

Arboricultural Survey

Chandlers BMW

Water Lane

Angmering

West Sussex

BN16 4EH

Report compiled by:
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PJC CONSULTANCY LTD

PJC Ref No: PJC/3040/12

Summary

This report was commissioned to satisfy the requirements of arboricultural issues defined by planning policy, at the request of Marshall Clark.

The proposed project should not affect existing and/or retained trees on the site as long as protection measures set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*' and outlined in this report are followed.

Objectives of this report

My involvement in this project can be defined by the following objectives:

To provide a schedule of the existing trees that are situated in areas that are likely to be potentially affected by the proposed construction project.

To classify the existing trees using the process defined by BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

To provide arboricultural guidance on protection measures to be implemented during the construction process, and prevent future conflict between trees and structures.

To promote the retention of trees wherever possible.

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- 2 Site visit and observations
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1 INTRODUCTION

1.1 **Brief:** I have been commissioned by Bob Stoye of Marshall Clark to provide an arboricultural survey of Chandlers BMW, Angmering, West Sussex.

1.2 **Documents and information provided:** I was provided with the following documents relating to the site:

- Drawing ref. 10410812 – Topographical Site Survey

1.3 **Scope of this report:** This report is only concerned with the trees within the property boundaries of the site, or in areas that have the potential to be affected by construction works.

1.4 **Background information:** A proposal has been outlined develop Chandlers BMW in Angmering. PJC Consultancy has been commissioned to undertake an arboricultural survey following the guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.5 **Qualifications:** I have a Foundation Degree in Arboriculture and am a member of the Arboricultural Association at Technician Level. I have seven years experience in the arboricultural industry, originally working as a groundsman and feller, and progressing into consultancy.

2 SITE VISIT AND OBSERVATIONS

2.1 **Site visit:** I carried out a site visit on 20th September 2012. The weather conditions at the time were clear and dry with a light breeze. The visibility was good.

2.2 **Brief site description:** The site is situated on the junction between Water Lane and High Street in Angmering. The surrounding land use is comprised of residential properties with a public house and a number of shops to the south. The site itself is comprised of several commercial sales buildings and car workshops with forecourts. Located on the southern site boundary are two residential properties that are included within the site boundary. Trees are located in the gardens of the residential properties and on the southern site boundary.

2.3 **Identification and location of trees:** The trees are not number tagged but their locations are marked on the Tree Constraints Plan in Appendix 1.

2.4 **Tree observations:** I visually inspected the trees from within the boundaries of the property. The survey methodology was restricted to a visual assessment. The height, crown spread and crown clearance for each tree was estimated to the nearest metre. The DBH (stem diameter at breast height) was measured to the nearest millimetre.

2.5 **Limitations of the Survey:** Access was not available to measure a number of the trees at this site. Stem diameters that have been estimated have been noted on the Tree Survey Schedule.

3 APPRAISAL

3.1 The trees were assessed and categorised using the cascade chart in BS5837: 2012 *Trees in relation to design, demolition and construction – Recommendations*. Their dimensions were recorded, and their positions plotted on the Tree Constraints Plan in Appendix 1. The Tree Survey Schedule in Appendix 2 contains more detailed information for each tree.

3.2 The categorisation of trees is based on a number of factors. The initial category is U for trees that are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years. Category U trees do not necessarily need to be removed if they do not conflict with the proposed development or are not dangerous. The remaining trees are then assessed for their arboricultural, landscape and historical, (or cultural) contribution. This assessment takes into account defects and previous pruning to put the trees into A, B and C categories. The highest categorisation is category A, with the lowest being category C. Category C trees are not normally retained if they pose a constraint to development. The cascade chart further explaining the above is included in Appendix 3.

3.3 A total of twelve trees were surveyed and included in the Tree Survey Schedule. No trees were categorised as A with two categorised as B and eight categorised as C. The predicted contribution of two trees is less than ten years, leading to their categorisation as U.

3.4 All trees situated within the survey area are located at the southern section of the site, adjacent to the residential buildings and are protected by the Angmering Conservation Area.

3.5 Tree T1 is a semi mature Scots pine (*Pinus sylvestris*) situated in a garden on the southern site boundary (Photograph 4, Appendix 7). This tree is of good condition and provides visual amenity to the site. It is however located directly below overhead services. As a result, there is limited potential of the tree to mature, leading to its categorisation as C2.

3.6 Also located in this garden is a semi mature ash (*Fraxinus excelsior*). This tree contributes to the rural aesthetics of the surrounding landscape. Due to the trees small size, it is not of significant arboricultural value so it categorised as C1.

