

# Arboricultural contact damage report of Nanak Nivas, Chilworth Road, Southampton, SO16 7JS

Carried out by Matthew Rowden on behalf of Jojar Singh, Applicant for the above address.

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### 3. Instruction

This report is to assess to what extent 4 privately owned trees are responsible for damage occurring to my client's driveway, to explore engineering solutions, and to to make recommendations to ensure that there is adequate safeguarding [REDACTED]

### 4. Limitations

This survey is valid for 5 years. The findings of this report are based on my experience, qualifications and observations: No excavation was carried out, nor root analysis. Assumptions have been made on where the roots of the trees have extended, and why the driveway has sustained contact damage.

### 5. Site details

The site is a residential property located off Chilworth road in a quiet cul-de-sac. The trees are located to the North West aspect of the structure, and are within 1m of the block paved driveway. All 4 are Scots pines.

## 6. Legal restrictions

The trees are covered by a tree preservation order, ref: TPO/TVBC/516.

## 7. Proposals

This report aims to establish whether the trees are to blame for the damage to the wall, and to explore solutions to the problem, with a definitive conclusion as to how these trees may be managed moving forward.

## 8. Drawings and documents

The client has not provided drawings and documents for the purposes of this assessment. I have obtained one from Ordnance survey and have plotted the trees on the map, along with areas where the contact damage has occurred.

## 9. Summary

All trees have caused obvious contact damage to the driveway by the pushing and lifting of lateral roots beneath the layers of the block paving, hardcore and sharp sand.

My client owns these trees, and needs to take remedial action in order to make the driveway safe [REDACTED]. I do not foresee engineering solutions being adequate to mitigate this damage, and consider the felling of these four trees to be necessary to make the driveway accessible as a long term solution.

## 10. Findings (please see appendix 1 for specific details)

- i. T1 is a mature Scots pine with the main stem within 200mm of the wall of the property to the NE aspect of the stem.
- ii. Contact damage has occurred directly in line with the main stem of this tree, with significant cracking and bowing of the wall. The wall is displaced to the North East by 50mm, with cracks exceeding 25mm down the wall (see fig.1).
- iii. The tree has lifted the slabs to the North aspect, causing trip hazards exceeding a height of 100mm.
- iv. The tree has an included bark union at 3m, with a potentially weak and likely point of failure (research by Kane et al. 2008 and Smiley 2003 has confirmed that these unions can entail up to a 50% loss in strength).
- v. T2 is a mature Scots pine within 50mm of the retaining wall to the South aspect.

- vi. The wall has been displaced by 50mm as a downward rotation, with cracks exceeding 20mm.
- vii. The slabs to the South aspect in this area have been lifted by 30-50mm.
- viii. T3 is a mature Scots pine with its stem within 700mm of the driveway and retaining wall to the North aspect.
- ix. The slabs have been displaced extensively in this area, extending some 5m up the driveway to the West aspect with a trip hazard exceeding a height of 100mm which could also cause extensive damage to vehicles using the driveway.
- x. The same is true of T4, although the contact damage from lifting pavings extends to the East aspect throughout the ancillary parking bay.
- xi. The likely rooting area of these trees suggests that around 50% of these trees roots will extend beneath the driveway.
- xii. Tree roots are opportunistic by their nature, and often like to push between layers where there is condensation build up, and the area is warmer. Gypsum is also nutrient rich.
- xiii. I do not consider the retention of any of these trees to be viable.

## 11. Analysis:

### The Legal position

- i. In this instance, the case law precedent that comes to mind is that of Perrin and another Vs Northampton BC 2007.

- ii. To summarise:

**Investigations:** The claimant alleged that a local authority owned tree that was covered by a tree preservation order had caused subsidence damage to their property.

Live roots were uncovered beneath the foundations of the property, but not directly or conclusively attributed to the defendant's tree.

The local planning authority rejected the application to fell the tree on the grounds that the data was insufficient to shift the burden of proof to that tree.

**Vegetation management:** The LPA relayed the following to the claimant, regarding the tree as high value:

- The amenity of the tree was considered to outweigh the reasons for the tree's removal.
- The claimant could apply to prune the encroaching roots.
- The tree could be pruned to decrease root growth/ingress, and reduce water demand.
- That there were engineering solutions such as underpinning for the property.

