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PLANNING AND
BUILDING CONTROL

17 APR 2013

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Egerton Avenue, Manchester

Arboricultural Implication Study

July 2010

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BUILDING CONTROL

17 APR 2013

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Egerton Avenue, Manchester

Arboricultural Implication Study

July 2010

Report Reference: 2307/DR.10

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Approved By			

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1.0 INTRODUCTION

1.01 A. C. S. Consulting is instructed by Watkin Jones Homes, St Asaph, to advise on the Arboricultural Implications of development at the former St John Ambulance Site, Egerton Avenue, Manchester.

1.02 In accordance with the Department for Communities and Local Government Circular 02/2008 and its guidance document Validation of Planning Applications, this report fulfils the recommended national list criteria for tree survey/arboricultural information. More specifically, it contains the following:

- *A full tree survey to the requirements of BS5837(2005) Trees in Relation to Construction – Recommendations,*
- *A plan showing tree survey information, retention categorisation and root protection areas,*
- *An assessment of the arboricultural implications of development detailing trees to be retained/removed and appropriate protection measures,*
- *An arboricultural method statement detailing the means of tree protection, implementation and phasing of works.*

1.03 The site was visited on two occasions – August 2005 and June 2010 and a survey of the trees was completed recording; *species type, age, height, crown spread, diameter-at-breast-height, and condition.*

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2.0 BACKGROUND

The Site

2.01 The site has been cleared. It formerly contained a single-storey, pre-fabricated unit used as offices and a two-storey detached residential property, in a rectangular shaped site located in South Manchester. There are open grassed areas, areas of hard standing and car parking with trees along two sides of the site.
The site is generally level with the exception of the northern side which has a depression, close to which trees are located.

Statutory Protection

2.02 I am unaware of any statutory protections to the trees at this time however, the trees will be subject to the Development Plan Polices of Manchester City Council which includes one City wide tree policy DC 16.

16. Street Landscapes

DC16.1 In considering development proposals for any site, the retention of existing trees and the planting of new trees within the public highway and along the public frontages of the site will be encouraged by the Council. Except where trees are shown to be in poor health or are individually of little amenity value, or where a satisfactory replanting scheme is more desirable, the Council will not normally permit development proposals which would involve the loss of significant trees and would thereby change the visual character of the street. (sic)

3.0 TREE SURVEY

3.01 The tree data can be found at Appendix 1. There is no requirement in BS 5837 to repeat the details of the Constraints information save for confirming that the trees were surveyed for *species type, age, height, crown spread, diameter-at-breast-height, condition,* and their suitability for retention from ground level. Heights were measured with a Nikon Forestry 550 Hypsometer and diameters were taken, where possible, with a diameter tape to give an average stem measurement. Canopy spreads have been measured at the cardinal points or where they significantly extend in other directions.

Each tree has been assessed using the BS 5837 2005 category ratings (a copy can be found in Appendix 1). Consideration has been given to any Supplementary Planning Documents. The data collection is compliant with the advice set out at Subsection 4.6.6 of BS 5837:2005.

4.0 DEVELOPMENT IMPLICATIONS

4.01 The application site is a rectangular shaped parcel of land that has been cleared of all previous structures. The site benefits from an extant permission to develop the site with apartments. However, Watkins Jones Homes now wish to develop the site with a mix of apartments and houses. The application is for a total of No.30 units comprising 10 No. apartments and 20 No. 2.5 and 3-storey houses.

Development Implications

4.02 The development proposals have a number of implications. The development will result in the removal of trees to develop the site as applied. Whilst it is acknowledged that all trees within the planning process are a material consideration, it is generally accepted that those trees rated as C or R are excluded from consideration regarding development implications, retained only where they pose no constraint on development.

Overview

Watkins Jones Homes produced an initial design for the site. Having considered the layout in detail it was felt that it placed a number of trees under pressure of premature removal and threatened the longer-term wellbeing of trees not in the control of the applicant or subsequent occupier/owners. Accordingly, the current Layout Plan, shown on Plan 2307_02, was drawn. The implication assessment is based on this layout.

Losses to Housing

The layout results in the removal of two trees (1238 and 1246) to accommodate the current housing proposal.

Losses to Internal Access Roads, Entrance and Area of Car Parking.

