



County Tree Surgeons Ltd

TREE SURVEY REPORT

EAST DRIVE, ANGMERING, WEST SUSSEX, BN16 4JH



August 2019

Report reference: CTS-0JNG-tsr-01

Directors: Brian Farrow, Judy Farrow, Paul Farrow, Lee Farrow. Company Secretary Judy Farrow VAT No: 679 8832 60
County Tree Surgeons Limited, Company Registered in England & Wales, No: 04186318, Registered Office: Turners Hill Road, Crawley Down
RH10 4HQ

County Tree Surgeons
Turners Hill Road
Crawley Down
West Sussex
RH10 4HQ

1. CONTENTS

1	<i>Introduction.....</i>	3
1.1	Scope of works	3
1.2	Objective.....	3
1.3	Site inspection and current context	3
1.3.1	General	3
1.3.2	Methodology	3
1.3.3	Risk Assessment.....	4
1.4	Statutory controls.....	5
1.4.1	Tree Preservation Orders (TPOs)	5
1.4.2	Conservation Areas.....	5
2	<i>Assessment of Tree Stock.....</i>	5
2.1	Tree survey.....	5
2.1.1	Current context.....	5
2.1.2	Prescribed works	5
2.1.3	Justification of work.....	6
2.1.4	Site history	10
2.2	Previous Tree Survey	10
3	<i>Conclusion</i>	10

1 INTRODUCTION

1.1 SCOPE OF WORKS

This report has been commissioned by Persimmon Homes, the landowner of the verge in which the subject trees grow, and it has been written by Matt Jones of County Tree Surgeons Limited.

The report should be read in conjunction with the following documents and plans:

- Tree survey schedule (CTS-OJNG-tss-01); and
- Tree survey plan (CTS-OJNG-TSP-01).

1.2 OBJECTIVE

Following the recent failure of a large branch from the canopy of one Monterey pine (no. 10), we have been instructed to visit the site and assess the tree and identify any risks associated with it. We have also been asked to survey the other large Monterey pines located on the north side of East Drive and provide management recommendations.

We have also been asked to confirm which of the recommendations suggested in the previous tree survey need to be undertaken.

1.3 SITE INSPECTION AND CURRENT CONTEXT

1.3.1 GENERAL

Matt Jones of County Tree Surgeons Limited undertook a site inspection and tree survey on 30/07/2019. Weather conditions at the time were overcast with occasional showers and deciduous trees were in full leaf.

The site is a narrow strip of land extending along the north side of East Drive, Angmering and this is via Station Road to the east. A row of detached houses and private driveways abut the private road to the north.

1.3.2 METHODOLOGY

We surveyed the trees from ground level, aided by binoculars where considered appropriate; we did not climb the trees. Other aids included an acoustic hammer and a steel probe, both of which were used where necessary to confirm the extent of any dysfunctional wood, cavities or other morphological defects. Observations are confined to those that were visible from ground level.

We collected the baseline data using a handheld tablet, which was then exported to Microsoft Excel to produce the tree survey schedule at **Appendix 1**. The physical dimensions for each tree have been taken from a previous survey undertaken by Beechdown Arboriculture Limited in April 2019. The locations of the trees have been

plotted using measurements taken on site. this information was exported to produce a Tree Survey Plan (TSP) shown at **Appendix 2**.

1.3.3 RISK ASSESSMENT

OVERVIEW

Industry guidance¹ suggests that the likelihood of someone being struck and killed by a tree is around 1:10,000,000 and this can be extended further if significant wind events are excluded. The guidance goes on to recommend that the risk posed by trees should be considered against the many benefits that they provide, in order to minimise the occurrences of unnecessary tree removal. This approach has been followed in the production of this report.

RISK ASSESSMENT METHODOLOGY

The risk assessment portion of the survey has been undertaken in accordance with the methodology set out by The International Society of Arboriculture (ISA). This assesses key fields as discussed below.

TARGET IDENTIFICATION

For the purposes of this survey, the targets that may be affected by the failure of a tree or tree part have been assumed to be human. This includes residents, their visitors, and the general public that may have access to East Drive. Secondary targets include the dwellings themselves, garages, outbuildings, fences and walls.

