AGENDA ITEM NO. 8

05/2006/035T

MR G H SMART

APPLICATION TO FELL THREE CEDAR TREES INCLUDED IN TAUNTON DEANE BOROUGH (BISHOPS HULL NO.1) TREE PRESERVATION ORDER 1997 AT 24 DAWS MEAD, BISHOPS HULL (TD700)

320404/124260 FELLING OF TREE(S) COVERED BY TREE PRESERVATION ORDER

PROPOSAL

David James (Active Tree Care Ltd) has applied, on behalf of the owner Mr Smart, to fell the three Deodar cedar trees growing in the front garden of 24 Daws Mead, Bishops Hull, and to replace them with 3 new trees of the same species. The trees are identified as Group 1 of Tree Preservation Order TD700 (Bishops Hull No. 1 1997). A separate application (05/2006/036T) to fell one of the trees and carry out work to the remaining two, which was submitted by David James simultaneously, has now been withdrawn by letter dated 17th December, 2006.

CONSULTATIONS AND REPRESENTATIONS

PARISH COUNCIL objection to felling unless evidence proves that it is absolutely necessary on the grounds of health and safety.

8 LETTERS OF OBJECTION from 8 properties in Daws Mead have been received raising the following issues:- the trees are not diseased/dangerous, or there is insufficient evidence that this is the case; they are a distinctive feature of the cul- de-sac and of the wider area due to their size; they have a high amenity value; the trees have existed for over 100 years and were present long before the houses were built (the layout of Daws Mead was determined by the location of the trees); the trees are protected by a Tree Preservation Order; the trees are valuable for wildlife; tree felling should be avoided to help lessen the effects of global warming.

3 LETTERS OF SUPPORT have been received from 3 properties closest to the trees raising the following issues:- the trees are dangerous due to disease; significant branches have fallen from the trees without warning and not during extreme weather conditions; properties are within falling distance of the trees; they have outgrown their position and will continue to grow.

POLICY CONTEXT

ASSESSMENT

An independent inspection of the trees was carried out by Ben Holding of the Tree Advice Trust on 4th December, 2006. Please refer to his report, and the report submitted by David James in support of his application.

The 3 cedars were planted over 100 years ago in a tight group 2 - 3 m apart. They have now reached maturity and their crowns have developed together, taking the form of a single tree. They are in the open lawn area of 24 Daws Mead, approximately 10 m from that property, 10 m from No. 22, 9 m from No.20 and 14 m from No.18. These houses are within falling distance of the trees.

At a glance the trees appear to be healthy. The foliage is healthy, showing reasonable shoot extension growth over the last 5 years. A small number of significant branches are alleged to have fallen from the trees over recent years, most recently (except for the storms of November/December) in the summer of 2006.

Detailed inspection of the trees has revealed that one of them, T1 of the application, has an extensive amount of decay near the base of the trunk, caused by the fungus Sparassis crispa. This fungus was also discovered (subsequent to the original application) growing to a lesser extent at the base of T3, although no significant decay was detected in its trunk. Sparassis crispa develops mainly within the root system, but also extends into the trunk. It causes a brown-rot; 'the decayed wood has virtually no tensile strength, and extensively affected trees are liable to brittle fracture. This can result in root-plate failure or breakage of the stem near its base'. For further detail see the reports by David James and Ben Holding, together with the information attached to this report taken from 'Principles of Tree Hazard Assessment and Management' by David Lonsdale.

Sufficient evidence has been provided to confirm that T1 is liable to collapse in strong winds and is therefore a risk to the safety of people and property.

The fact that the 3 trees were planted so close to each other is critical in determining the fate of trees 2 and 3. As a result of their close proximity they have grown together as one crown. In competing for light, each individual tree has grown out from the centre of the group and has, in isolation, a one-sided and poorly balanced crown.

The crowns of T2 and T3 are currently protected from the prevailing southwesterly winds by T1. With the removal of T1, these trees will be vulnerable to increased wind speeds and abnormal wind loading on their long lateral branches.

