ARBORICULTURAL IMPACT ASSESSMENT AT
BARTON SEAGRAVE PRIMARY SCHOOL, KETTERING

REVISION 6 – 10/06/13

Prepared for MLM Consulting
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Contents

1 Terms of Reference
2 Site Description
3 Tree Survey Details
4 Tree Constraints Plan
5 Arboricultural Impact Assessment
6 Tree Management and Replanting Proposals
7 Further Arboricultural Input into the Design Process, Construction and Aftercare
8 Permissions and Constraints
9 Conclusions

Appendices

Appendix 1 Tree Survey Schedule
Appendix 2 Notes on Column Headings in Appendix 1
Appendix 3 Tree Constraints Plan
Appendix 4 Tree Protection Plan
Appendix 5 Arboricultural Method Statement
Appendix 6 Timetable for Implementation of Tree Protection Works
1. Terms of Reference

1.1 The aim of this assessment is to survey trees that may be affected by the alteration, extension and demolition of a number of the buildings at Barton Seagrave Primary School.

1.2 The assessment addresses the likely impact of the proposed development on surrounding trees and provides recommendations for the protection of the trees during construction work based on BS 5837:2012 “Trees in relation to design demolition and construction-Recommendations”.

1.3 A topographical plan was provided by the client showing the proposals and the accurate position of all trees. This plan has been used as the basis for the Tree Constraints Plan (TCP, Appendix 3) and the Tree Protection Plan (TPP, Appendix 4).

1.4 The site is outside the Barton Seagrave Conservation Area, as put in place by Kettering Borough Council. Wallis Spinney, the woodland to the east of the site is protected by a Tree Protection Order.

1.5 Since the completion of the report, those trees highlighted for removal in this report have been programmed for removal prior to the start of the bird nesting season in 2013.

2.0 Site Description

2.1 The site is at Barton Seagrave Primary School, Kettering, Northamptonshire. The school consists of single storey buildings across the site (Fig 1) with a number of individual and groups of trees. The school is bounded to the east by woodland which, although not designated an Ancient or Semi-Natural Woodland, has a number of characteristics that suggest it is old woodland, including very large coppice stools (Fig 2) and old boundary banks.

2.2 There are small groups of trees dotted around the site, such as the group of Scots Pine and Sycamore seen in figure 3. On the northern boundary there is a large lone Sycamore tree adjacent to a playground, in addition to a young Ash and Leyland Cypress hedgerow (Fig 5). Centrally within the site, there is a small, dense group of young trees (Fig 6). It is surrounded by an established Hawthorn hedgerow.
3. Tree Survey Details

3.1 Appendix 1, the Tree Survey Schedule gives the survey findings in tabular form. The schedule contains all the information specified in section 4.4.2.5 of the British Standard. Appendix 2 gives a full explanation of the survey headings.

3.2 The trees were surveyed on 5th October 2012; they were not climbed, but surveyed from ground level.

3.3 The details recorded during the tree survey have been collected independently of any development proposals, and the categorisation of the quality and amenity value of the trees is made purely on arboricultural grounds.

3.4 No assessment of the soil has taken place as part of this report. The new British Standard states that a soil assessment should be carried out by a competent person to establish the structure, clay content and potential for volume change of the soil. A survey of this nature is considered outside the scope of this Arboricultural Assessment. For guidance on soil structure in relation to construction advice should be sought from a Structural Engineer. Guidance on foundation depth in relation to building and trees can be found in NHBC Chapter 4.2.

4.0 Assessment of Tree Constraints

4.1 To facilitate the proper assessment of tree constraints a Tree Constraints Plan (TCP) has been prepared and forms Appendix 3 the plan has been produced as a basis for the assessment of the constraints imposed by existing trees on the proposed design.
4.2 Appendix 3 shows the position of trees marked by a coloured dot matching the retention category status and a reference number (as listed in Appendix 1). Heights (Ht) are marked in metres for each tree, together with the predicted ultimate heights (U/Hgt).

4.3 The plan deals with constraints that the trees may place on the development in two areas as follows:

4.4 • Below ground Constraints

The Root Protection Areas (RPA) for the trees are shown as a coloured circle to match the retention category colour. The RPA will be used to help inform the closest positions of any future buildings. The RPA will be protected during any development work with temporary barriers as prescribed by the British Standard.

4.5 • Above Ground Constraints

The branch spreads were measured at the four cardinal compass points, with a shape drawn around these points to indicate approximate branch spread, represented by green broken lines on the plan. The ultimate crown spread has been shown with an orange dashed line. This is a predicted distance, and is based on personal experience of how far it is likely the crown will grow.

4.6 A shade pattern has been shown for each tree forming an arc from north west to due east. This gives an indication of the patterns of shadows created by the trees around mid day in the summer. This is as recommended in BS5837:2012 (Section 5.2.2) but actual shade patterns throughout the year will vary widely. If shading is likely to be a serious constraint a more detailed analysis of shade pattern using proprietary software may be deemed necessary.

5. Arboricultural Impact Assessment

5.1 A total of 24 individual trees and three tree groups have been included within this report. All trees are within the site, apart from trees T23 and T24 that are within the woodland to the east of the school.