The proposed layout results in the loss of two trees (1227 and 1244) to accommodate the internal access roads, entrance and other formal hard standing areas.

As part of the development, it will be necessary to fill the depression noted around trees 1228 – 1232. This is achievable by using inert material such as washed building rubble. Whilst this feature appears to be within the RPA of trees 1228 – 1232 an assessment of tree age shows that 1232 a poplar to be removed, predated the other nearby trees resulting in restricted root development of the other trees. Therefore, the use of inert fill material and porous paving will allow adequate diffusion of gasses and water allowing the retained trees to be integrated into the development. Throughout the remainder of the development, particularly the hard standing areas to Plots 1 – 5 and 22 – 28, the area will use a 'no dig' cellular confinement system.

Assessment of Implications

It is acknowledged that the removal of the desirable trees has some impact on visual amenity and the treed character of Egerton Avenue and Clifton Avenue. The development has been adjusted to retain the trees located in the street and as many as possible along the edge of the site to minimise the impact of the tree removals. Notwithstanding this, Watkin Jones Homes are committed to a landscape scheme within the development as well as a commuted sum for arboricultural enhancements within the city boundary. Therefore, whilst the loss of desirable trees that form part of the street scene does not accord with the provisions of Policy DC16, the landscape scheme and the commuted sum for improvements allows mitigation of the tree losses. The use of inert fill and a cellular confinement system allows the location of hard surfacing close to trees. An assessment of the altitude and azimuth of the sun in relation to the trees shows that there is a satisfactory relationship between the housing and the retained trees.

Tree Protection

4.03 Plan 2307_02 – Arboricultural Layout Plan – General Arrangement shows the location of fencing, special surfaces around trees, trees for retention and removal and the proposed layout and new planting. It is illustrative only and the precise location of RPA barriers should be confirmed at a pre – commencement meeting before construction activity starts.

5.0 CONCLUSIONS

Summary

5.01 The application site is a small rectangular shaped parcel of land that benefits from an extant permission to develop. The proposals are a modification of that permission and seek to create a more sympathetic development in keeping with the current surroundings. To achieve the development aims, a number of desirable trees are to be removed. Whilst the losses do not accord with the provision of the Council's City wide tree policy, Watkin Jones will develop a landscape scheme and provide a commuted sum for the enhancement of arboricultural features within the city boundary. Further to this, this use of cellular confinement systems for car parking and the protection measures proposed will allow the successful retention of the retained trees.

Conclusions

5.02 The development proposals are a modification of the extant permission. The loss of trees will have an effect on the treed character of the street scene and visual amenity of the local area. In respect of tree losses, the development does not accord with the provisions of DC16 the city wide tree policy. However, the policy allows for tree losses where a satisfactory replanting scheme is more desirable. Watkin Jones are committed to such a scheme within the development and the provision of a commuted sum. The trees losses as a whole will not entirely change the character of the street scene as the development has been adjusted to retain a number of trees either located within the street or on the edge of the site. The relationship of the new plots to retained trees is satisfactory in respect of shade and dominance. The use of a cellular confinement system allows the location of hard surfaces close to trees.

5.03 Appropriately worded planning conditions should specify the requirement for detailed method statements associated with the following issues: earth works, fencing, site storage/compounds/site cabins, tree works, special engineering works, monitoring and reporting.

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July 2010

Appendix 1

CONTENTS

Key

BS5837: 2005

Tree Tables

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KEY

Age	Y – Young: Out-planted trees that have not yet established SM – Semi-mature: Established trees up to 1/3 of expected height and crown EM – Early mature: Between 1/3 and 2/3 of expected height and crown M – Mature: Between 2/3 and full expected height and crown FM – Fully mature: Full expected height and crown OM – Over mature: Crown beginning to break-up and decrease in size S – Senescent: Crown in advanced stage of break-up
Physiological Condition	Good – Very few defects a reasonable long life expectancy depending on age class Adequate – Some defects giving the tree a shortened life expectancy Poor – Limited life with major problems
Structural Condition	Good – Very few defects Adequate – Some defects rectifiable with minor tree surgery Poor – Significant defects only rectifiable with major tree surgery or felling

