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Arboricultural Implications Assessment

27th April 2021

Land off Balmoral Way, Holbeach

A development of 73 residential dwellings

Client: Ashwood Homes

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SUMMARY

This report, read in conjunction with drawing 4253.Balmoral.Ashwood.AIP, describes the arboricultural implications of the proposed development.

It is my opinion that the proposed development scheme could provide dwellings in the approximate locations without any significant conflict.

The effects of the retained trees on the liveability in the indicative dwellings is acceptable.

Specifically:

- The proposed development will require the removal of some hedging, some partially-successful recent plantation and some natural generation. None of these plants have any significant impact on the local landscape.
- Protection of the retained trees has been detailed in an Arboricultural Method Statement which accompanied this application.

In the process of development, I also consider that there is an opportunity to replace trees and provide additional planting that would provide a net gain in tree cover, providing a positive overall benefit to the locality in terms of landscape quality and value.

Signed:



A M Belson
Dip.Arb.RFS, M.Arbor.A, Tech.Cert.Arbor.A

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1 INTRODUCTION

1.1 Instructions

1.1.1 This assessment was commissioned by the Client because trees are a material consideration and this report is required to support the Client's planning application.

1.1.2 The first instruction was to survey the trees on or adjoining the site in line with the recommendations of BS5837: 2012 and to provide a plan of arboricultural constraints in the first instance to inform design. This survey took place on 11th March 2021 and this data has been used to inform the layout of the site.

1.1.3 The results of the survey are found at Appendix B.

1.1.4 The second instruction was to draw a plan showing the tree constraints overlaid to the planning drawing so that the implications could be assessed, and to write an Arboricultural Implications Assessment report for the indicative proposed development.

1.2 Source documents

1.2.1 The drawings that have been used to inform this assessment are:

- Topographical survey: 270121
- Proposed planning layout: 1280-003 Rev C

Note: This assessment is specific to the drawings listed above and cannot be generalised.

1.3 Assessment elements

1.3.1 This assessment provides the elements recommended by BS5837: 2012 'Trees in relation to design, demolition and construction':

- Consideration of any statutory protection affecting the site. (BS5837 section 5.2.3) (this document, section 2.4)
- Evidence of a tree survey conducted to BS5837:2012, including tree categorization (BS5837 section 4.4 and 4.5) (see Appendix A for explanatory notes on method, and Appendix B for the Survey Data Table)
- An impact assessment of the relationship between the trees and the proposed layout (see section 4; see also Appendix C for explanatory notes). Including:
  - A discussion of proposed tree losses (BS5837 section 5.2.3 and 5.4.3)
  - The potential impact of RPA incursions (BS5837 section 5.3.1 and 5.3.2)
  - Factors which may affect the reasonable enjoyment of the proposed structures such as shading, screening and privacy (BS5837 section 5.3.4)
  - Future growth and/or pressures for removal or pruning (BS5837 section 5.3.4)
  - Factors that may affect foundation design (BS5837 Annex A)
  - Foreseeable issues with the planned demolition/construction of the proposed layout such as working space and access. (BS5837 section 5.4.2)
- An Arboricultural Implications Plan showing the trees and their RPAs overlaid to the proposed layout, indicating trees for retention and removal. (BS5837 section 4.5 and 4.6) (provided with this report, see also Appendix D)

2 THE SITE

2.1 Setting

2.1.1 The trees inspected are growing both within the site and on neighbouring land.

2.1.2 The site is an area of land to the south of the A17 and to the north of recent development in Holbeach.

2.1.3 The land is generally level but there is a large bund of soil to the northern boundary of the western side of the land, which contains several trees and shrubs.

2.2 Soil and Geology

2.2.1 With reference to Figure 4.3, Volume 1 'Tree Root Damage to Buildings' (P G Biddle), some soils can have shrinkable characteristics and this can affect the depth or type of foundations needed for both current and future planting.