TREE PART AND CONDITION

The comments within the tree survey schedule identify the part and size of the part(s) of the tree causing concern. This forms the baseline for the risk assessment process.

TARGET PROTECTION

In assessing the likelihood of failure and likelihood of impacting a target (see below), we have considered the target protection measures in place. Such protection factors include the presence of other trees of significance, or the lower branches of adjacent trees, both of which may slow the rate of fall of any failed portion of tree, if failure were to occur.

¹ *National Tree Safety Group (NTSG). (2011). Common sense risk management of trees. Forestry Commission, Edinburgh, Scotland.*

RISK RATING

The likelihood of failure and likelihood of impact are assessed to give an indication into the likelihood of a failure and harm occurring. The combined likelihood is then considered against the consequences of any failure to give a final risk rating. Full details of this can be found on the notes page of the tree survey schedule at **Appendix 1**.

1.4 STATUTORY CONTROLS

1.4.1 TREE PRESERVATION ORDERS (TPOs)

We understand that all of the subject trees are afforded statutory protection by virtue of a Tree Protection Order (ref: TPO/A/4/72) made by the local planning authority (the LPA). The trees subject to this TPO are identified within the Tree Survey Schedule at **Appendix 1**.

1.4.2 CONSERVATION AREAS

We understand that the site is not within a conservation area, and therefore there are no arboricultural constraints in this regard.

2 ASSESSMENT OF TREE STOCK

2.1 TREE SURVEY

2.1.1 CURRENT CONTEXT

The tree survey schedule at **Appendix 1** contains five individual Monterey pine (*Pinus radiata*) trees. These trees are part of a wider landscape feature extending along East Drive, and across the arable farmland to the south. Over time, individual pine trees have been removed from East Drive for various reasons, and the once formal arboricultural feature now has several large gaps. The trees are all mature examples of their species and are coming towards the end of their safe useful life expectancy (SULE).

2.1.2 PRESCRIBED WORKS

Following the tree survey and risk assessment, five individual trees require remedial tree surgery work or removal, as shown below.

Table 1: schedule of recommended works

Tree no.	TPO ref.	Species	Pruning specification	Priority	LPA consent required?
8	TPO/A/4/78	Monterey pine	Fell to ground level	3 Months	Yes
9	TPO/A/4/79	Monterey pine	Fell to ground level	Urgent	Yes
10	TPO/A/4/80	Monterey pine	Fell to ground level	Urgent	Yes
12	TPO/A/4/81	Monterey pine	Fell to ground level	Urgent	Yes
13	TPO/A/4/82	Monterey pine	Fell to ground level	3 Months	Yes

Urgent works should be completed as soon as it is reasonably practicable, preferably within one month.

2.1.3 JUSTIFICATION OF WORK

Justification for the proposed tree removals is set out below.

SPECIES PROFILE

Monterey cypress is a large-growing coniferous species native to North America. It is able to grow to significant proportions and forms an attractive dense green mass of long needles, making it well-suited to open spaces such as urban parks. However, it is not suitable for retention in close proximity to residential properties for a number of reasons.

Whilst seasonal debris is generally not accepted as sufficient justification on its own, the maturing cones of this species regularly fall in windy conditions. In this instance, cars have been damaged by the falling fruit and they have the potential to cause significant injury to a pedestrian should they be struck directly.

The weight of the cones, and the relative density of the wood, make Monterey cypress branches very heavy. Whilst they are able to produce biomechanical adaptations by laying down additional wood to compensate, horizontal branches can become susceptible to failure, particularly in wind-exposed environments such as this, or when they're exposed to additional or alternative wind-loading.

It has also been noted² that the species can be susceptible to changes in soil composition, and the fact that such a large proportion of the trees along East Drive are showing symptoms of decline, may be evidence of this given the high levels of development that have occurred during their life spans.

MONTEREY PINE (NO. 8)

This is a heavily suppressed specimen of significant size. It has formed a compression fork and included bark at its bifurcation point at 2.5m above ground level, and the canopy is now entirely offset from its base. This is causing excessive end-weight and puts the tree at additional risk of collapse. Whilst its currently sheltered from the prevailing winds by the surrounding specimens, the proposed removal of the trees to the south-east (nos. 9, 10 and 12) would lead to an alteration in wind dynamics acting on the canopy. The relevance of wind dynamics is discussed throughout this report.