5.2 The Field Maple T23 and Ash T24 have been categorised as A category trees as they are showing signs of being veteran trees, and are situated on an old boundary bank within the woodland to the east of the site. These trees will be retained and protected throughout the development.

5.3 9 trees have been classified as category B trees. These trees are generally in good condition and have a role on the local landscape, and where possible will be retained and protected according to BS5837:2012 “Trees in relation to design, demolition and construction – Recommendations”.

5.4 The remaining 13 individual trees and 3 tree groups have been classified as C category. They do not feature in the wider landscape or are in poor condition. C category trees are of such a quality that the Local Authority may consider it acceptable for them to be removed for development purposes, if required. Any C category trees to be retained must be protected as per BS5837.
5.5 In order to fully assess tree constraints for each aspect of the development, they are considered separately below:

<table>
<thead>
<tr>
<th>Element</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition of Existing Buildings</td>
<td>There are a number of buildings situated around the site that are to be demolished during the process of these works, as marked on the plans with purple lines. These buildings are largely outside the RPA of any trees to be retained. However, tree protection measures for retained trees, as set out in the Arboricultural Method Statement (AMS, Appendix 5) will be erected prior to the commencement of works. Care must be taken when carrying out demolition adjacent to trees. All machinery involved must remain outside the RPA of the trees, and if this is not possible, must work from existing surfaces or from temporary ground protection suitable for the machinery being used. The demolition must be carried out in a “top-down, pull-back” technique, ensuring that material is pulled within the footprint of the building and away from the tree. This will be necessary adjacent to T23 and T24 where a garage is to be removed from within the RPA of T24. Where possible, it is recommended that services and foundations and other underground features related to the demolished buildings remain in situ within the RPA of trees, as the risk of damage to the trees is greater if they are removed.</td>
</tr>
<tr>
<td>Extension of Existing Buildings</td>
<td>There are to be extensions to the existing buildings on site, as shown on the TCP in thick light blue lines, including the construction of a new block linking the northern and southern school buildings. To construct the buildings as shown by the footprint on the TCP, it will be necessary to remove three B category trees (T11, T14 and T19), six C category trees (T4, T15-T18, T20 and T21) as well as a C category tree group G3. These trees will be replaced as set out in section 6 below. It will also be necessary to remove sections of established hedgerow. The new extension will link to the playgrounds with paths that will require the removal of the B category Field Maple T22. This will be replaced as set out below.</td>
</tr>
<tr>
<td>New Road Access and Car Parking</td>
<td>The internal access road will be significantly altered and there will be the provision of new car parking on site. The layout shown on the TCP will require the removal of B category trees T7, T8 and T9, and the C category trees T2, T5 and T6. The C category Leyland Cypress group G1 and some hedgerows will also be removed for development purposes, and replaced as set out in section 6 below.</td>
</tr>
</tbody>
</table>
The car parking areas are close to the eastern boundary and encroach within the RPA of the Ash T24, within the protected Wallis Spinney. This is a significant and very old coppice stool. To minimise the impact of this new car parking area on the tree, it will be necessary to carry out some pre-emptive root pruning, as specified in the AMS. This must be carried out by arboriculturally trained staff.

The car park adjacent to the Sycamore T10 is to be used and revised. It is important that the bank adjacent to the car park is not altered within the RPA of T10. It is likely that there are roots from the tree present in that bank, and therefore the tree could be damaged if any alterations take place.

### Services and Soakaways

A plan has been provided showing the proposed storm and foul water drainage routes. These do not encroach within the RPAs of any retained trees.

Any above-ground apparatus including CCTV cameras and lighting should also be positioned to avoid the need for any regular or detrimental pruning to the trees. Minor facilitative pruning is acceptable. However positions that require repetitive and significant tree work must be avoided.

### 6. Tree Management and Replacement Planting

#### 6.1 Work to trees has been specified in column 10 of Appendix 1 for arboricultural and health and safety reasons. This, however, does not refer to, and is superseded by, any requirements for tree felling for development purposes as set out in section 5 above. Work required for any trees to be retained must be carried out within 12 months or prior to the commencement of construction, whichever is sooner.

#### 6.2 Any comments on the trees relating to health and safety remain valid for 12 months from the date of this report after which the trees will require re-inspection.

#### 6.3 The development necessitates the removal of 7 B category trees (T7-T9, T11, T14, T19, T22), 10 C category trees (T2, T4-T6, T15-T18, T20, T21) and two C category groups (G1, G3). They will be replaced on a one-for-one basis with heavy standards (12 to 14 cm stem diameter) and should include the following species:

- Field Maple *Acer campestre* ‘Louisa Red Shine’
- Hornbeam *Carpinus betulus* ‘Frans Fontaine’
- Hawthorn *Crataegus laevigata* ‘Pauls Scarlet’
- Flowering Crab *Malus* ‘Profusion’

#### 6.4 The heavy standard trees will be securely pit planted in a hole which has been excavated to at least 0.3m larger in all dimensions than the rootball of the tree, back-filled with fresh topsoil. The tree will supported with a treated softwood stake inserted at a 45 degree angle to the ground, avoiding the rootball. A rubber tie will secure the tree to the stake. A spiral guard will be wrapped around the lower stem to prevent mammal damage. Mulch will be placed around the tree at a diameter of 1m² to reduce weed growth.
6.5 All trees and new planting will be maintained for a 5 year period. Work will include keeping an area of 1m² around each tree free from weed growth using herbicide or mulch, checking all supports and guards and replacing any failures that occur during the period with trees of the same species and quality.