**Judgement:** The judge initially found in favour of the claimant, saying that the presence of a TPO is irrelevant: that the homeowner had the same rights with a TPO'd tree and a non TPO'd tree, and rejected the idea that engineering solutions should be considered first, and that the work carried out to the tree must be the "minimum to abate nuisance". The tree was to be felled. At appeal, the judge's verdict was found to be incorrect, and the judges ruled in favour of the defendants: that protected trees should remain protected until other solutions had been explored, such as underpinning or root barriers.

- iii. With the above in mind, although not attributed to subsidence, the legal precedent is clear: The homeowner has the right to to abate such nuisance as is being caused by the tree, providing other solutions have been explored. The fact that the nuisance is not subsidence, but is more specifically contact damage is irrelevant: in my professional opinion, the precedent is transferable, and although TPOd, the trees are presenting a nuisance.
- iv. The statutory law that applies in this instance is the Equalities Act 2010:
- xii. For the purposes of this case, the Council is subject to a duty under the Equality Act 2010, namely the so-called public sector equality duty which arises under s149, Equality Act 2010 as set out below:-
  - a. 149Public sector equality duty
  - b. (1)A public authority must, in the exercise of its functions, have due regard to the need to—
  - c. (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;
  - d. (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;
  - e. (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

xiii.

xiv.

#### Engineering solutions

- xv. Based on the legal precedent analysed above, engineering solutions must be explored first, prior to the option of felling.



- xvi. **Root pruning with a root barrier:** The trees are very close to the retaining walls and driveway: It is likely that around 50% of the rooting areas extend beneath the driveway, meaning that any form of root pruning is going to cause a catastrophic loss of anchorage, water and nutrient uptake. Therefore, pruning of roots and a root barrier are rejected immediately as an option.
- xvii. **Replacement of surfaces with a permeable, flexible surface option:** This is a viable option, but subject to some issues: for a wheelchair user, installing a geo-textile membrane with an infill of 4/20 aggregate is not viable as the wheelchair will struggle on that gradient with a gravel surface.
- xviii. Block pavias are subject to the same issues with lifting over time.
- xix. The surface could be asphalt or permeable tarmac to work with the wheelchair: this, however, is still likely to cause long term issues, as condensation will build beneath the tarmac layer and root ingress is highly likely, causing the same damage again.
- xx. A rubber crumb permeable surface could be used: this has more flexibility than tarmac, and although root ingress is still likely to occur, the effects would be slower to become a problem.
- xxi. However: the block paving of the driveway is likely part of the original landscape plan of the property: any alterations to the surface are likely to alter the feel of the property radically. There is also a considerable cost to this solution which may be offset against the perceived value of the trees: The driveway measures approximately 270 square meters, which at a cost of approximately £60-£80 per square meter (for tarmac or rubber crumb surfacing) for a viable solution comes out at £21,600.
- xxii. [REDACTED]  
the trees can be valued using the Helliwell mechanism.
- xxiii. With this in mind, each tree being broadly similar in size and value, I will generate a Helliwell figure for one and multiply it by 4.

#### Helliwell valuation

- xxiv. The Helliwell valuation is a means of attaching a monetary value to a tree, which I deem applicable in this instance.
- xxv. The value is generated by multiplying figures for size, duration, importance, tree cover, suitability and form. This is then multiplied by the regularly updated value which sits at £46.92 for 2024.
- a. Size = 150-200m<sup>2</sup> (7)
  - b. Duration = 40-100(3)

- c. Importance = Little (1)
- d. Tree cover = Woodland (0.5)
- e. Suitability = Fairly (3)
- f. Form = Average (1)
- g. This equates to  $(7 \times 3 \times 1 \times 0.5 \times 3 \times 1) \times £46.92 = £1477.98$
- h.  $£1477.98 \times 4 = £5911.92$

#### Felling as an option

xvi. These trees are moderate value trees that have been grown as a group.

xvii. Removal of these trees will allow repairs to be undertaken on a like for like basis without excessive costs to my client.

xviii. The removal of these trees will ensure that the problem does not occur again.

xix. The trees can be replaced like for like in alternative areas of the garden.