Photograph 1: showing the heavily suppressed and leaning nature of the Monterey pine (no. 8).

MONTEREY PINES (NOS. 9 AND 10)

These two trees currently form an aerodynamic canopy which appears to have been managed as a single entity. However, a large branch recently failed from within the canopy of no. 10, as shown overleaf.

² Lonsdale, D. (1999). *Principles of Tree Hazard Assessment and Management*.

Historically, a third component of this group (no. 11) existed, but this was removed within the last two years following a series of similar branch failures.



Photographs 2 and 3: showing the recent branch failure from within the canopy of Monterey pine (no. 10).

Following this failure, the canopy of no. 10 has been reduced by approximately 70% in terms of overall canopy size, and further branch failures are foreseeable.

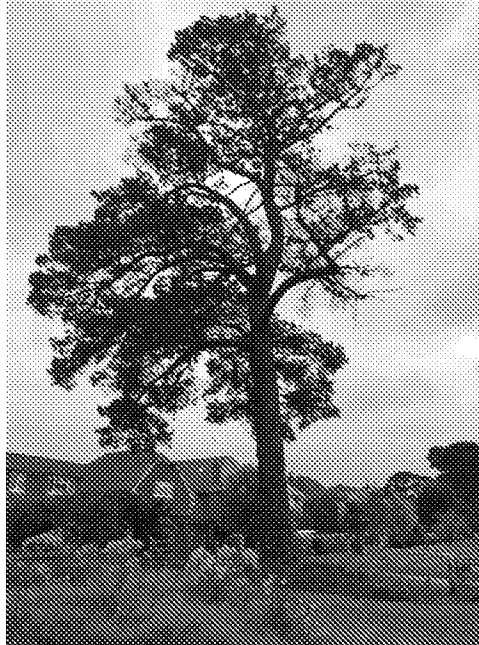
The canopy of no. 9 is become sparse towards the upper extremities. This is consistent with the general pattern of a tree dying back from its tips due to physiological decline. The removal of no. 10 in combination with the dieback identified within the canopy of no. 9 results in the only cost-effective solution being tree removal.



Photographs 4 and 5: showing the sparse areas of no. 9 against the dense foliage of adjacent trees.

MONTEREY PINE (NO. 12)

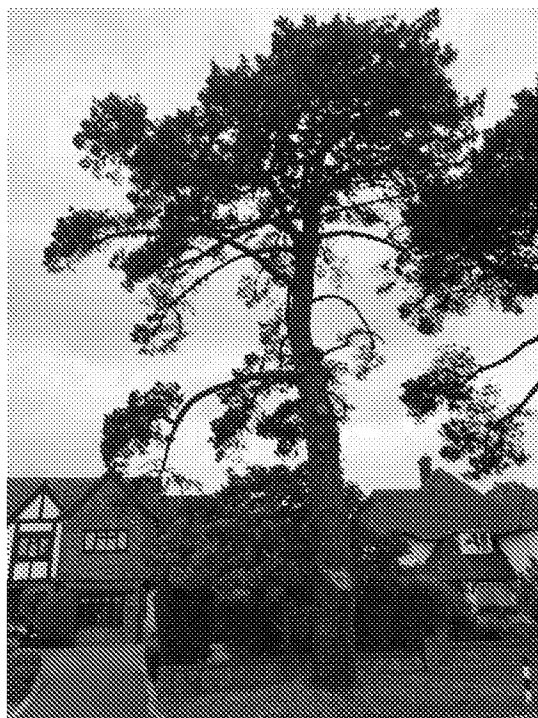
This specimen is showing significant dieback within its upper canopy and appears to be in a state of permanent and irreversible physiological decline, and so the only reasonable management option is to remove the tree.