6.6 This planting will be carried out and incorporated into a wider landscaping scheme across the site.

7. Further Arboricultural Input into the Design Process, Construction and Aftercare

7.1 A Tree Protection Plan (TPP), Arboricultural Method Statement (AMS) and Timetable for implementation of Tree Protection Works form Appendices 4, 5 and 6 respectively.

7.2 The AMS contains a timetable for implementation of the tree protection works. No work will commence until the protective fencing is in place.

7.3 If any new designs are produced it will be necessary to revise this AIA and the AMS and TPP.

8. Permissions and Constraints

8.1 The site is not within a Conservation Area. Wallis Spinney, to the east of the site is protected by a Tree Protection Order. Therefore it will be necessary to receive written permission from the Local Authority prior to carrying out any works that may affect the condition of the protected trees.

8.2 To assist the planning process the LPA should be provided with a copy of this report and invited to comment on the proposals.

9. Conclusions

9.1 The proposed development will involve the demolition of a number of buildings, the extension of existing buildings and the construction of new access roads and car parking.

9.2 Two A category and three B category trees will be retained and protected according to BS5837:2012 throughout the development, in addition to two C category trees and a C category tree group.

9.3 The proposed new car park is shown encroaching within the RPA of the old Ash coppice stool T24. To construct the car park within the RPA of this tree it will be necessary to carry out pre-emptive root pruning to minimise the impact on the tree roots.

9.4 To carry out the proposals as shown on the TCP, it will be necessary to remove 7 B category trees, 10 C category trees and two C category tree groups.

9.5 Where the car park is adjacent to T10, the existing bank must not be regarded as it is likely that roots from T10 are present, and this would damage the condition of the tree.
9.6 New tree plantings will be incorporated into a wider landscaping scheme across the site and in time, will replace the lost biomass and visual amenity, and

G. G. Robbie, BSc Hons For, Tech Cert Arbor A
A.T. Coombes Associates
30th May 2013
<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Species</th>
<th>Ht (m)</th>
<th>Stem dia (mm)</th>
<th>No of Stems</th>
<th>Branch Spread</th>
<th>Height and Direction of First Branch (m)</th>
<th>Mean Canopy Ht</th>
<th>Life Stage</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Preliminary Tree work</th>
<th>Estimated remaining contribution (Yrs)</th>
<th>Cat grading</th>
<th>Radius of RPA (m)</th>
<th>RPA (sq m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Silver Birch</td>
<td>6.6</td>
<td>140</td>
<td>1</td>
<td>1.5</td>
<td>5.4</td>
<td>2.4</td>
<td>1.8</td>
<td>1.8 W</td>
<td>Y</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>C1</td>
<td>1.7</td>
</tr>
<tr>
<td>T2</td>
<td>Goat Willow</td>
<td>7.0</td>
<td>260</td>
<td>1</td>
<td>5.2</td>
<td>4.0</td>
<td>2.4</td>
<td>3.7</td>
<td>1.4 N</td>
<td>2.0</td>
<td>SM</td>
<td>Fair - One-sided</td>
<td>Good - Forked at 2.0m</td>
<td>No work required</td>
<td>C1</td>
</tr>
<tr>
<td>T3</td>
<td>Cherry</td>
<td>6.5</td>
<td>140</td>
<td>1</td>
<td>2.0</td>
<td>2.4</td>
<td>1.2</td>
<td>1.5</td>
<td>1.8 N</td>
<td>2.0</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>C1</td>
<td>1.7</td>
</tr>
<tr>
<td>T4</td>
<td>Silver Birch</td>
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<td>120</td>
<td>1</td>
<td>1.4</td>
<td>1.9</td>
<td>2.8</td>
<td>1.8</td>
<td>1.4 S</td>
<td>2.5</td>
<td>Y</td>
<td>Good</td>
<td>Moderate - Wound present at base</td>
<td>No work required</td>
<td>C1</td>
</tr>
<tr>
<td>T5</td>
<td>Leyland Cypress</td>
<td>7.2</td>
<td>245</td>
<td>6</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>0.0 N</td>
<td>0.0</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>C1</td>
</tr>
<tr>
<td>T6</td>
<td>Sycamore</td>
<td>9.5</td>
<td>383</td>
<td>2</td>
<td>4.0</td>
<td>4.5</td>
<td>4.3</td>
<td>4.5</td>
<td>1.9 S</td>
<td>2.7</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>C1</td>
</tr>
<tr>
<td>T7</td>
<td>Scots Pine</td>
<td>13.4</td>
<td>340</td>
<td>1</td>
<td>4.1</td>
<td>3.0</td>
<td>3.5</td>
<td>4.2</td>
<td>1.5 S</td>
<td>2.0</td>
<td>EM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>B2</td>
</tr>
<tr>
<td>T8</td>
<td>Sycamore</td>
<td>11.7</td>
<td>350</td>
<td>1</td>
<td>3.6</td>
<td>6.2</td>
<td>5.9</td>
<td>4.2</td>
<td>1.9 S</td>
<td>2.2</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>B1</td>
</tr>
<tr>
<td>T9</td>
<td>Scots Pine</td>
<td>14.4</td>
<td>320</td>
<td>1</td>
<td>3.7</td>
<td>3.0</td>
<td>2.7</td>
<td>1.5</td>
<td>3.5 N</td>
<td>7.2</td>
<td>SM</td>
<td>Fair - Moderate vitality</td>
<td>Moderate - Dead wood</td>
<td>Clean out</td>
<td>B1</td>
</tr>
<tr>
<td>T10</td>
<td>Sycamore</td>
<td>12.5</td>
<td>370</td>
<td>1</td>
<td>4.7</td>
<td>5.4</td>
<td>5.0</td>
<td>5.0</td>
<td>1.7 W</td>
<td>2.4</td>
<td>EM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>B2</td>
</tr>
<tr>
<td>T11</td>
<td>Sycamore</td>
<td>10.7</td>
<td>653</td>
<td>3</td>
<td>6.0</td>
<td>7.5</td>
<td>6.1</td>
<td>6.5</td>
<td>1.6 S</td>
<td>1.8</td>
<td>EM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>B2</td>
</tr>
<tr>
<td>T12</td>
<td>Ash</td>
<td>10.5</td>
<td>355</td>
<td>3</td>
<td>4.5</td>
<td>3.9</td>
<td>4.4</td>
<td>5.0</td>
<td>2.0 S</td>
<td>2.5</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>B1</td>
</tr>
</tbody>
</table>
## APPENDIX 1-
### TREE SURVEY SCHEDULE