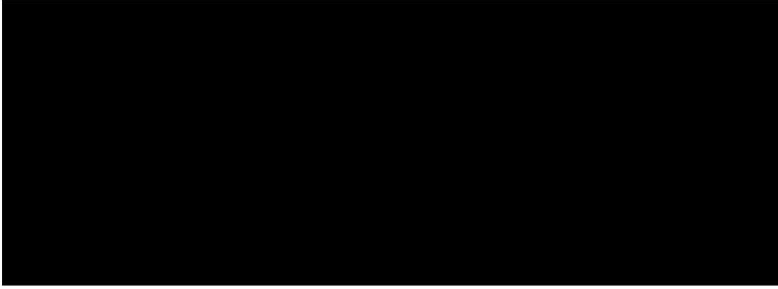
xx. The trees are not particularly visible to the general public, being overlooked by just one property. They are not visible from the road, and the overall loss in amenity of these trees is less than that gained [REDACTED] to access their own front door.

### **12. Conclusion:**

The trees are responsible for the damage to the driveway, and are detrimentally affecting the welfare [REDACTED]. This report has explored engineering solutions, but they are not viable as they're either ineffectual in the long term, unreasonably expensive, or will alter the feel of the property altogether. The value of the trees versus the nuisance that they are causing does not justify their retention.

### **13. Recommendations**

- Trees 1-4. Fell
- Carry out repairs to driveway after removing the roots from the area. It is likely that the areas of hardcore beneath the gifted slabs will need to be renewed, as the tree roots have pushed between the layers.



Matthew Rowden *ABC ProfDipArb L6, BTEC NatDipArb L3*

#### 14. References

- a. BS5837:2012 - Trees in relation to design, demolition and construction
- b. TDAG 2014
- c. Cutler & Richardson 1981, Kew root survey.
- d. BS3998:2010
- e. Modern Arboriculture, Alex Shigo
- f. The body language of trees, Dr Claus Mattheck
- g. Failure mode and the prediction of the strength of branch attachments, Kane et al. 2008
- h. Does included bark reduce the strength of co-dominant stems? Smiley 2003
- i. Towards a new model of branch attachment Slater D. and Harbinson C. 2010
- j. Plant Biomechanics, Karl Niklas
- k. NTSG Common sense risk management of trees 2011

**Appendix 1 - Tree survey schedule (separate document)**

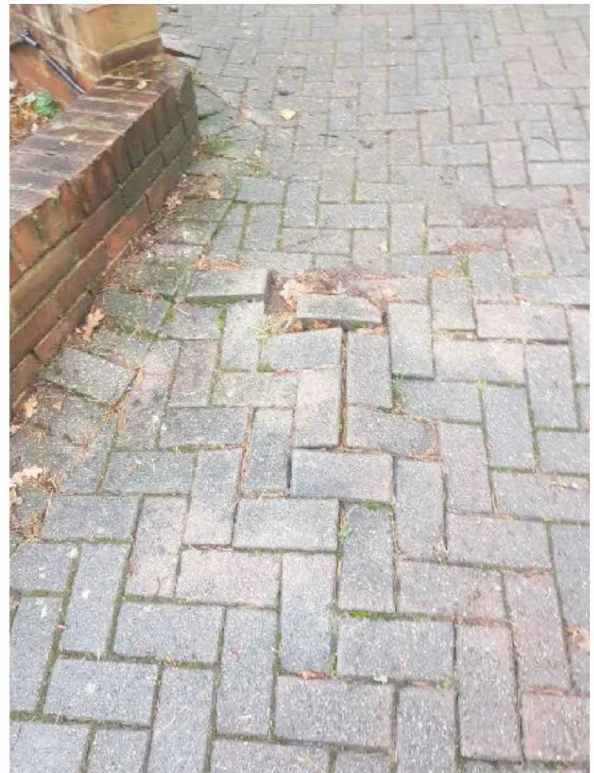
**Appendix 2: Tree location plan (separate document)**

**Appendix 3: Images**

#### T1



RTC-JS-NN-SDF-V1







I2





T3



T4