Table 1 – Cascade chart for tree quality assessment

<table>
<tr><td colspan="5">TREES FOR REMOVAL</td></tr>
<tr><td>Category and definition</td><td colspan="3">Criteria</td><td>Identification on Plan</td></tr>
<tr><td><u>Category R</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.</td><td colspan="3">• 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 removal of other R category trees (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality.
NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of a bat box in nearby tree).</td><td>DARK RED</td></tr>
<tr><td colspan="5">TREES TO BE CONSIDERED FOR RETENTION</td></tr>
<tr><td>Category and definition</td><td colspan="3">Criteria – Subcategories</td><td>Identification on Plan</td></tr>
<tr><td></td><td>1 Mainly arboricultural values</td><td>2 Mainly landscape values</td><td>3 Mainly cultural values, including conservation.</td><td></td></tr>
<tr><td><u>Category A</u>
Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)</td><td>Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dormant and/or principal trees within an avenue)</td><td>Trees, groups or woodlands that provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)</td><td>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</td><td>LIGHT GREEN</td></tr>
<tr><td><u>Category B</u>
Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)</td><td>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remedial defects including unsympathetic past management and minor storm damage)</td><td>Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality</td><td>Trees with clearly identifiable conservation or other cultural benefits</td><td>MID BLUE</td></tr>
<tr><td rowspan="2"><u>Category C</u>
Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter of below 150 mm</td><td>Trees not qualifying in higher categories</td><td>Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit</td><td>Trees with very limited conservation or other cultural benefits</td><td rowspan="2">GREY</td></tr>
<tr><td colspan="3">NOTE whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.</td></tr>
</table>

Egerton Avenue

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 Recommendations/ Comments	Estimated Remaining Contribution Years	Category Grading
1221	Horse-chestnut	15	650	N 3 E 4 S 5 W 2	2	M	Adequate	Good	Crown asymmetry. Leans east. Pruned in past. Broken limbs. Crown clean. Retain.	20 - 40	B1/2
1222	Cypress	5	150	N 1 E 1 S 1 W 1	2	SM	Good	Good	Loss for nuisance reasons.	10 - 20	C1/2
1223	Horse-chestnut	12	600	N 0 E 2 S 1 W 5	2	M	Adequate	Adequate	Leans to the south east. Canopy reduced on the south west. Surface rooting. Small cavity at 3 metres where the tree is multi-stemmed. Branch over road has been poorly pruned. Poor specimen. Poor pruning practice. Loss to condition.	10	C1/2
1224	Lime	20	700	N 2 E 4 S 4 W 2	2	M	Adequate	Adequate	Car park within 1 metre. Minor surface rooting. Slight lean to the east. Poor pruning practice. Remove epicormic growth to first major branch on the south side. Remove dead wood throughout.	20	B1/2
1225	Sycamore	15	500	N 3 E 5 S 3 W 5	2	M	Poor	Adequate	Twin stemmed. Crown asymmetry. Poor past pruning practice. Small leaves. Sparse canopy. Loss for condition.	10	C1/2

1226	Ash	3	100	N 1 E 1 S 1 W 1	2	SM	Adequate	Adequate	Loss for development.	10	C1/2
1227	Lime	20	700	N 3 E 4 S 5 W 5	2	M	Adequate	Adequate	Appears to be off-site at the back of the pavement. Twin stemmed at 4 metres, partly defective union. Large pieces of dead wood. Confirm ownership. Loss for development.	20	B1/2
1228	Lime	20	650	N 3 E 3 S 3 W 3	2	M	Adequate	Adequate	Single-stemmed. Hard surfaces located all around. Crown clean to fist major limb on eastern side at 6/7 metres. Remove epicormic growth. Dead wood throughout.	10 - 20	C1/2
1229	Horse-chestnut	16	600	N 4 E 4 S 5 W 3	2	M	Poor	Poor	Remove epicormic growth. Dead wood throughout. Swelling at base of stem. Loss for condition.	<10	R
1230	Lime	25/30	700	N 4 E 4 S 4 W 5	2	M	Adequate	Adequate	Single-stemmed. Slight lean to the east. Located at the top of a sloping bank. Large dominant tree. Crown clean throughout.	20 - 40	B1/2
1231	Lime	15	300	N 2 E 2 S 2 W 2	2	M	Adequate	Adequate	Profusion of epicormic growth on the stem. Past pruning wounds. Located on the top of a bank at back of pavement. Retain.	40	B1/2

