROTECTION MEASURES

Schedule of Arboricultural Works
One tree is proposed for removal to allow road access, parking bays and the new buildings.

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Species</th>
<th>Schedule of Works</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Sessile Oak Quercus petraea</td>
<td>Fell and remove stump</td>
</tr>
<tr>
<td>02</td>
<td>Sessile Oak Quercus petraea</td>
<td>Limited pruning of lower branches up to 5 metres and remove dead wood.</td>
</tr>
</tbody>
</table>

Tree Protection Measures
To protect retained trees on site a number of measures will be put in place. These are:

- Safe removal of hardstand concrete
- Tree Protection Fencing for Tree T2
- Hand Dig Area and Protection Boards along new Raised Paths
- Limited pruning of retained trees
- Soft Landscaping in Exclusion Areas
- General precautions

Safe Removal of Hardstand Concrete
The hardstand will be safely removed from within the RPA to reduce impact to tree roots and the tree stem. The concrete will be hand cut by a hand held stonesaw. The rubble will be removed by a small digger working away from the tree. No digging will be required within the area.

Hand Dig Area and Protection Boards
Figure 4.1 shows the location of the hand dig area. This area is only along the raised path adjacent to the house. If digging is required for the path, the section which comes within the 20% offset RPA for Tree T2 will be dug by hand.

There is a need for pedestrian access between the protection fence and new building. To reduce compaction of exposed soil a number of wooden boards will be placed on the ground. This will form a protective walkway to maintain access.
Protective Fencing

Before the commencement of any works on site (other than those set out in the schedule of tree works contained in this document), protective fencing will be erected in the positions shown in Figure 4.1. The fencing will comprise a 2.4-metre high scaffold framework supporting exterior grade plywood with a minimum thickness of 20mm (as shown in Figure 4.2). The support posts will be staked in to provide a secure fence. The design of the fencing follows the specification in BS5837:2005.

The fencing around T2 may require one side to be Harris Fencing on blocks. This will be on the non-construction side and the potential impact from the construction on this side considered nil since no construction traffic can access due to path and bungalow. The other side of T2 fencing will be the standard protection fencing.

All the tree protection will remain in place until completion of the main construction phase and then only removed with the consent of the local planning authority to permit completion of the scheme.

Other than works detailed within this method statement or approved in writing by the local planning authority, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing.

Figure 4.1. Tree protection fencing

As shown support posts will be staked and made secure. This creates a rigid and solid structure.
Figure 4.2. Tree Root Protection Areas and protection fencing

**Limited Pruning of Retained Trees.**

There is possible future work of limited pruning required within the scope of works within the development phase. Limited pruning techniques would be employed for post development management, with special attention to Tree T2. Pruning of this tree would be subject to application as it is under a TPO. All post management of retained trees must be undertaken by an approved tree surgeon using standard arboricultural techniques. All brash must be removed from site or chipped in an approved location. No wood chips must be stored under any tree or within any tree RPA.

**Soft Landscaping within Exclusion Zones**
Preparation of ground in these areas will be carried out under the supervision of the arboricultural consultant. The main soft landscaping is grass with limited impact on retained trees. Tree and shrub planting must be undertaken by hand and tree pits must be just larger than the tree rootball.

**General Precautions**

The following schedule sets provides general measures for all retained trees on site. These will be carried out before commencement of other site operations including erection of protective fencing. These are:

- No vehicles will be allowed to enter areas to be protected by fencing.
- All works will be carried out in accordance with the British Standard Institution (1989). BS3998:1989 Recommendations for Tree Work – recommendations. BSI, London.
- All protective measures signed off by arboricultural consultant.
- No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a retained tree.
- Follow other general measures as below:
  
  **Do not** excavate with machinery within 20% offset RPA.
  **Do not** store materials, plant or equipment within RPA
  **Do not** move plant or vehicles within the RPA.
  **Do not** lean materials against, or chain plant to, the trunk.
  **Do not** cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.
  **Do not** repeatedly move / use heavy mechanical plant except on hard standing/ access road zone.
  **Do not** store spoil or building material, including chemicals and fuels, within this zone.
  **Do not** light fires under any tree canopy or within 20 metres of any tree to be retained.
  **Do not** empty cement washing or other chemical within the RPA.