2.2.2 The British Geological Survey of England and Wales identifies the bedrock geology at this location as Ampthill Clay Formation - Mudstone with superficial deposits of Tidal Flat Deposits - Clay and silt.

2.2.3 Clay soils are easily damaged through compaction. This information has been used to inform an Arboricultural Method Statement, provided with this application.

2.3 Statutory protection

2.3.1 This site does not lie within a Conservation Area.

2.3.2 None of the trees surveyed are included in a Tree Preservation Order.

2.3.3 Appropriate advice regarding the protection of wildlife and other ecological matters must be sought before any tree work proceeds on site.

3 SURVEY FINDINGS

3.1 Overview

3.1.1 The trees were inspected in line with the recommendations of BS5837: 2012 on 11th March 2021.

3.1.2 The planting on the soil bund to the northwestern quarter of the site is the most distinctive landscape feature.

3.1.3 There are a number of young trees growing in and adjacent to the northern ditch and these are becoming visible to users of the A17 but it is not known if they can be retained due to the priority given to dyke maintenance (see 3.2.2 below)

3.2 Specific notes

3.2.1 The full table of survey data can be found in Appendix B.

3.2.2 Group F is comprised of mostly natural generation of Alder, Goat Willow, Balsam Poplar, and White Willow. The position of these trees would make dyke maintenance problematic and so I recommend that they be removed.

4 ANALYSIS OF THE INDICATIVE PROPOSAL

4.1 Vehicular Access

4.1.1 Highway access is to be gained via the existing road network to the south of the site. This has no arboricultural implications.

4.2 Layout

4.2.1 The implications of the proposed development are as-per the following table:

Tree reference	Species	Grade	Implications
Group C	Various shrubs	C2	The layout near Plots 14 – 18, 36 and the pumping station will implicate the loss of some of the plants on the southern edge of the bund (which may need to be slightly re-modelled).
Group D	Various trees	B2	The layout near pumping station will implicate the loss of some of the plants on the eastern edge of the bund (which may need to be slightly re-modelled).
Group F	Willow and Poplar	C2	If retained, the trees will need to be pruned in order to install the acoustic fence.
Group J	Elder, Wild Cherry and Hawthorn	C2	The layout of Plots 61 – 73 directly implicates the removal of all vegetation in this area.
Group K	Privet	C2	The layout of Plots 1-6 directly implicates the loss of this redundant landscape feature.

4.2.2 None of this tree/plant removal is of any consequence to the amenity of the area and can easily be replaced within any landscaping scheme.

4.3 Engineering and Design

4.3.1 Subject to the soil type found on site and an engineer's appraisal, the trees (whether retained or removed) may influence foundation design.

4.4 Services

4.4.1 Services are not shown on the drawing but there appears to be room to accommodate all services and soakaways without affecting any trees.

4.5 Shading, screening and privacy

4.5.1 None of the dwellings proposed would be affected by shade cast by trees.

4.6 Future growth and pressure to prune

4.6.1 The trees on the bund in Group D have the potential to grow larger. Not all the species present will be large trees. I consider that there is adequate space for future growth with the layout proposed.

5 ASSESSMENT CONCLUSIONS

5.1 Tree work

5.1.1 The proposed development will result in some tree loss; however, the quality and condition of most of the trees means their value is restricted to site and one group is recommended for removal to facilitate dyke maintenance in the long-term. These trees are indicated on the Arboricultural Implications Plan (see Appendix D) by way of a red dashed line.

5.1.2 The following trees are recommended for removal, regardless of any layout:

REF.	SPECIES
Group F	Alder, Goat Willow, Balsam Poplar, White Willow

5.1.3 In addition, the following trees are implicated for removal as a result of the proposed development:

REF.	SPECIES
Group C (part)	Various
Group D (part)	Various
Group J	Elder, Cherry, Hawthorn
Group K	Privet

5.1.4 The following groups should be cut as hedges:

- Group A Privet (trim site-side to boundary)
- Group B Privet (trim site-side to boundary)
- Group H Cherry Laurel (trim site-side to boundary)

5.2 Design

5.2.1 The current indicative layout has been achieved through an informed design process. It appears possible to provide dwellings in the approximate locations without any significant conflict.