3.7 Tree T3 is an early mature macrocarpa (*Cupressus macrocarpa*). This tree is situated adjacent to a flint boundary wall and High Street. On the date of the site visit there was an open excavation in the road below the tree, in close proximity to the site. Although the excavation was relatively small, there was no root growth present. This suggests that the boundary wall is acting as a root barrier. The actual rooting area of this tree will therefore be concentrated within the site boundary.

3.8 Situated east of the macrocarpa are trees T8 and T9, two cherry plums (*Prunus cerasifera*). These two multi-stemmed trees have previously been heavily reduced back over a vehicle forecourt, likely to eliminate the nuisance leaf drop onto clean cars (Photograph 3, Appendix 7). As a result of the reductions, the trees are of poor form and have been categorised as C1. It can be assumed that root growth from these trees will not extend into the car forecourt due to the presence of a retaining wall above a non-porous surface.

3.9 Situated on opposite sides of the car forecourt's entrance are trees T7 and T4, two sycamores (*Acer pseudoplatanus*). T7 is of an early mature age class. It's stem is enclosed by fences and bramble, preventing a structural assessment or accurate measurement of stem girth. Tree T4 is a larger and more established tree (Photograph 1, Appendix 7). It is situated on a small embankment adjacent to the car forecourt. The actual rooting area of this tree will be located along the open embankment rather than beneath the non-porous surface.

3.10 Situated north of T4 are trees T5, a mature Leyland cypress (*Cupressocyparis leylandii*), and group G6, two hawthorns (*Crataegus monogyna*). The hawthorns are of poor condition with one dead stem and one stem exhibiting sparse foliage as it is smothered by ivy. G6 is categorised as U. T5 and G6 are situated on top of a tall retaining wall (Photograph 2, Appendix 7). As a result, there will be no roots from these trees located within the site boundary.

4 RECOMMENDATIONS

4.1 Each tree's DBH was recorded, and applied to the formula found in Appendix 4. The resulting dimensions equal each tree's Root Protection Areas that are plotted on to the Tree Constraints Plan in Appendix 1, and added to the Tree Survey Schedule in Appendix 2. These are represented as a circle on the plan, and are colour coded depending on the category they were classed in using the cascade chart in Appendix 3.

4.2 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally and act as transport for water and nutrients. Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above growing medium, i.e. from porous to non-porous can alter the resources available to the tree, which in turn can lead to its decline.

4.3 The root protection areas must be left free from excavation and disturbance, and protected during any proposed works. Protection should be in the form of fencing as defined in Appendix 5, and signs affixed as shown in Appendix 6.

4.4 Although the majority of trees located within the site boundary are small and of low arboricultural value, their overall presence contributes to local visual amenity. If tree removal is required, particularly on the site boundary, mitigation planting will be necessary.

4.5 Any final design must show service locations and their routing. These must be located outside of the trees RPA's where they are underground and outside of the anticipated area of mature crown spread where above ground.

4.6 A pre-commencement meeting with all parties and the Local Authority Arboricultural Officer is recommended to agree working methods before any works are undertaken. All contractors should be briefed about tree related site factors as part of the site safety briefing.

4.7 A system and programme of onsite monitoring by the appointed arboricultural consultant should be agreed with the Local Authority Arboricultural Officer, if it is deemed necessary. Record sheets of monitoring site visits should be available for inspection by all parties, and forwarded to a designated employee of the Local Authority.

5 CONCLUSIONS

5.1 The trees on this site of generally poor quality however contribute to local visual amenity and are included in the Angmering Conservation Area. Although a number of small trees and woody shrubs have been recommended for removal if they pose a constraint to development, their loss should not be detrimental to wider landscape or have an adverse impact on local visual amenity. Their loss should be mitigated by replanting with suitable species in appropriate locations during the soft landscaping phase of construction. If this is carried out consideration should be given to their location to avoid conflict with the proposed building and associated services.

6 OTHER CONSIDERATIONS

6.1 Tree Preservation Order (TPO) ref TPO/A/1/03 protects a number of trees on the site, as does the Angmering Conservation Area. Any persons proposing to undertake tree works must check the status of these trees with the local authority, and gain necessary consent before works are undertaken.

6.2 Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

6.3 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

6.4 The trees at this site were assessed for their condition and safety in relation to the average range of weather conditions that the region experiences. Any weather events that exceed the average norm cannot be predicted, and so their effects are not considered within this report.

6.5 The views and opinions contained within this report are entirely those of the author.

7 IMPLEMENTATION OF WORKS

7.1 The contractors should carry out all tree works to BS 3998 *Recommendations for Tree Works* (2010) as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

7.2 It is also recommended that all tree works be carried out by an Arboricultural Association approved contractor. Approved contractors are expected to work to industry best standards, and the Arboricultural Association website contains contact details and information on engaging a suitable contractor.