1232	Poplar	25	800	N 8 E 5 S 3 W 5	2	OM	Adequate	Adequate	Dominant tree. Epicormic growth on stem. Leans north. Poor past pruning practice. Fell to allow the development of other trees.	<10	R
1233	Hawthorn	10	250	N 3 E 0 S 1 W 0	2	M	Adequate	Adequate	Multi-stemmed at ground level. Leans north over the road. Retainable. Remove sycamore sucker with nettle and self-set ash under 1233.	10	C1/2
1234	Ash	20	560	N 4 E 3 S 6 W	2	M	Adequate	Adequate	Loss for development.	10	C1/2
1235	Ash	6	250	N 3 E 1 S 4 W 0	2	M	Adequate	Adequate	Retain.	10	C1/2
1236	Sycamore	18	500	N 0 E 4 S 4 W 4	2	M	Poor	Poor	Leans south. Thinning foliage density. Poor. Loss for condition.	<10	R
	Beech			N E S 7.5 W	3		Adequate	Adequate	Off site tree requiring 8-metre protection.	20	B1/2
1237	Beech	12	600	N 1 E 3 S 7 W 5	2	M	Poor	Poor	Leans to the south. Influence in development by off-site beech. Swelling. Old Ganoderma bracket on the north and at ground level around the base which has been broken off - well decayed. Loss to condition.	<10	R

1238	Horse-chestnut	15	600	N 3 E 3 S 6 W 3	2	M	Adequate	Adequate	Tall, straight tree. Influenced in development by adjacent beech to the east. Loss for development.	20	B1/2
1239	Yew	5	300	N 2 E 0 S 2 W 1	2	EM	Adequate	Adequate	Leans south east then self corrects. Stem injuries. Poor form but retainable. Loss for development.	10	C1/2
1240	Holly	5	150	N 1 E 1 S 1 W 1	2	EM	Adequate	Adequate	Linear group of holly along the boundary. Retain.	10	C1/2
1241	Yew	5	300	N 2 E 1 S 3 W 1	2	EM	Adequate	Adequate	Loss to development.	10	C1/2
1242	Holly	4	250	N 1 E 1 S 1 W 2	2	EM	Poor	Poor	Defective stem unions at ground level. Poor past pruning practice. Suppressed. Loss for condition.	10	C1/2
1243	Sycamore	12	280	N 3 E 3 S 3 W 3	2	EM	Poor	Poor	Slight lean to the south then self corrects. Influenced in development by other trees. Loss for condition.	10	C1/2

1244	Horse-chestnut	21	850	N E 6 S 6 W 6	2	M	Adequate	Adequate	Twin stemmed at 3 metres. Defective stem union. Leans slightly to the south east. Would benefit from reduction works due to the defective union. Extensively crown lifted in the past to give a high upper canopy. Exposed tree. Loss for development.	20	B1/2
1245	Group	<17	<300	N E 6.7 S W	1	EM	Adequate	Adequate	Linear group of beech and sycamore. Hard surfaces up to roots. Rooting in car park so care required during excavation. Possibly off-site trees. Japanese Knotweed. Retain.	20	B1/2
1246	Horse-chestnut	18	850	N 5 E 3 S 5 W 5	2	M	Poor	Poor	Single-stemmed to 6 metres, multi-stemmed thereafter. Pruned in past. Crown asymmetry due to the influence of past removed tree. Stem covered in epicormic growth - twin stemmed to 4 metres. Remove epicormic growth to fork. Partly included stem union. Poor pruning practice. Dead wood. Phytophthora ooze on western stem at 2 metres - possibly Bulgarian Canker. Adjacent to a wall which is starting to push over. Adjacent to hard surfaces. Loss for development.	10	C1/2

Appendix 2

CONTENTS

Arboricultural Method Statement

Egerton Avenue, Manchester

Method Statements for Arboricultural Works: Associated with Protective Fencing, Demolition, Site Storage, Installation of Special Surfaces, Pruning and Felling Works to Protected Trees.