**SITE: BARTON SEAGRAVE PRIMARY SCHOOL**

**SURVEY COMPLETED: 05/10/12**

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Species</th>
<th>Ht (m)</th>
<th>Stem dia (mm)</th>
<th>No of Stems</th>
<th>Branch Spread</th>
<th>Height and Direction of First Branch (m)</th>
<th>Mean Canopy Ht</th>
<th>Life Stage</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Preliminary Tree work</th>
<th>Estimated remaining contribution (Yrs)</th>
<th>Cat grading</th>
<th>Radius of RPA (m)</th>
<th>RPA (sq m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T13</td>
<td>Sycamore</td>
<td>8.0</td>
<td>212</td>
<td>2</td>
<td>4.0</td>
<td>E 2.0  S 3.0</td>
<td>1.6 S</td>
<td>2.0</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>2.5</td>
<td>20.4</td>
</tr>
<tr>
<td>T14</td>
<td>Cherry</td>
<td>8.0</td>
<td>460</td>
<td>1</td>
<td>5.8</td>
<td>E 7.0  S 5.8</td>
<td>2.0 N</td>
<td>2.0</td>
<td>M</td>
<td>Fair - Moderate vitality</td>
<td>No work required</td>
<td>20+</td>
<td>B1</td>
<td>5.5</td>
<td>95.7</td>
</tr>
<tr>
<td>T15</td>
<td>Cotoneaster</td>
<td>8.5</td>
<td>360</td>
<td>9</td>
<td>6.2</td>
<td>E 4.5  S 4.0</td>
<td>1.5 N</td>
<td>2.0</td>
<td>EM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>4.3</td>
<td>58.6</td>
</tr>
<tr>
<td>T16</td>
<td>Cherry</td>
<td>9.5</td>
<td>339</td>
<td>2</td>
<td>4.3</td>
<td>E 3.1  S 3.8</td>
<td>1.9 W</td>
<td>2.0</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>4.1</td>
<td>52.1</td>
</tr>
<tr>
<td>T17</td>
<td>Cherry</td>
<td>10.0</td>
<td>280</td>
<td>1</td>
<td>4.7</td>
<td>E 4.0  S 4.6</td>
<td>1.7 N</td>
<td>2.0</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>3.4</td>
<td>35.5</td>
</tr>
<tr>
<td>T18</td>
<td>Bastard Service Tree</td>
<td>8.0</td>
<td>230</td>
<td>1</td>
<td>3.0</td>
<td>E 3.1  S 3.0</td>
<td>2.2 N</td>
<td>2.2</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>2.8</td>
<td>23.9</td>
</tr>
<tr>
<td>T19</td>
<td>Silver Birch</td>
<td>10.0</td>
<td>360</td>
<td>1</td>
<td>4.4</td>
<td>E 5.5  S 4.2</td>
<td>1.8 W</td>
<td>2.2</td>
<td>EM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>B1</td>
<td>4.3</td>
<td>58.6</td>
</tr>
<tr>
<td>T20</td>
<td>Field Maple</td>
<td>7.0</td>
<td>160</td>
<td>1</td>
<td>3.0</td>
<td>E 3.0  S 3.0</td>
<td>2.0 N</td>
<td>2.0</td>
<td>Y</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>1.9</td>
<td>11.6</td>
</tr>
<tr>
<td>T21</td>
<td>Field Maple</td>
<td>6.0</td>
<td>120</td>
<td>1</td>
<td>3.0</td>
<td>E 3.0  S 3.0</td>
<td>2.0 N</td>
<td>2.0</td>
<td>Y</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>1.4</td>
<td>6.5</td>
</tr>
<tr>
<td>T22</td>
<td>Field Maple</td>
<td>8.0</td>
<td>200</td>
<td>1</td>
<td>4.5</td>
<td>E 4.5  S 4.5</td>
<td>1.7 E</td>
<td>2.0</td>
<td>SM</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>B1</td>
<td>2.4</td>
<td>18.1</td>
</tr>
</tbody>
</table>