The discovery of Sparassis crispa at the base of T3 suggests that there is likely to be some decay of the central root system of this tree. Given that (a) the decay will be progressive but its extent difficult to determine, (b) the tree has a very one-sided crown with all the main side branches held horizontally on the south side creating a 'sail', (c) the tree will be more exposed to the prevailing winds following the removal of T1, (d) the tree is within falling distance of people and property, and (e) the need to heavily reduce the crown (by 30 – 50%) to ensure its reasonable safety in the short term, it is considered that this tree should be felled.

T2 is in reasonably good health and is showing no signs of decay, but in isolation it will be very vulnerable to the prevailing winds. An attempt to balance its crown and to reduce its 'sail' area by heavy crown-reduction of at least 30%, possibly up to 50%, would result in its severe disfigurement and therefore the loss of its amenity value. In the long term it is very unlikely that it would form an attractive and balanced tree. The stress caused by the removal of such a significant amount of the crown could result in its further deterioration.

It is therefore considered that the best course of action is to remove the trees and replace them, either by removing all 3 at the same time, or by removing T1 and then phasing the removal of (crown reduced) T3 and T2 over 2 years.

RECOMMENDATION

Permission be GRANTED subject to conditions of time limit and replacement trees being planted within two months of the commencement of felling. Note re bats and nesting birds.

In preparing this report the Planning Officer has considered fully the implications and requirements of the Human Rights Act 1998.

CONTACT OFFICER: 356493 MR D GALLEY (MON, WEDS)

NOTES:

APPENDIX

Extracts from Principles of Tree Hazard Assessment and Management

3.2.2.1 Brown-rots

Brown-rots principally involve the degradation of cellulose, while leaving the lignin largely undegraded. The remaining material is usually brownish in colour; hence the name. Although the lignin is not substantially degraded, it is often chemically altered in a way which helps to expose the cellulose to the enzymes and other 'digestive' substances which the fungus secretes. Indeed, enzyme molecules appear to be too large to diffuse into the tightly packed molecular matrix of the intact cell wall, so that non-enzymatic systems, involving iron and hydrogen peroxide, probably play an important role in the earlier stages of decay.

The cellulose molecules are broken at numerous points along their length in a brown-rot, so that their tensile strength is very rapidly lost. This effect is all the more drastic because degradation occurs diffusely within the cell wall, and is not localised close to the fungal hyphae, as occurs in other types of rot. Since the S2, layer is the most cellulose-rich part of the cell wall, it is often completely dissolved while the other layers remain fairly intact (Plate 29). This selective degradation of the S2 layer involves the diffusion of hyphal secretions through the S3 layer, since the hyphae lie mainly within the cell lumina and enter the cell walls only at minute boreholes by which they pass between cells.

The mechanical effect of cellulose destruction in a brown-rot is to make the wood very brittle, for the same reason that a plaster cast would easily break if it were not built on a textile base. The affected wood cracks very easily, and does so like a biscuit; i.e. without bending beforehand and thus giving no warning sign [152]. Also, the wood retains much of its rigidity, so that adaptive growth in response to increased flexure is unlikely to be prominent. Flexure may, however, increase if the decay extends so much that a very thin sound shell of wood comes to surround a central core affected by shrinkage due to the loss of cellulose. This shrinkage leads to a pattern of cracking both along and across the grain, forming a cubical pattern (Plate 85). Cracks can also be found at a microscopic scale within the cell wall.

Wood that has become brittle can fracture suddenly [180], whereas wood affected by non-brittle decay tends to become more flexible before it gets to a stage when fracture is likely. Brown-rots and other brittle forms of decay do not produce warning signs (see below in relation to white-rots) except perhaps in extremely advanced cases. Also, as discussed in Chapter 6, brittle decay is virtually undetectable by tree-pulling tests [162], as these depend almost entirely on loss of stiffness [106].

There are some differences between brown-rots caused by different fungi in particular host tree species, and these are due partly to the rate of degradation, relative to that of fungal invasion. For example, Fistulina hepatica is reputed to cause brown-rot in oak trees (Quercus spp.), but causes serious strength loss only at a very advanced stage of attack, whereas many others (e.g. Phaeolus schweinitzii on various conifers) cause a rapid loss of strength. Also, there is some evidence that different brown-rot fungi have various degrees of tolerance to non-optimal conditions within the wood of living trees. These differences could explain why some species can degrade wood rapidly only within certain zones of the tree.