Ref: 2307/DR.10

July 2010

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1.0 INTRODUCTION

1.01 This Method Statement has been commissioned by Watkin Jones Homes in respect of works associated with Protective Fencing, Site Storage, and Felling Works to trees at Egerton Avenue, Manchester.

1.02 The site was visited during June 2010 and was assessed in relation to the site compound, site clearance issues, tree felling and pruning, removal of shrubs, tree protection measures and the location of protective fencing.

1.03 The document is to be read in conjunction with the Arboricultural Layout Plan – General Arrangement 2307_02.

Arboricultural Planning Conditions

1.04 The Council have not advised of any Arboricultural Planning Conditions.

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2.0 BACKGROUND

The Site

2.01 The site is described in detail in the Design and Access Statement by Watkin Jones Homes.

Method Statement

2.02 The document provides a methodology and timeframe for the implementation of the Method Statement.

3.0 METHODOLOGY

3.01 Plan 2307_02 is to be referred to. There will be no significant change in land contours. There will be the requirement for typical construction plant to access the site. However, there will be no requirement for heavy plant and awkward machinery. An examination of the proposals and the retained trees shows no areas of conflict for construction.

Fencing

3.02 The fencing referred to and that which shall be used, meets the fencing prescribed in the British Standard current at the time of the survey.

Demolition/Site Clearance

3.03 There is no requirement for formal demolition. There is the need to clear the site of existing small trees and shrubs. This will be undertaken once the fence has been erected as detailed.

Tree Works

3.04 A number of trees require felling; suitably qualified tree contractors and NOT construction personnel will undertake the works. Trees to be felled are identified on Plans 2307_02.

The Wildlife and Countryside Act (1981) gives wild birds, bats, mammals, some invertebrate species and plants statutory protection. It is important to ensure that this legislation is considered when carrying out any works to trees. It is prudent to undertake a bat survey prior to carrying out work that may provide suitable features for their roosting and to avoid work at times when birds may be nesting.

On the 21st of August 2007 changes were made in England and Wales to the Habitats Regulations (1994) in relation to European Protected Species. The equivalent Scottish legislation, the Conservation (Natural Habitats, & c.) Regulations 1994, also known as the Habitats Regulations, was similarly amended in 2007.

The most significant change for anyone involved with the management of mature trees is that there is no longer a defence that the damage was *incidental* and occurred as a result of a lawful activity. Therefore, for example, damaging or destroying a concealed breeding site or resting place of a protected species during lawful felling or pruning operations is an offence even though the damage was not intended.

The main protected species likely to be encountered during arboricultural and forestry operations are Bats, that is all species, and their roosts, and the Common dormouse (*Muscardinus avellanarius*). The Edible dormouse (*Glis glis*) is specifically excluded.
Alternative solutions to a problem involving trees must be considered and as appropriate rejected before accepting that damage to a protected species or its habitat is inevitable. A licence is required when there is no alternative to proposed work that will result in an offence being committed. Licence application forms are available for downloading from the Statutory Nature Conservation Agencies' (SNCOs) web sites.

Licences will now be issued to the organisation, owner or tenant responsible for the trees and for ensuring that the operations meet the conditions of the licence rather than, as in the past, a consultant ecologist. Licensing Authorities now have the powers to enter land and check compliance with the licence. They may also visit a site before a licence is issued to check details given on the application form.

Further, more detailed information, including recommended good practice, is available from the web sites of Defra, Forestry Commission and SNCOs. In particular there is an informative list of questions and answers on the

Site Offices

3.05 The site offices can be located with the RPA provided that the ground remains undisturbed and the buildings are placed on suitable supports. Welfare facilities and storage compound are to be located adjacent, outside the RPA. There is no conflict with retained trees due to their location.

Communication

3.06 The implementation of the above methods requires communication between all parties. An arboricultural supervisor shall visit the site at regular intervals approximately monthly and more particularly during critical development operations:

- Start and conclusion of Tree Works – whole site
- Erection of fencing – whole site
- Installation of inert fill – Plots 26 – 30
- Installation of 'no-dig' surfacing – Plots 1 – 5, 26 – 30, car parking spaces 19 – 28.