Photograph 6: showing significant dieback in the canopy of Monterey pine (no. 12)

MONTEREY PINE (NO. 13)

This is a sizeable tree growing at the western end of a group of trees. It has become overtopped by no. 14, the dominant specimen within the group, and now shows slight needle sparsity in its upper canopy. In addition, the lateral branches now have an etiolated appearance with the foliage being focussed even further towards the branch tips than normal. Consequently, its pre-emptive removal would mitigate the risk of branch failure in the future.



Photograph 7: showing a reduction in physiological function leading to sparseness in the canopy of Monterey pine (no. 13)

2.1.4 SITE HISTORY

We understand from conversations with the owner of No. 24 East Drive that there is a history of problematic branch failures, no all of which have been reported to either the tree owner or the LPA. The owner of No. 24 has extensive photographic evidence of these failures which can be made available on request from the LPA.

2.2 PREVIOUS TREE SURVEY

The previous tree survey was undertaken by Beechdown Arboriculture Limited, and the recommendations set out within a report dated April 2019 (ref: B/0219/19).

We did a walkover survey of the trees along Station Road and can confirm that the recommendations set out within that report are accurate. Therefore, it is suggested that all of the proposed works are undertaken, particularly given the heavy use of Station Road, and the size of the tree's involved.

3 CONCLUSION

In light of the considerations mentioned throughout this report, we propose the removal of five Monterey pines (nos. 8, 9, 10, 12 and 13) along the northern edge of East Drive, Angmering.

APPENDIX 1 – TREE SURVEY SCHEDULE

TREE SURVEY SCHEDULE

Trees on East Drive, Angmering, West Sussex, BN16 4JH

30/07/2019

Ref: CTS-OJNG-tss-01

County Tree Surgeons
Turners Hill Road
Crawley Down
West Sussex
RH10 4HQ

Explanatory notes
Trees on East Drive, Angmering, West Sussex, BN16 4JH

This document is based on a site visit and inspection undertaken by Matt Jones of County Tree Surgeons Ltd. on 30/07/2019. Physical dimensions have been taken from a previous survey undertaken by Beechdown Arboriculture Limited, dated April 2019. Assessment of the trees contained within this document reflect their condition at the time of the survey. We surveyed the trees from within the boundaries of the site only. All trees were surveyed from ground level only, aided by the use of binoculars where considered necessary. An acoustic hammer and probe were used to assess the extent of cavities below 2m. Continual growth, environmental changes and adverse weather may lead to changes in the physiology, morphology, structure and life expectancy of any individual tree. Subsequently, the information within this document cannot be relied upon for more than twelve months, or sooner if significant adverse weather conditions arise. 1. Tree no. Individual number assigned to the tree for identification, commencing at 8. 2. TPO no. TPO reference number 3. Species Common and botanical names are provided. Botanical names are shown in italics. 4. Height Estimated with the aid of a clinometer or laser rangefinder, given in metres. 5. Trunk diameter Trunk diameter measured at 1.5m, unless stated otherwise. 6. Radial/Average crown spread Extent of branches from the centre of the trunk to the tips in the principal cardinal directions, rounded up to the closest half metre. For trees with symmetrical canopies, an average measurement is provided.	7. Age class Young : recently planted, or yet-to-be established specimen, usually below 10m in height, subject to species characteristics; Semi-mature : a recently established specimen, usually with excurrent morphology, and yet-to-reach its ultimate proportions, subject to species characteristics; Mature : fully established, complex, decurrent or broad branching structure, and has achieved or is nearing its ultimate proportions, subject to environmental conditions and species characteristics; Over-mature : has reached maturity, but is showing symptoms of minor physiological decline within its canopy consistent with early natural retrenchment; Veteran : has a large trunk diameter for its species, but displays evidence of veteranisation such as fungal colonisation, decay, hollowing, and has notable retrenchment within its canopy; Ancient : exceeds the typical size and age of the species with a very large trunk diameter; with extensive fungal colonisation, decay, hollowing and veteran characteristics; has undergone significant retrenchment and is within the latter stages of life. 8. Physiology General health and biological function, taking into account a healthy specimen of its size, age, species and location. 9. Structure Structural condition of the tree, based on root (visible portions only), basal, trunk, stem and branch morphology. Good : no morphological defects and no fungal or bacterial colonisation; Moderate : only minor morphological defects and a very low likelihood of failure; no obvious fungal colonisation; Indifferent : minor, or several minor morphological defects with no significant increase in the likelihood of failure, but which can be remediated through correct management; Poor : irremediable, significant or numerous morphological defects, leading to an increased likelihood of failure; significant fungal colonisation and at a moderate stage of decay Hazardous : irremediable and significant morphological defects, with an immediate likelihood of root, trunk, stem or branch ; significant or numerous fungal colonisations at an advanced stage of decay 10. Comments Comments have been made on the following areas where appropriate: - Physiological condition; - Morphological condition; - Active or suspected pathogenic agents; - Safety; - Life expectancy; and - Location within the site	11. Likelihood of failure An assessment of the likelihood of the identified tree part failing during normal conditions, in accordance with the ISA Tree Risk Assessment methodology (2013). Improbable : not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified timeframe Possible : failure could occur but is unlikely during normal weather conditions within the specified timeframe Probable : failure may be expected under normal weather conditions within the specified timeframe Imminent : failure has commenced or is most likely to occur in the near future. 12. Likelihood of impacting target An assessment of the likelihood of the failed tree part impacting the target based on the occupancy rates within the target area, in accordance with the ISA Tree Risk Assessment methodology (2013). Very low Low Medium High 13. Likelihood of failure and impacting target Categorised using Matrix 1 of the ISA Tree Risk Assessment methodology (2013), based on the likelihood of failure and likelihood of impacting target. Unlikely Somewhat likely Likely Very likely 14. Consequences of failure An assessment of the consequences of the failed tree part impacting the target, if it were to occur, in accordance with the ISA Tree Risk Assessment methodology (2013). Negligible : low-value property damage that can be replaced or repaired. Does not involve personal injury Minor : low-to-moderate property damage; small disruption to traffic or a communication utility; Significant : property damage of moderate-to-high value; considerable disruption to traffic or personal injury Severe : serious personal injury or death; damage to high-value property or disruption to critical activities. 15. Overall risk rating Risk rating determined for tree part and target of most concern.
---	---	---