**SURVEYED BY A.T. COOMBES ASSOCIATES**
### TREE SURVEY SCHEDULE

**SITE:** BARTON SEAGRAVE PRIMARY SCHOOL  
**SURVEY COMPLETED:** 05/10/12  
**SURVEYED BY A.T. COOMBES ASSOCIATES**

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Species</th>
<th>Ht (m)</th>
<th>Stem dia (mm)</th>
<th>No of Stems</th>
<th>Branch Spread</th>
<th>Height and Direction of First Branch (m)</th>
<th>Mean Canopy Ht</th>
<th>Life Stage</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Preliminary Tree work</th>
<th>Estimated remaining contribution (Yrs)</th>
<th>Cat grading</th>
<th>Radius of RPA (m)</th>
<th>RPA (sq m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T23</td>
<td>Field Maple</td>
<td>10.0</td>
<td>450</td>
<td>2</td>
<td>5.5 5.5 5.5 5.5</td>
<td>3.0 W</td>
<td>3.0</td>
<td>M</td>
<td>Fair - Moderate vitality</td>
<td>Moderate - Wound on west side at base on both stems</td>
<td>No work required</td>
<td>20+</td>
<td>A1</td>
<td>5.4</td>
<td>91.6</td>
</tr>
<tr>
<td>T24</td>
<td>Ash</td>
<td>15.0</td>
<td>639</td>
<td>2</td>
<td>7.0 4.0 5.0 7.0</td>
<td>2.5 W</td>
<td>4.0</td>
<td>V</td>
<td>Good</td>
<td>Forked at base. Old coppice stool. Cavity at base.</td>
<td>Reduce crown by 25%</td>
<td>20+</td>
<td>A1</td>
<td>7.7</td>
<td>184.7</td>
</tr>
<tr>
<td>G1</td>
<td>Leyland Cypress</td>
<td>7.8</td>
<td>200</td>
<td>1</td>
<td>2.5 2.5 2.5 2.5</td>
<td>0.0 N</td>
<td>0.0</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>2.4</td>
<td>18.1</td>
</tr>
<tr>
<td>G2</td>
<td>Leyland Cypress</td>
<td>6.0</td>
<td>255</td>
<td>2</td>
<td>2.0 2.0 2.0 2.0</td>
<td>0.0 N</td>
<td>0.0</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C1</td>
<td>3.1</td>
<td>29.3</td>
</tr>
<tr>
<td>G3</td>
<td>Cherry / Ash / Birch / Field Maple / Hazle Group</td>
<td>9.4</td>
<td>296</td>
<td>5</td>
<td>5.4 5.0 5.0 5.0</td>
<td>1.0 N</td>
<td>1.5</td>
<td>SM</td>
<td>Good</td>
<td>Good</td>
<td>No work required</td>
<td>20+</td>
<td>C3</td>
<td>3.5</td>
<td>39.5</td>
</tr>
</tbody>
</table>
# APPENDIX 2 - NOTES ON COLUMN HEADINGS IN APPENDIX 1

<table>
<thead>
<tr>
<th>Column No.</th>
<th>Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tree No.</td>
<td>Tree numbers to correspond with those shown on the TCP.</td>
</tr>
<tr>
<td>2</td>
<td>Species</td>
<td>Each tree has been identified and the common name given in each case.</td>
</tr>
<tr>
<td>3</td>
<td>Ht (m)</td>
<td>The tree height in metres to the highest point or tip measured from ground level.</td>
</tr>
<tr>
<td>4</td>
<td>Stem dia (mm)</td>
<td>The stem diameter measured in millimetres at 1.5 metres above ground.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For multi-stemmed trees the stem diameter has been calculated according to the formula given in BS 5837:2012: For trees with up to 5 stems, each stem has been measured at 1.5m, squared and added together. The diameter shown is the square root of the total.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For Muti-stemmed trees with over 5 stems a sample of five diameters has been taken at 1.5m, averaged and squared, then multiplied by the total number of stems. The square root of this sum gives the stem diameter figure.</td>
</tr>
<tr>
<td>5</td>
<td>Number of Stems</td>
<td>Total number of stems on the tree.</td>
</tr>
<tr>
<td>6</td>
<td>Branch Spread</td>
<td>The branch spread measured in metres from the stem to the tip of the outer branches has been measured in four directions of the compass North, South, East and West.</td>
</tr>
<tr>
<td>7</td>
<td>Height and direction of First Branch spread (m)</td>
<td>First significant branch and direction of growth (relative to the four cardinal compass points).</td>
</tr>
<tr>
<td>8</td>
<td>Canopy Ht</td>
<td>Mean height of the canopy above ground level.</td>
</tr>
<tr>
<td>9</td>
<td>Life Stage</td>
<td>The life stage of the tree has been assessed into one of the following categories: Y = Young, SM = Semi Mature, EM = Early Mature M = Mature, OM = Over mature and V= Veteran.</td>
</tr>
<tr>
<td>10 and 11</td>
<td>Condition</td>
<td>The British Standard recommends that a note is made of the structural and physical condition of the tree.</td>
</tr>
<tr>
<td>12</td>
<td>Preliminary Management Recommendations</td>
<td>This column includes all work considered necessary to, as far as is practicable, ensure health and safety and for the good arboricultural management of the trees. These works are not associated with the development proposals. All work to be carried out to BS 3998: 2010 “Tree Work-Recommendations”.</td>
</tr>
</tbody>
</table>
Recommendations given in respect of Health and Safety remain current for 12 months from the date of this assessment after which further inspection is recommended.