Installation of Inert Fill – Plots 26 - 30

3.07 The ground levels in front of Plots 26 – 30 require to be filled to create a level area to install car parking. The ground is locally steep. This is achievable by using inert material such as washed building rubble. Whilst this feature appears to be within the RPA of trees 1228 – 1232 an assessment of tree age shows that 1232 a poplar to be removed, predated the other nearby trees resulting in restricted root development of the other trees. Therefore, the use of clean inert fill material and porous paving will allow adequate diffusion of gasses and water allowing the retained trees to be integrated into the development. Filling, from outside the RPA, by tipping loads adjacent to the area and then pushing them into the depression to the required level.

Installation of 'no-dig' surfacing – Plots 1 – 5, 26 – 30, car parking spaces 19 – 28.

3.08 New surfacing is potentially damaging to trees because it may require changes to existing ground levels resulting in localised soil structure degradation and/or disrupt the efficient exchange of water and gases in and out of the soil. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in RPAs. Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

4.0 CONCLUSIONS

4.01 The details contained within this document and the attached plans adequately protect the trees at the site.

I. R. Murat *M.Sc., F. Arbor. A. CEnv*
Director & Registered Consultant
July 2010

Main Activity/Area of Work

The works will be within the site boundaries.

Drawing/Specification References

2307_02.

Barriers/Fences/Warning Signs

A.C.S. Consulting has marked the limits of all tree protection zones on **Plan No.2307_02.** The following fencing is to be erected after the tree works have been completed and before any top soil stripping/demolition/hard surface removal: Heras fencing supported by a braced metal frame. The fence panels shall butt together and be fixed by two clamps. Each panel will be supported by a 45° section of scaffold tube from the top of the fence panel. The base will be fixed to two sections of 1000 mm long scaffold tube driven at least 500 mm into the ground.

Site Office/Storage Compound

The site office and storage compound shall not be located within the protection zones detailed on Plan 2307_02.

The following work must be accomplished before any demolition or site-clearing activity occurs within 10 metres of trees. A flow chart at page 7 details the sequence of events.

1.1) The principal contractor is required to liaise with A.C.S. Consulting (the Arboricultural Consultant) throughout the project which include additional site visits. The critical operations requiring liaison are as follows:

- Start and conclusion of Tree Works – whole site
- Erection of fencing – whole site
- Installation of inert fill – Plots 26 – 30
- Installation of 'no-dig' surfacing – Plots 1 – 5, 26 – 30, car parking spaces 19 – 28.

1.2) The demolition/site clearance contractor is required to submit details, prior to beginning work, of all procedures, access and haul routes, storage and tree protection measures in the form of a Method Statement to the Engineer/ACS, with time for the Engineer/ACS to review and consider before the work starts on site.

Tree Felling – Plans 2307_02

2) Trees: 1222, 1223, 1225, 1226, 1227, 1229, 1232, 1234, 1236, 1237, 1238, 1239, 1241, 1242, 1243, 1244 and 1246. Tree(s) to be removed that have branches extending into the canopies of trees to remain must be removed by qualified tree contractors. Stumps for all trees are to be removed by grinding to a depth of at least 200 mm below the ground level.

3) Any brush clearing required within a tree protection zone shall be accomplished with hand-operated equipment.

Tree Pruning

4) None at present.

Tree Work General

5) Trees to be removed shall be felled so as to fall away from tree protection zones and to avoid pulling and breaking of roots of trees to remain. If roots are entwined, the Consultant may first require the major woody root mass severing before extracting the trees. This may be accomplished by cutting through the roots by hand, with a vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment.

6) All felled brush and trees shall be removed from the tree protection zone either by hand or with equipment sitting outside the tree protection zone. Extraction shall occur by lifting the material out or by 'skidding' it across the ground. Any damage to trees due to demolition activities shall be reported to A.C.S. Consulting **within one hour** so that

remedial action can be taken. The principal contractor shall also notify the Engineer of any damage to the trees.

Temporary Working Surfaces

7) The ground is to be covered in a suitable geo-textile as described in BS 5837:2005. The voids are to be filled with sharp sand or washed road stone to allow access.

Hard surfaces

8) Consultant may monitor any grading, construction, demolition or other work that is expected to encounter tree roots. The soil is to be removed using a 'super sonic' soil pick. The exposed roots are to be severed at a root hair or junction with a sharp implement – preferably a pruning knife. The severed roots will be kept moist with Hessian sacking.