5.3 Construction

5.3.1 There is ample space for the receipt, storage and handling of materials and for the movement of plant and machinery. However, in order to avoid accidental damage, a suitable tree protection scheme must be implemented before development begins.

5.3.2 Full details of a tree protection methodology have been provided in an Arboricultural Method Statement and Tree Protection Plan accompanying this application.

5.4 Protection

5.4.1 Barriers and ground protection will be required before any work commences on site.

5.4.2 The order in which the works are implemented will need to be carefully considered in order to provide the most successful tree protection scheme.

5.4.3 A high standard of site management will be essential to avoid damage to retained trees.

5.5 Replacement

5.5.1 The detail of the landscape scheme and how it will be maintained can be secured by Condition of any Consent.

Andrew Belson
Arboricultural Consultant

Appendices

Appendix A – Tree Survey Explanatory Notes

Identification

All significant trees within and adjoining the site were surveyed. Groups of trees were identified and designated a letter. Reference to the trees' locations can be made using the plans appended to this report.

Limitations

The tree survey was carried out for the purpose of informing the planning process. Relevant structural defects and aspects of tree condition are noted in the tree survey table in Appendix B; however, a full hazard assessment has not been carried out.

As trees and shrubs are living organisms whose health and condition can change rapidly, conclusions and recommendations are only valid for one year. The health, condition and safety of trees should be checked regularly, preferably annually.

It may have been necessary to estimate some measurements when assessing trees on neighbouring land. This will not generally affect the conclusions of this report.

No invasive investigations were carried out to assess the internal condition of the trees. Should this be required, it will be highlighted in the report.

The soil was not examined and no soil samples were taken. Should soil analysis be indicated, this will be recommended in the report.

Assessment

The trees were assessed in accordance with British Standard 5837.

Appendix B – Tree Survey Data

Key to Survey

Height	Measured with a clinometer or estimated where not considered critical (m)	
Crown spread	At cardinal points (m)	
Remaining Contribution	Estimated number of years the tree may make a safe useful contribution	
Main Stem Diameter	Measured at 1.5 metres above ground or in accordance BS5837 Annex C and D	
Condition	Good:	No visible defects seen
	Reasonable:	Some defects seen but none that contribute significantly to the overall health and safety of the tree
	Poor:	Defects or health issues that contribute significantly to the overall health and safety of the tree
Age Class	Y	= Young (Less than 1/3 of normal expected life)
	SM	= Semi-mature (1/3 – 2/3 of normal expected life)
	M	= Mature
	OM	= Over-mature or in decline
	V	= Veteran
Root Protection Area (Radius)	Distance in metres from centre of tree to achieve a circular Root Protection Area	
Root Protection Area (Area)	Root Protection Area in square metres.	
Recommendations	Recommendations based on the findings of the survey. These are intended to help guide the site layout; appropriate tree retention; tree management and generally inform site design. These are irrespective of proposed site layout and DO NOT form part of the Arboricultural Implications Assessment.	

Condensed Notes from Table 1 BS5837

U	Trees in poor condition offering less than 10 years safe useful life due to irreversible decline; containing serious defects; infected with pathogens significant to health of other trees nearby; or dead.
A1	Trees of high quality and value offering at least 40 years' contribution; particularly good example of species
A2	Trees of high quality and value; offering at least 40 years' contribution; a group or woodland or particular visual importance
A3	Trees of high quality and value; offering at least 40 years' contribution with conservation, historical or other value
B1	Trees of moderate value; offering at least 20 years' contribution; slightly impaired condition but remediable
B2	Trees of moderate value; offering at least 20 years' contribution; distinct landscape feature as a group or woodland.
B3	Trees of moderate value; offering at least 20 years' contribution; trees with clearly identifiable conservation or other cultural benefits.
C1	Trees of low quality and value; at least 10 years' contribution; unremarkable trees of very limited merit
C2	Trees of low quality and value; at least 10 years' contribution; groups or woodlands without significant landscape value, trees of low or temporary landscape value
C3	Trees of low quality and value; at least 10 years' contribution; trees with limited conservation or other value