It should be noted that trees are dynamic structures subject to the forces of nature, which can fail without showing external symptoms.

| 13 | Estimated remaining contribution (Yrs) | The estimated remained contribution of each tree in years has been assessed, using personal experience, into the following groupings:

< 10 = Less than 10 years
10+ years = More than 10 years
20+ years = More than 20
40+ years = More than 40 years |

| 14 | Category grading | U = 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 serious, irremediable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees).

A = Those trees of high amenity quality and value in such a condition as to be able to make a substantial contribution ( A minimum of 40 years is suggested)

1. Trees that are particularly good examples of there species if rare unusual or essential components of groups or formal or semi formal arboricultural features

2. Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance.

3. Trees groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran tree or wood pasture)

B = Those of Moderate quality and amenity value: those in such a condition as to a significant contribution ( a minimum of 20 years is suggested)

1. Trees that might be included in the high category but are
### Notes on Column Headings in Appendix 1

**14 cont...**

<table>
<thead>
<tr>
<th>Category grading Cont.</th>
<th><strong>downgraded because of impaired condition (e.g. remediable defects)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. <em>Trees and woodland that forming distinct landscape features but do not form essential components</em></td>
</tr>
<tr>
<td></td>
<td>3. <em>Trees with clearly identifiable conservation or other cultural benefits.</em></td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Those of low quality and amenity value currently in adequate condition to remain until new planting is established (minimum of 10 years is suggested). <strong>OR</strong> trees under 150 mm stem diameter.</td>
</tr>
<tr>
<td></td>
<td>1. <em>Tree not qualifying in higher categories</em></td>
</tr>
<tr>
<td></td>
<td>2. <em>Trees present in groups or woodlands but not with a significantly higher landscape value and or offering low or temporary screening benefit.</em></td>
</tr>
<tr>
<td></td>
<td>3. <em>Trees with very limited conservation or other cultural benefits.</em></td>
</tr>
</tbody>
</table>

**Note:** Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA. Trees with a stem diameter under 150mm could be considered for relocation.

**15**

| Radius of RPA (m) | The distance that would form the radius of a circular protection zone is given in metres calculated by multiplying the stem diameter given in column 4 by 12. The methods for calculating the stem diameter of multi-stemmed trees is given in section 4 above. |

**16**

<table>
<thead>
<tr>
<th>RPA (sq m)</th>
<th>The area of the RPA is given in square metres calculated by the following formula:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single Stemmed Trees</strong></td>
<td><strong>RPA M^2 = \left[ \frac{\text{Stem diameter mm @ 1.5m X 12}^2}{1000} \right] 3.142</strong></td>
</tr>
</tbody>
</table>

**Note:** The methods for arriving at the stem diameter for multiple stemmed trees are described above in the notes for column 4.
APPENDIX 5

ARBORICULTURAL METHOD STATEMENT
FOR A PROPOSED DEVELOPMENT AT BARTON SEAGRAVE PRIMARY SCHOOL, KETTERING

1.0 SCOPE OF THE WORKS

1.1 The document provides a methodology for protection of trees during the demolition of buildings on site, and construction of new extensions and buildings at the above site, and should be read in conjunction with the Tree Protection Plan Appendix 4 and Timetable for Protection Works Appendix 6.

1.2 The main features in the protection of the retained trees on site are as follows:
- Provision of Temporary Protective Barriers
- The careful demolition of buildings within the RPA of retained trees.
- Pre-emptive root pruning adjacent to T24.
- Audited arboricultural site monitoring.

1.3 A meeting between the site manager/main contractor and a consulting arboriculturist must take place prior to construction work commencing so that the above protection measures set out in this document can be discussed and agreed. At this point a list of contact details for all relevant parties will be produced and circulated including the Tree Officer of the Local Planning Authority.

1.4 Protective measures must be in place prior to any ground or construction works take place.

2.0 TIMING OF WORKS

2.1 Tree protection works will be completed as detailed below according to the attached timetable Appendix 6.

2.2 The exact commencement date is not known however the timetable provided gives the order that the works need to be implemented to ensure the trees are fully protected and states when specific arboricultural input will be required.
3.0 TREE PROTECTION BARRIERS

3.1 Remaining trees will be protected by forming Construction Exclusion Zones (CEZ) as shown on Appendix 4 the Tree Protection Plan (TPP).