9) Spoil from trenches, basements or other excavations shall not be place within the tree protection zone. Details of site storage of demolition and building materials are to be agreed with the A.C.S. Consulting.

Installation of Inert Fill – Plots 26 - 30

10) The ground levels in front of Plots 26 – 30 require to be filled to create a level area to install car parking. The ground is locally steep. This is achievable by using inert material such as washed building rubble. Whilst this feature appears to be within the RPA of trees 1228 – 1232 an assessment of tree age shows that 1232 a poplar to be removed, predated the other nearby trees resulting in restricted root development of the other trees. Therefore, the use of clean inert fill material and porous paving will allow adequate diffusion of gasses and water allowing the retained trees to be integrated into the development. Filling, from outside the RPA, by tipping loads adjacent to the area and then pushing them into the depression to the required level.

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NO DIG Car park – Plans 2307_02 Plots 1 – 5, 26 – 30, car parking spaces 19 – 28.

11) New surfacing is potentially damaging to trees because it may require changes to existing ground levels resulting in localised soil structure degradation and/or disrupt the efficient exchange of water and gases in and out of the soil. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in RPAs. Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

- There is a requirement to place a surface close to and over tree roots at the above site to allow vehicles to park. The method statement is based on APN1 Driveways Close to Trees, suitably modified for local conditions.

- The contractor is required to meet with the A.C.S. Consulting at the site prior to beginning work to review all procedures, access and haul routes, storage and tree protection measures. Tree contractors and not construction personnel must perform additional tree pruning required for clearance during construction

- The sketch appended to this spec should be referred to. The product manufacturer, Geosynthetics, has a product helpline – 01455 617139

- The protective fence is to be adjusted to allow working. Major protrusions: Rocks, stumps to be removed under supervision. The turf (where laid) to a depth of 50 mm is to be removed. Removing turf at this depth will have little implication for trees as tree roots are very seldom found in the turf layer. Major hollows: All significant hollows are to be filled with 6F2 regulation capping layer (course graded) to give a level surface. Terram

1000 grade shall be laid over the regulation capping layer, Cellweb shall be laid directly on the site. The Cellweb shall be fixed by means of long steel pins at 1 – 1.5 metre centres. Grade of geogrid is subject to final design.

- Gullies can be inserted, by cutting the Cellweb and re-fixing using the fixing kit and adhereing to the instructions supplied by Geosynthetics. The geogrid may be placed on the sub-grade to the road centre line or transversely. Timber boards shall be placed along the sides of the area, overlapping the geogrid. The boards shall be fixed in place with timber pegs.

- A WASHED, graded aggregate is considered a suitable sub-base. Type 1 or Type 2 is recommended as described in Clauses 803 and 804 in the DoT Specification for Highway Works.

- Lorry loads of the sub-base material shall be tipped into stockpiles adjacent to the Tree Protection Area and NOT directly onto the Cellweb. The sub-base shall be spread by suitable mechanical plant with due regard for the tree canopies. The sub-base shall be spread in such a manner that the material cascades onto the geogrids. The material will be spread in such a fashion that the material advances across the grids rather than along. The material shall be spread in layers of 100 mm thickness to the required depth.

- No compaction of the unbound sub-base is to take place.

- The final layer shall be placed over the stone. This may consist of dry laid block sets or tarmac. At all times the operation will be conducted from the roadside.

- Any damage to trees due to construction activities shall be reported to A.C.S Consulting **within one hour** so that remedial action can be taken.

12) Construction vehicles and storage areas must remain **outside** the Tree Protection Area at all times.

13) No materials, equipment, spoil or washout water may be deposited, stored or parked within the Tree Protection Area.

14) Tree contractors and not construction personnel must perform additional tree pruning required for clearance during construction.

15) If injury should occur to any tree during construction the Consultant should evaluate it as soon as possible.

Services

16) All services shall be installed in accordance with NJUG 10. Exposed roots shall be covered in Hessian sacking and kept moist throughout the construction operations until they can be covered in high-grade topsoil.

17) Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

18) The Contractor shall report to A.C.S. that the works have been completed satisfactory. A.C.S. will be given the opportunity to inspect the works.