**Do** contact the local authority tree officer or owner of the tree if excavation within 20% offset by machinery is unavoidable or not been agreed prior to works

**Do** protect any exposed roots uncovered within RPA with dry sacking.

**Do** backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.

**Do** notify the local authority tree officer or the tree’s owner of any damage.
5 MITIGATION AND PLANTING

Figure 5.1 shows the location of new native tree, shrub and ground flora planting in relation to this Tree Method Statement. Trees will be UK native species and small ornamental species. It is proposed to have some additional planting of UK native shrubs for a new species-rich hedge along part of the southern boundary. Further landscaping will be shown on a conditioned landscape plan.

The new planting will mitigate for the removal of one tree from the site by planting eleven new trees. Considering Planning Policy 9 (“planning decisions should aim to maintain, restore or add to biodiversity…. conservation interests”). The proposed planting achieves this aim by removing non-native and ornamental varieties and replacing with eight native trees and three ornamental trees with wildlife benefit. The planting of native shrubs further increases the biodiversity and offers new woodland habitat. The planting scheme will benefit local bats, breeding birds and invertebrates. The local tree resource is enhanced by the proposed planting.

Table 5.1. Proposed tree planting

<table>
<thead>
<tr>
<th>Ornamental &amp; Native Trees in gardens &amp; open areas</th>
<th>Girth (cm)</th>
<th>Height (m)</th>
<th>Root Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer campestre</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Betula pendula</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Betula utilis var. jaquemontii</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Prunus avium</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Quercus petraea</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Sorbus aria</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
<tr>
<td>Sorbus aucuparia</td>
<td>8-10</td>
<td>2.50-3.00</td>
<td>Rootball</td>
</tr>
</tbody>
</table>

All trees planted with 5Litres of tree compost.
Allow for one tree stake (1.5mx100mm round treated post) and one soft tree tie.

Table 5.2. Hedge planting

<table>
<thead>
<tr>
<th>Hedges</th>
<th>Unit</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native Hedge Planting to enhance existing hedge. Total length about 103m. Plant Native hedge plants at 6 per linear metre. Bare root stock. Supply kerb herbicide, one cane and spiral. Trees to be 40-60cm.</td>
<td>m</td>
<td>65</td>
</tr>
</tbody>
</table>
Beech Hedge planting. Total length about 116m. Plant Beech hedge plants at 6 per linear metre. Bare root stock. Supply kerb herbicide. Suggested no protection needed but must monitor rabbits. Trees to be 60-90cm.

<table>
<thead>
<tr>
<th>m</th>
<th>160</th>
</tr>
</thead>
</table>
Figure 5.1  Proposed new planting scheme
6 SUMMARY
The proposed tree protection measures will protect trees within and around the construction area. It is important that all construction follow British Standard 5837: Trees in relation to construction to ensure best practice. This is of particular importance to the tree T2 adjacent to the new build area. The implementation of all the protection measures will reduce the impact to retained trees.

This report considers the new development will create a low to medium short-term impact on retained trees. There will be some short-term visual impact but this will be mitigated by appropriate planting. The long-term impact will be low with retained trees able to mature with adequate space. The proposed mitigation planting will enhance the overall tree resource and increase site biodiversity by planting native UK tree species and native ground flora.

7 REFERENCES/BIBLIOGRAPHY


OpenSpace (2010). Tree Survey at West Lane, Kirkbride.
**APPENDIX ONE: KEY TO TREE SCHEDULE**

Tree ID No: Relates to individual trees identified within the Tree Survey Plan

Species: Common name (Latin name)

Height: Estimated height expressed in metres

Stem diameter: Diameter of main trunk taken at 1.5m above ground level. Where the stem diameter is affixed by a "*" this measurement has taken above the root flare for multi-stemmed trees.

Branch Spread: (N, S, E, W radius) Estimated crown radius expressed in metres. Where a tree crown is heavily asymmetrical, the crown radius for each cardinal compass point is given.