Brown-rots are more common in conifers than in broadleaved trees, perhaps because the wood of many of the latter is more highly lignified and therefore less accessible to brown-rot fungi, which cannot fully degrade lignin.

As such fungi are efficient at degrading cellulose, the relatively high cellulose content of conifer wood provides a favourable environment for them. Also, the lignin of conifer wood is generally more resistant to degradation by most white-rot fungi than the type of lignin found in the fibres of broadleaved species.

Sparassis crispa, cauliflower fungus

• Hosts

This fungus occurs on various conifers, fruiting most commonly on Pinus and quite often on Pseudotsuga, Abies, Picea and Larix.

• Fruit bodies

The fruit bodies are essentially of a frondose type, but have an unusually cauliflower-like or open sponge-like appearance owing to the finely branched structure of the tape-like, sinuously lobed fronds. The mass of fronds forms a roundish white to ochre structure which can exceed 30 cm across and 20 cm high. These fruit bodies develop at the base of living trees or on the cut surfaces of freshly felled stems, arising from thick fleshy stalks which emerge from below ground level. The spore-bearing surface is borne directly on the fronds, without the formation of any pores or gills. As the fruit bodies are highly perishable, they can be found only during or soon after their formation in August to November. When young, they are edible.

• Decay

The fungus develops mainly within the root system, but sometimes extends as much as 3 metres up the stem. It causes a brown-rot, which is confined largely to the heartwood. In the earlier stages of decay, the wood shows a yellow to dark reddish brown discoloration, and later darkens almost to black, while developing cubical cracking.

• Significance

The decayed wood has virtually no tensile strength, and extensively affected trees are liable to brittle fracture. This can result in root-plate failure or breakage of the stem near its base.

5.3.1.4 The value of identifying decay fungi

The identification of decay fungi, which sometimes requires the services of a specialist laboratory, can play an important part in the diagnosis and prognosis of hazards. This is, however, only true if something is known about the potential for hazard associated with the fungus concerned. The more important considerations include the ability of the fungus to spread within the tree, the rate at which it degrades the wood that it has colonised, and the strength properties of the partially degraded wood. Our knowledge in such matters is unfortunately very patchy at present, and is more often based on observation than on the findings of scientific research.

Many of the species described in this book (Chapter 4) are common, but are rarely associated with major mechanical failures. Some of these fungi appear to have only a limited ability to colonise large volumes of wood, or to overcome unfavourable conditions in living trees. Conversely there are other species that are of major concern in hazard assessment. One of the most important of these is Ustulina deusta which, perhaps regardless of the host species, causes a brittle form of decay which tends eventually to cause a sudden snapping at the base of the tree. In beech (Fagus sylvatica), Meripilus giganteus is perhaps the fungus most frequently associated with root failure. It occurs in other host species, but too rarely to judge its effects on their stability. In ash (Fraxinus excelsior), severe weakening is caused by Inonotus hispidus, whereas the same fungus rarely causes failure in London plane (Platanus x hispanica). In oak (Quercus robur and Q. petraea), the beefsteak fungus Fistulina hepatica causes very little loss of strength except at a very advanced stage of decay. More information on these and many other species can be found in Chapter 4.

As far as general principles are concerned, it is helpful to be aware that the more brittle the type of decay, the more likely it is to cause failure if and when it becomes extensive. Brown rots in general thus tend to be potentially rather dangerous, although relatively few are encountered amongst amenity trees in Britain. A common example is that caused by Laetiporus sulphurous, although this fungus appears to develop rather slowly and may therefore take many years to weaken trees seriously. The brown rot of birch (Betula) caused by Piptoporus betulinus may cause stem fracture by the time that large fruit bodies of the fungus appear, but the tree is usually dead or dying by this stage in any case. In conifers, particular attention should be paid to Sparassis crispa and Phaeolus schweinitzii.

Although embrittlement is typical of brown-rots, it can also occur in the advanced stages of most other kinds of decay. Even at a relatively early stage, simultaneous white-rots can lead to a brittle fracture, as in the examples of Fomes fomentarius and Bjerkandera adusta. Some fungi with the ability to cause white-rots also cause embrittlement when they switch to a soft-rot mode of cell wall degradation (see Section 3.2.2.3). Such embrittlement is especially severe in the case of Ustulina deusta (152).