The contact details of A.C.S. Consulting are:

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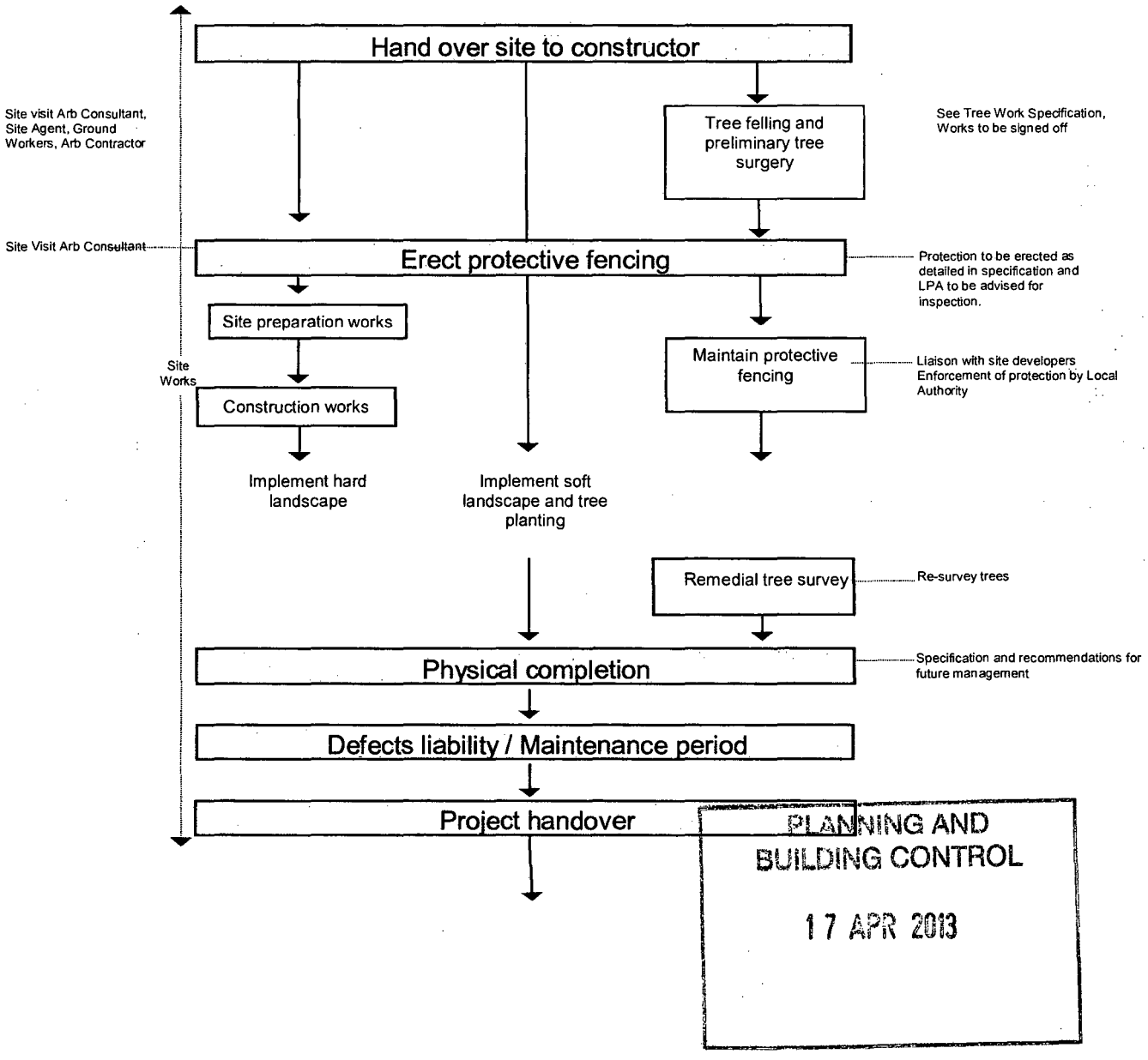
A.C.S. are acting as Agent to Watkin Jones Homes and as such cannot instruct Sub-Contractors to undertake additional work or delete work from the Contract between the Client/Principal Contractor.

Protection of Trees on Development Sites



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