ref.	Species	Age Class	Ø m/s (mm)	Height (m)	Lower crown height (m)	Ultimate height (m)	Grade	Crown Spread N (m)	Crown Spread S (m)	Crown Spread E (m)	Crown Spread W (m)	RPA radius (m)	RPA (m^2)	Remaining Contribution (yrs)	Condition	Comments	Recommendations made at time of survey, irrespective of any layout
Group A	Privet	M	200	3.5	0	3.5	C2	1.5	1.5	1.5	1.5	2.4	18.1	40+	Reasonable	Multi-stemmed form. No visible defects seen. Regularly maintained at present dimensions.	Could be retained. Cut as a hedge.
Group B	Privet	M	200	2	0	2	C2	1	1	1	1	2.4	18.1	40+	Reasonable	Multi-stemmed form. No visible defects seen. Regularly maintained at present dimensions.	Could be retained. Cut as a hedge.
Group C	Hawthorn, Dogwood, Cherry Laurel, Goat Willow, Rose, Privet	Y	150	8	0	14	C2	1.5	1.5	1.5	1.5	1.8	10.18	40+	Good	Shrubby growth on southern side of bund. Planting thin in places	Could be retained. No work required.

ref.	Species	Age Class	Ø m/s (mm)	Height (m)	Lower crown height (m)	Ultimate height (m)	Grade	Crown Spread N (m)	Crown Spread S (m)	Crown Spread E (m)	Crown Spread W (m)	RPA radius (m)	RPA (m^2)	Remaining Contribution (yrs)	Condition	Comments	Recommendations made at time of survey, irrespective of any layout
Group D	Alder, Ash, Silver Birch, Sycamore, Goat Willow, Purple Leaf Plum	Y	350	14	0	18	B2	5	5	5	5	4.2	55.42	40+	Good	Establishing trees on top and northern side of bund. Shrub understorey	Could be retained. No work required.
Group E	Crack Willow	Y	750	16	0	21	B2	8	8	8	8	9	254.5	20+	Reasonable	Multi-stemmed form. Trees on top of bund.	Could be retained. No work required.
Group F	Alder, Goat Willow, Balsam Poplar, White Willow	Y	300	10	0	18	C2	2.5	2.5	2.5	2.5	3.6	40.72	40+	Reasonable	Unlikely to be considered suitable for retention. Mostly natural generation in dyke	Fell and replace, however, could be retained if dyke maintenance is not required
Group G	Cypress	SM	250	3	0.5	3	C2	1.2	1.2	1.2	1.2	3	28.28	40+	Reasonable	Recently reduced to present height	Could be retained.

ref.	Species	Age Class	Ø m/s (mm)	Height (m)	Lower crown height (m)	Ultimate height (m)	Grade	Crown Spread N (m)	Crown Spread S (m)	Crown Spread E (m)	Crown Spread W (m)	RPA radius (m)	RPA (m^2)	Remaining Contribution (yrs)	Condition	Comments	Recommendations made at time of survey, irrespective of any layout
Group H	Cherry Laurel	Y	100	1.8	0	1.8	C2	0.6	0.6	0.6	0.6	1.2	4.52	40+	Reasonable	No visible defects seen. Regularly maintained at present dimensions.	Could be retained. Cut as a hedge.
Group J	Elder, Wild Cherry, Hawthorn	M	300	10	0	16	C2	3	3	3	3	3.6	40.72	40+	Reasonable	Tree on neighbouring property therefore not closely inspected. Multi-stemmed form.	No work required.
Group K	Privet	M	200	4	0	4	C2	2	1	2	1	2.4	18.1	40+	Reasonable	Multi-stemmed form. No visible defects seen.	Could be retained. No work required.