3.2 Temporary barriers will be erected as shown by the thick green lines on the TPP to form the CEZ. The barriers will consist of 2m tall welded mesh panels (Heras) supported on rubber or concrete feet. The fence panels should be joined together using a minimum of two anti-tamper couplers installed so they can be removed from the inside of the fence. The distance between couplers should be at least 1m and be uniform throughout the fence.

3.3 Panels should be supported on the inner side by stabilizer struts which should normally be attached to a base plate and secured with ground pins. Where the fence will be erected on hard surfacing or it is otherwise unfeasible to use ground pins the struts should be mounted on a block tray.

a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Fig. 1
3.4 Fig 1 is an extract from BS5837:2012 showing the method of supporting the panels with ground pins and a block mounted tray for use on hard surfaces. Stabiliser struts should be fitted at each panel junction.

3.5 At least two all weather notices should be erected on the barriers forming each stating “Construction Exclusion Zone – No Access “. These should face outwards towards the work area. Signs must be maintained in good condition and remain in place until completion of the works.

3.6 Barriers will be maintained throughout the duration of the works, ensuring that access is denied to the CEZ throughout the process.

3.7 Barriers will be removed only when all construction work is completed.

4.0 DEMOLITION OF EXISTING BUILDINGS

4.1 All temporary protective barriers as set out above will be in place prior to the commencement of demolition works.

4.2 All machinery involved must remain outside the RPA of the trees, and if this is not possible, must work from existing surfaces or from temporary ground protection suitable for the machinery being used.

4.3 The demolition must be carried out in a “top-down, pull-back” technique, ensuring that material is pulled within the footprint of the building and away from the tree.

4.4 This will be necessary adjacent to T23 and T24 where a garage is to be removed from within the RPA of T24.

4.5 Where possible, it is recommended that services and foundations and other underground features related to the demolished buildings remain in situ within the RPA of trees, as the risk of damage to the trees is greater if they are removed.

5.0 PRE-EMPTIVE ROOT PRUNING

5.1 Pre-emptive root pruning will take place on the edge of the car park adjacent to T24 to avoid injurious damage to the root system of the neighbouring trees whilst excavating. This will be carried out by a suitably trained Arboriculturist.

5.2 An air spade will be used to excavate a trench along the edge of the proposed edge of the surfaced area as shown on the TPP. Any roots exposed will be cut back to the edge of the trench using a sharp handsaw or secateurs.
6.0 SITE HUTS AND TEMPORARY BUILDINGS

6.1 All site huts and temporary buildings will be sited outside the CEZ.

7.0 ADDITIONAL PRECAUTIONS

7.1 The movement of plant in proximity to retained trees should be conducted under the supervision of a banksman to ensure adequate clearance from the branches of the trees. Hydraulic cranes, forklifts, excavators or piling rigs (other than small rigs used for mini piling) must be avoided in the immediate vicinity the crown of the trees.

7.2 Cement, oil, bitumen or any other products which spillage would be likely to be detrimental to tree growth should be stored well away from the outer edge of the RPA of retained trees. Precautions should include ensuring all toxic liquids are stored in fully bunded containers. Equipment such as barriers or sandbags must be available on site to deal with any accidental spillages that may occur.

7.3 Lighting of fires on site should be avoided. Where they are unavoidable they must be at such a distance from retained trees that there is no risk of the heat causing fire damage to the trunk or branches. Full account must be taken of wind direction. Fires must be attended at all times until they are completely extinguished.

8.0 SERVICE TRENCHES

8.1 A plan has been provided showing the proposed storm and foul water drainage routes. These do not encroach within the RPAs of any retained trees.

8.2 Any above-ground apparatus including CCTV cameras and lighting should also be positioned to avoid the need for any regular or detrimental pruning to the trees. Minor facilitative pruning is acceptable. However positions that require repetitive and significant tree work must be avoided.

9.0 ARBORICULTURAL SUPERVISION AND AFTERCARE

9.1 Arboricultural/site monitoring will be carried out throughout the construction phase by a nominated arborist who will be responsible for consultation with the Local Authority’s Tree Officer.

9.2 The arborist will complete regular site visits to check that the tree protection measures are being carried out. The frequency of the visits will be dictated by the level of activity and degree to which the tree protection measures are being respected. A note of the date of each visit and a summary of the
findings will be forwarded to both the Tree Officer and the Main Contractor to provide an audit trail enabling the proper implementation of the tree protection measures to be checked and verified.

9.3 There are three key stages where on-site arboricultural advice will be needed
   1. Prior to commencement, to review the contents of the AMS, and deal with any queries the main contractor may have.
   2. To confirm that the protective fencing is in place.
   3. To supervise the pre-emptive root pruning

9.4 On completion of the works the trees will be inspected by the arborist to check the condition of the tree and advise if any remedial work is necessary.