Tree Survey Schedule
Trees on East Drive, Angmering, West Sussex, BN16 4JH

No.	TPO no.	Species	Height	Trunk diameter	Crown Spread	Age class	Physiology	Structure	Comments	Likelihood of failure	Likelihood of impacting target	Likelihood of failure & impact	Consequences of failure	Overall risk rating
8	TPO/A/4/78	Monterey pine (<i>Pinus radiata</i>)	14m	890mm	NE12m E3m S1m W3m	Mature	Average	Poor	Twin-stemmed from 2.5m; trunk leans heavily to NE; canopy entirely offset from centre; species with a high propensity for branch failure, as evidenced by recent branch failures within vicinity.	Probable	Medium	Somewhat likely	Significant	Moderate
9	TPO/A/4/79	Monterey pine (<i>Pinus radiata</i>)	21m	1000mm	6m	Mature	Reduced	Indifferent	Sparse needle coverage, particularly in the upper canopy; smaller than normal needle size; forms an aerodynamic canopy with adjacent tree (no. 10), and likely with the recently removed specimen (no. 11); adjacent specimen (no. 10) recently shed large branches causing alterations to wind dynamics within canopy of this tree, increasing likelihood of failure; species with a high propensity for branch failure, as evidenced by recent branch failures within vicinity.	Probable	Medium	Somewhat likely	Significant	Moderate