Contact details

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Date: 20th September 2012

APPENDIX 1 Tree Constraints Plan and Tree Shadow Plan

Key:



RPA for CAT B Tree*



RPA for CAT C Tree*



RPA for CAT U Tree*

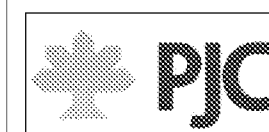


Tree canopy

***Trees categorised in accordance with BS5837: 2012 'Trees in relation to design, demolition and construction - Recommendations'.**

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/3040/12 contains further information for each tree.

This drawing should be viewed in colour.



Site: Chandlers BMW, Water Lane, Angmering, West Sussex, BN16 4EH

Client: Marshall Clark

Surveyor: Peter Davies

Date Drawn: 19/09/12

Scale: 1:200 at A3

Drawing Number: PJC/3040/12/A

Drawing Title: Tree Constraints Plan

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APPENDIX 2 Tree Survey Schedule

Tree Survey Schedule

				Client: Marshall Clark Site: Chandler BMW Angmering Date: 19/09/2012 Surveyor: Peter Davies						Green - Category A Tree Blue - Category B Tree Grey - Category C Tree Red - Category U Tree		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Height of crown clearance (m)	Age class	Physiological condition	Structural condition	Preliminary management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T1	Scots pine (<i>Pinus sylvestris</i>)	7	320	N2 E3 S2 W3	2 west	Semi-mature	Good vigour, dense foliage, no evidence of pest or disease	Fair, service pass directly above stem, no potential for tree to mature	Fell if tree poses constraint to development	C2	46.3	3.8
T2	Ash (<i>Fraxinus excelsior</i>)	6	180	N2 E2 S2 W2	2 south	Semi-mature	Good vigour, dense foliage, no evidence of pest or disease	Good, services pass through crown, no major visible defects	Fell if tree poses constraint to development	C1	14.7	2.2
T3	Macrocarpa (<i>Cupressus macrocarpa</i>)	6	519.6 combined diameter estimate	N3 E3 S3 W4	2 north	Mature	Good vigour, dense foliage, no evidence of pest or disease	Fair, ivy clad, previously crown lifted over High Street	Fell if tree poses constraint to development	C2	122.1	6.2
T4	Sycamore (<i>Acer pseudoplatanus</i>)	8	570.1 combined stem diameter	N6 E3 S4 W5	3 north	Mature	Good vigour, dense foliage, no evidence of pest or disease	Good, multi-stemmed form, ivy clad, no major visible defects	Sever ivy	B2	147	6.8
T5	Leyland cypress (<i>Cupressocyparis leylandii</i>)	10	350 estimate	N2 E3 S3 W3	2 west (at stem)	Mature	Good vigour, dense foliage, no evidence of pest or disease	Fair, ivy clad, only viewed from below high retaining wall	No action required	B2	55.4	4.2
G6	Hawthorn (<i>Crataegus monogyna</i>)	6 average	200 average estimate	2 average	2 west (at stem)	Mature	Poor vigour, significant crown dieback, ivy smother, 1x dead tree	Poor, ivy clad, 1x dead stem	Fell to ground level	U	18.1 average	2.4 average
T7	Sycamore (<i>Acer pseudoplatanus</i>)	7	250 estimate	N2 E3 S3 W3	2 south	Early mature	Good vigour, dense foliage, no evidence of pest or disease	Fair, no access to survey base of stem	Fell if tree poses constraint to development	C2	28.3	3

Tree Survey Schedule

				Client: Marshall Clark Site: Chandler BMW Angmering Date: 19/09/2012 Surveyor: Peter Davies						Green - Category A Tree Blue - Category B Tree Grey - Category C Tree Red - Category U Tree		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Height of crown clearance (m)	Age class	Physiological condition	Structural condition	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T8	Cherry plum (Prunus cerasifera)	5	455.6 combined stem diameter	N4 E2 S1 W3	3 north	Over mature	Fair vigour, adequate foliage cover, no evidence of pest or disease	Fair, Ivy clad, low forking habit, poor form due to previous heavy crown reduction	Fell if tree poses constraint to development	C1	106.7	5.8
T9	Cherry plum (Prunus cerasifera)	5	537.1 combined stem diameter	N4 E2 S2 W3	2 west	Over mature	Fair vigour, adequate foliage cover, no evidence of pest or disease	Fair, Ivy clad, low forking habit, poor form due to previous heavy crown reduction	Fell if tree poses constraint to development	C1	100.6	6.4
T10	Sycamore (Acer pseudoplatanus)	3	190	N2 E2 S2 W2	2 north	Semi mature	Fair vigour, adequate foliage cover, no evidence of pest or disease	Good, typical growth habit for species, no major visible defects	Fell if tree poses constraint to development	C1	15.3	2.3
T11	Rowan (Sorbus aucuparia)	5	200	n1 e1 s2 w2	2 south	Semi mature	Standing dead tree	Standing dead tree, not dangerous due to small size	Fell to ground level	U	18.1	2.4
T12	Lime (Tilia x europae)	4	180	N3 E3 S2 W2	1 north	Semi mature	Fair, minor crown dieback, adequate foliage to support tree	Fair, minor deadwood, no major visible defects	No action required (third party tree)	C2	14.7	2.2