A.T. Coombes Associates 30th May 2013
<table>
<thead>
<tr>
<th>Item</th>
<th>Operation *</th>
<th>Before Commencing Construction Works</th>
<th>During Construction Works</th>
<th>On Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Carry out tree work as detailed in Appendix 1, and any tree felling as set out in the AIA.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Erect temporary protective fencing (Thick green line) on edge of the CEZ as specified in the AMS and TPP in place</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Erect warning signs on fencing around each CEZ stating “Construction Exclusion Zone - Keep Out”.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Carry out demolition of buildings</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Carry out pre-emptive root pruning adjacent to T24.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Maintain Protective fences and signs in good condition.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Arboricultural supervision and advice including site visits during the course of the works to check the CEZ and liaison with the Local Authority.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Remove protective fencing</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Check condition of the protected trees and consider if remedial works are necessary.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Plant replacement trees.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

* All work to comply with the attached Arboricultural Method Statement and BS5837: 2012 Trees in relation to design, demolition and construction - Recommendations"
Via Email Only -
(Bernard.Taylor@lendlease.com)

Our Ref: DMB/770420/002L/AC
13 February 2013

Mr. Bernard Taylor
Lend Lease Projects
John Dryden House
8-10 The Lakes
Northampton
NN4 7YD

Dear Bernard

Site: Barton Seagrave Primary School

This letter is to emphasise the recommendation made in our report ref. DMB/77420/R1 rev 2 dated 1 February 2013:

The mature hedgerows and trees which are to remain within the development should be protected during construction activities. The trees and hedgerows have the potential to support nesting birds, therefore any trees or areas of hedgerow which are required to be removed should be done so outside of the bird nesting season. There were bird boxes located on some of the trees within the conservation area; these should be checked prior to their removal which should also ideally take place outside the nesting bird season. These nest boxes should be relocated to mature trees around the site boundary.

In other words, the best time to do this work would be immediately, and particularly before the weather becomes warmer and birds start exhibiting nesting behaviour.

I trust the above is acceptable to you. However should you have any further queries please do not hesitate to contact me.

Yurs sincerely

Alanna Cooper BSc(Hons) CEnv CSci MIEEM MCIWEM
Principal Ecologist
T: 07824 491474
E: [ alanna.cooper@mlm.uk.com ]
Mr. Chris Chapman  
GSS Architecture  
2 Spencer Parade  
Northampton  
NN1 5AA

Dear Chris,

**Barton Seagrave Primary School- Wallis Spinney Tree Preservation Order**

Further to our telephone conversation on Friday 8 June and your earlier email correspondence with my colleague Alanna Cooper regarding the above Tree Preservation Order (TPO), our comments are as follows.

We understand that Kettering Borough Council and Northampton County Council have raised queries in relation to the arboricultural survey report undertaken by AT Coombes in March 2012 on behalf of MLM Consulting Engineers Ltd which was submitted for planning. This letter is therefore submitted as an addendum to the exiting submitted report in order to clarify and resolve the situation.

The nature of the comments raised concerns over the lack of reference within the Arboricultural Impact Assessment (AIA) report to the Wallis Spinney as having a group TPO status. As such a question has been raised about the adequacy of recommendations for tree protection within the report in particular works associated with the car park and the veteran Field Maple and Ash trees identified as T23 and T24 respectively within the AIA. The following points in relation to T23 and T24 are:

- The consultant preparing the AIA was not provided with detailed drainage layouts at the time of compiling the report, and therefore impacts have not been adequately assessed. Therefore, the Arboricultural Impact Assessment and Method Statement require amendments.
- Tree Route pruning proposed is contrary to BS5837:2012 which recommends new hard standing is not permitted within RPA of veteran trees.

Having consulted our surveyor we can confirm that the assessment of the trees did not identify the Wallis Spinney as having a TPO status and therefore the report recommendations do not accurately reflect this status. Furthermore, the original report submitted did note that final drainage and service details had not been reviewed by the Arboricultural expert. A revised report has been prepared that acknowledges the TPO status of the Wallis Spinney and has additionally reviewed the potential impacts from drainage and services. A copy of this revised report is attached to this email. Notwithstanding this, the recommendations made concerning protection of trees on the site and the implications for submitted design are considered not to be materially prejudiced by this omission.

It is understood that the proposed new school would come within 14m of the root protection zone of the TPO Spinney, a curved raised planter 8-9m of the root zone and the car park within 2m of the Root Protection Area (RPA).
As such normal good practice would require either the avoidance of interference with the root protection zone or that works associated with these features would require a TPO application to be made.

Our assessment of the RPA for T23 and T24 confirms that encroachment into the RPA would only amount to approximately 2% of the total area. It is also noted that an existing development (caretakers garage) has already taken place with this RPA. On this basis it is therefore considered that the likelihood of damage to the protected trees would be negligible.

In relation to construction of new car parking within the RPA, it is agreed that any works in this area should seek to minimise potential for damage to the trees. Although BS5837:2012 advises against constructing new hard standing within the RPA for Veteran Trees, preemptive root pruning prior to installation of drainage and services would safeguard the trees in our opinion. These works should be conducted under Arboricultural supervision and works could either be conditioned or protection ensured via a prior approval obtained through a TPO application.

We hope the above comments adequately address the queries raised. Assuming these recommendations are accepted in principle the Arboricultural Method Statement can be amended accordingly in order to discharge any conditions imposed.

Yours sincerely

Matthew Brundle
Associate Director
MLM Environmental Ltd
Tel: 01223 815 574 2074
Mob: 07788 395461
Email: matthew.brundle@mlm.uk.com

Enc: Revised AIA report