Appendix C – Assessing Constraints

General

It is desirable to retain trees as they add maturity and structure to a site; provide shade and amenity value; screening or acoustic barrier.

In general, Grade 'A' and 'B' trees should be retained, especially if they offer a visual amenity to the wider community. It may be desirable to retain Grade 'C' trees where they can continue to offer a presence until they are replaced but they should not generally prevent an otherwise satisfactory layout from being achieved.

Root system

Construction can impose enormous strain on trees through damage to, or loss of root mass. The root system is the part of the tree most susceptible to damage during construction Any retained trees could be at risk of root damage through:

- Demolition and site clearance
- Excavation causing root severance
- Siting of services and excavation causing root severance
- Access for plant and vehicles which may cause compaction of the root zone leading to root death through asphyxiation
- Storage of materials or spillage of damaging substances such as fuel oil, petrol or lime, which can kill roots.
- The raising of soil levels which can kill roots through asphyxiation
- The lowering of soil levels which removes root mass, including many of the fine water collecting roots and beneficial humus layer

The symptoms that can arise from root damage as identified above can take several years to become evident.

The Arboricultural Implications Plan (see Appendix D) shows the Root Protection Area (RPA) as a magenta circle or polygon around each tree or group of trees. This is the area where if the trees are retained, ideally no excavation should take place; the soil level should not be raised or lowered; no materials should be stacked; there must be no contamination and no services should be routed. However, trees can be tolerant of some disturbance or root loss and recent advances in construction techniques can avoid causing significant damage to roots. This will depend on a number of factors including tree species and site conditions along with the type of construction methods available to the developer.

The Root Protection Area (RPA) required for each tree may affect the layout of road, footpath, housing services and other built structures. It may be possible to pave a proportion of the RPA.

Above Ground

Construction can threaten the aerial parts of the tree through physical damage by contact from various plant and delivery vehicles; and through the lighting of fires.

The height of the lower crown above ground is shown in the Tree Survey Table (Appendix B). Lifting (or raising) the crown to a set height above ground in order to allow access for plant and machinery or to erect fences for example would be an acceptable arboricultural practice. Crown spread may in itself be a constraint where it is greater than the RPA radius.

A development may affect the way wind passes the retained trees, by raising its speed or direction. This may leave weakened or newly exposed trees liable to wind throw.

Suitability and future growth

Some trees are not suitable for retention due to brittle wood, poisonous berries or leaves, prickles and thorns. Leaves falling from any of the retained trees may block gutters of nearby buildings. Fruit, blossom and leaves can become a potential slip hazard.

Whilst trees may be small at the time of survey, future growth may be considerable, both in height and radial crown spread. Very large trees worry some people because they perceive the trees to be imposing and dangerous. This is typically unfounded.

Shade

Building within the shade area can be acceptable where internal layout, fenestration or proposed use of buildings means they are not adversely affected by a lack of daylight received. Some shading may be welcomed in the summer when solar gain can make room temperatures uncomfortable.

The shade footprint that may be cast by the trees has been shown as a grey hatch on the Arboricultural Implications Plan (see Appendix D). The shade area is based on a solar inclination of 45 degrees in line with the median suggested by BS5837: 2012 that covers the main daylight hours. This simplifies the actual shade area that may affect the site but it is considered to be a good representation of the area in question.

It should also be noted that deciduous trees only cast shade for seven or eight months of the year, depending on species.

Engineering and Design

The species and height of trees (both retained or removed) may also affect the type and depth of foundations used.

The British Standard 5837: 2012 'Trees in Relation to Design, Demolition and Construction' gives more detailed guidance.

Appendix D – Arboricultural Implications Plan

A full-sized version of the Arboricultural Implications Plan (Filename: 4253.Balmoral.Ashwood.AIP) has been provided with this file.