Age Class
- Y  Young - Less than one third of natural life expectancy
- MA  Middle aged - One to two thirds of natural life expectancy
- M  Mature - More than two thirds of natural life expectancy
- OM  Over mature

No. of stems: M = multi-stemmed

Physiological Condition: G = Good  F=Fair P=Poor  D=Dead

Structural Condition: G = Good  F=Fair P=Poor

Abbreviations: E: Estimated  Ave: Average  A.G.L: Above ground level

<table>
<thead>
<tr>
<th>Category for removal</th>
<th>Definition</th>
<th>Id. on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Trees 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.</td>
<td>DARK RED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category for retention</th>
<th>Definition</th>
<th>Id. on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Trees of high quality and value. Trees in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)</td>
<td>LIGHT GREEN</td>
</tr>
<tr>
<td>B</td>
<td>Trees of moderate quality and value Trees in such a condition as to make a significant contribution (a minimum of 20 years is suggested)</td>
<td>MID BLUE</td>
</tr>
<tr>
<td>C</td>
<td>Trees of low quality and value Trees 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.</td>
<td>GREY</td>
</tr>
</tbody>
</table>

| Subcategories | 1. Mainly arboricultural values | 2. Mainly landscape values | 3. Mainly cultural values, including conservation |

Root Protection Area: This is the minimum Root Protection Area (RPA) recommended within Table 2 of British Standards 5837 2005 ‘Trees in relation to construction’. The RPA is an area (m²) equivalent to a circle with a specified radius. This is the minimum area in m², which should be left undisturbed.
Table 2 - Calculating the Root Protection Area (RPA), BS5837: 2005 Trees in relation to construction - Recommendations

<table>
<thead>
<tr>
<th>Number of stems</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single stem tree</td>
<td>[ RPA(\text{m}^2) = \left(\frac{\text{stem diameter}(\text{mm}) \times 12}{1000}\right)^2 \times 3.142 ]</td>
</tr>
<tr>
<td>Tree with more than one stem arising below 1.5m above ground level</td>
<td>[ RPA(\text{m}^2) = \left(\frac{\text{Basal diameter}(\text{mm}) \times 10}{1000}\right) \times 3.142 ]</td>
</tr>
</tbody>
</table>

**NOTE** The 12 x multiplier is based upon NJUG and published works by Metheny and Clark.

Notes:

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 or replacement through mitigation.

The calculated RPA should be capped to 707m², e.g. which is equivalent to a circle with a radius of 15m or a square with approximately 26m sides.

The RPA, for each tree as determined in Table 2, should be plotted on the TCP taking full account of the following factors, as assessed by an arboriculturalist, which may change its shape but not its area whilst still providing adequate protection for the root system:

a) The likely tolerance of the tree to root disturbance, based on factors such as species, age and condition and presence of other trees. (For individual open grown trees only, it may be acceptable to offset the distance by up to 20% in one direction).

b) The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. presence of roads, structures and underground services).

c) The soil type and structure.

d) Topography and drainage.

e) Where any significant part of a tree’s crown overhangs the provisional position of tree protection barriers, these parts may sustain damage during the construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. An arboriculturalist should assess the need for such measures, including the precise extent of pruning.
PLOTTING THE RPA – WORKED EXAMPLES

1. For an individual open-grown tree in satisfactory condition of 600mm stem diameter: Basic calculation $12 \times 600 = 7.2$ (radius in metres) \Rightarrow root protection area (RPA) of $163\text{m}^2$. As the tree in this example is open grown, the RPA should be centred on the stem at a radius of 7.2m.

2. For individual open grown trees in satisfactory condition, it is generally acceptable to offset the RPA by up to 20% to one side of a tree only.

3. For a tree of the same size growing next to a pre-existing root barrier (e.g. watercourse, adopted road, significant shear level change) and/or where, for whatever reason, the root system would be expected to have developed asymmetrically: Basic calculation as before $12 \times 600 = 7.2$ (radius in metres) \Rightarrow root protection area of $163\text{m}^2$. However, it is essential that the root barrier/asymmetry of the rootzone be taken into consideration when plotting the RPA, such that the same available square metre area is protected:

- Calculated root protection area centred on the tree & plotted as a polygon for ease of protection
- Actual protected area extended to other sides to compensate for asymmetrical nature of available rooting area
- Physical barrier to root development
- Tree
- Barrier renders this area unavailable to the tree
- Calculated root protection area centred on the tree
- Actual protected area offset to one side by up to 20%