Tree Survey Schedule
Trees on East Drive, Angmering, West Sussex, BN16 4JH

No.	TPO no.	Species	Height	Trunk diameter	Crown Spread	Age class	Physiology	Structure	Comments	Likelihood of failure	Likelihood of impacting target	Likelihood of failure & impact	Consequences of failure	Overall risk rating
10	TPO/A/4/80	Monterey pine (<i>Pinus radiata</i>)	23m	790mm	6m	Mature	Reduced	Poor	Necrotic bark noted on NW aspect of base, reveals dry, cubical sapwood; tree has recently shed one large branch from south side of canopy, resulting in loss of almost all canopy on this aspect; approx. 30% of original canopy cover remains; at risk of further branch failure; branch failure likely to have been caused by alterations to wind dynamics caused by removed of adjacent specimen (no. 11).	Probable	Medium	Somewhat likely	Significant	
12	TPO/A/4/81	Monterey pine (<i>Pinus radiata</i>)	24m	990mm	8m	Mature	Poor	Hazardous	Bark platelets easily removed during inspection with acoustic mallet; bark necrosis noted around base; lack of prominent buttress roots with swollen appearance at base; large sections of dieback in upper canopy, comprising branches with estimated diameters >250mm; appears to be in a state of permanent and irreversible physiological decline.	Probable	Medium	Somewhat likely	Significant	Moderate

Tree Survey Schedule
Trees on East Drive, Angmering, West Sussex, BN16 4JH

No.	TPO no.	Species	Height	Trunk diameter	Crown Spread	Age class	Physiology	Structure	Comments	Likelihood of failure	Likelihood of impacting target	Likelihood of failure & impact	Consequences of failure	Overall risk rating
13	TPO/A/4/82	Monterey pine (<i>Pinus radiata</i>)	20m	940mm	8m	Mature	Reduced	Indifferent	Large bark platelets easily removed when assessed with acoustic hammer; sparse leaf coverage; minor dieback at branch tips; appears to be in the early stages of physiological decline.	Possible	Medium	Unlikely	Significant	Low



Schedule of recommended works
Trees on East Drive, Angmering, West Sussex, BN16 4JH

No.	TPO no.	Species	Works required	Work priority	LPA consent required?
8	TPO/A/4/78	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	3 Months	Yes
9	TPO/A/4/79	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
10	TPO/A/4/80	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
12	TPO/A/4/81	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
13	TPO/A/4/82	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	3 Months	Yes

All work should be carried out by a suitably qualified arboricultural contractor in accordance with British Standard BS3998:2010 'Tree work - Recommendations'.

Work priority indicates the timeframe within which the prescribed works should be completed. Where monetary constraints apply, work should be prioritised according to the overall risk rating on the previous page.

As the trees are subject to a Tree Preservation Order (TPO), LPA consent is required before some of the prescribed works can be undertaken. Please do let us know if you would like us to submit the necessary application to undertake these works on behalf of Persimmon Homes.

Applications under Section 16 of the Town and Country Planning (Tree Preservation) (England) Regulations 2012 have a statutory consultation period of eight weeks.

APPENDIX 2 – TREE SURVEY PLAN



Schedule of recommended works
Trees on East Drive, Angmering, West Sussex, BN16 4JH

No.	TPO no.	Species	Works required	Work priority	LPA consent required?
8	TPO/A/4/78	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	3 Months	Yes
9	TPO/A/4/79	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
10	TPO/A/4/80	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
12	TPO/A/4/81	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	Urgent	Yes
13	TPO/A/4/82	Monterey pine (<i>Pinus radiata</i>)	Fell to ground level	3 Months	Yes

All work should be carried out by a suitably qualified arboricultural contractor in accordance with British Standard BS3998:2010 'Tree work - Recommendations'.

Work priority indicates the timeframe within which the prescribed works should be completed. Where monetary constraints apply, work should be prioritised according to the overall risk rating on the previous page.

As the trees are subject to a Tree Preservation Order (TPO), LPA consent is required before some of the prescribed works can be undertaken. Please do let us know if you would like us to submit the necessary application to undertake these works on behalf of Persimmon Homes.

Applications under Section 16 of the Town and Country Planning (Tree Preservation) (England) Regulations 2012 have a statutory consultation period of eight weeks.

Client:			
Site:	East Drive, Angmering, West Sussex, BN16 4JH		
Base drawing:	OS Plan		
Tree nos.:	● 12	Trees to be removed:	
Drawing title: TREE CONSTRAINTS PLAN Drawing scale: 1:500 @ A3			
Drawing no: CTS-0JNG-TSP-01		Revision:	N/A
Date drawn:	05/08/2019	Drawn by:	Matt Jones
Telephone:	01342 719567		
Web:	www.countytreesurgeons.co.uk		
CTS		County Tree Surgeons Ltd	