APPENDIX 3 Cascade Chart for Tree Quality Assessment



Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of their current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after the removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>Note Category U trees can have existing or potential conservation value which it might be desirable to preserve</i>			Red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

APPENDIX 4 Root Protection Area Formulas

CALCULATING THE RPA

For single stemmed trees

$$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter (mm) @ 1.5 m x 12})^2 \times 3.142}{1000}$$

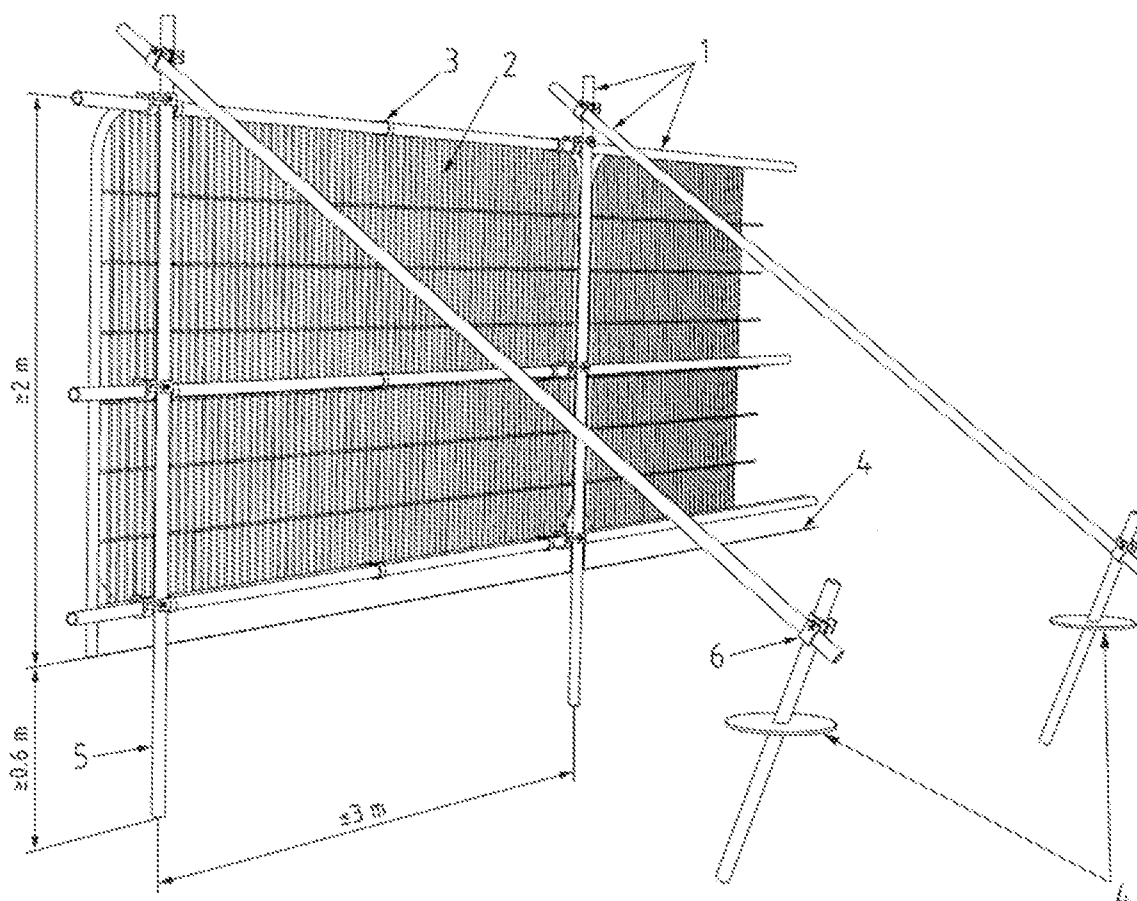
For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \dots + (\text{stem diameter 5})^2}$$

For trees with more than five stems, the combine stem diameter is calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

APPENDIX 5 Tree Protection Fencing Specification



Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps

APPENDIX 6 Example Protective Fencing Signs



APPENDIX 7 Photographs



Photograph 1



Photograph 2



Photograph 3



Photograph 4