Barrow Road Barton-upon-Humber – BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement

Strata

August 2023

Ecus Ltd

Report to: **Strata**
Quay Point
Lakeside
Doncaster
DN4 5PL

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Originated By: [redacted]
Dave Farmer FdSc MArborA
Senior Arboricultural Consultant Date: January 2023

Updated By: [redacted]
Dave Farmer FdSc MArborA
Senior Arboricultural Consultant Date: August 2023

Approved By: [redacted]
Elizabeth Anderson BSc (Hons)
Arboricultural Consultant Date: August 2023

Prepared by:
Brook Holt, 3 Blackburn Road, Sheffield, S61 2DW
01142 669 292

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Contents

Executive Summary

On behalf of Strata (the Client), Ecus Limited (Ecus) has carried out a tree survey to BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* in August 2022 at Barrow Road, Barton-upon-Humber. This survey has formed the basis for an assessment of the impacts that development proposals may have on the existing tree cover, and of any methodologies that will need to be adopted to protect retained trees during development.

The survey recorded all significant trees within the site and those which may be affected by any development proposed within the site boundary, recording a number of parameters including species, crown spread and Root Protection Area (RPA).

The RPA of any given tree is calculated in accordance with BS 5837:2012 and is generally a circular plot centred on its stem. This area around each tree should not be disturbed by excavation, compaction, contamination or other related demolition and construction activities. Minor encroachment into the RPA may be possible if specific methodologies are put in place that reduce the likelihood of the tree being negatively impacted.

The survey recorded 6 individual trees, 2 tree groups and 15 hedgerows. The majority of the vegetation included in the survey consisted of hedgerows or tree groups that were likely to be the remnants of previously managed hedgerows. The individual trees were generally small and of limited value.

No trees within the site boundary are protected by a Tree Preservation Order (TPO) and the site is not located within a Conservation Area.

An online search using the Multi Agency Geographical Information for the Countryside (MAGIC) website for statutory conservation sites was undertaken (where appropriate) to determine the presence of Ancient Woodland within 15.0 m of the site boundary.

The Client proposes the construction of a residential development with associated access, landscaping and facilities. This will require the removal of 2 trees, 1 tree group, 1 hedgerow and sections within 1 further hedgerow, and may also have an impact on the roots, stems and canopies of retained trees unless suitable protection measures are put in place.

The design proposals have wherever possible ensured the retention of trees, woodland and hedgerows, in line with Policy LC12 from the 2003 Local Plan (Updated 2007).

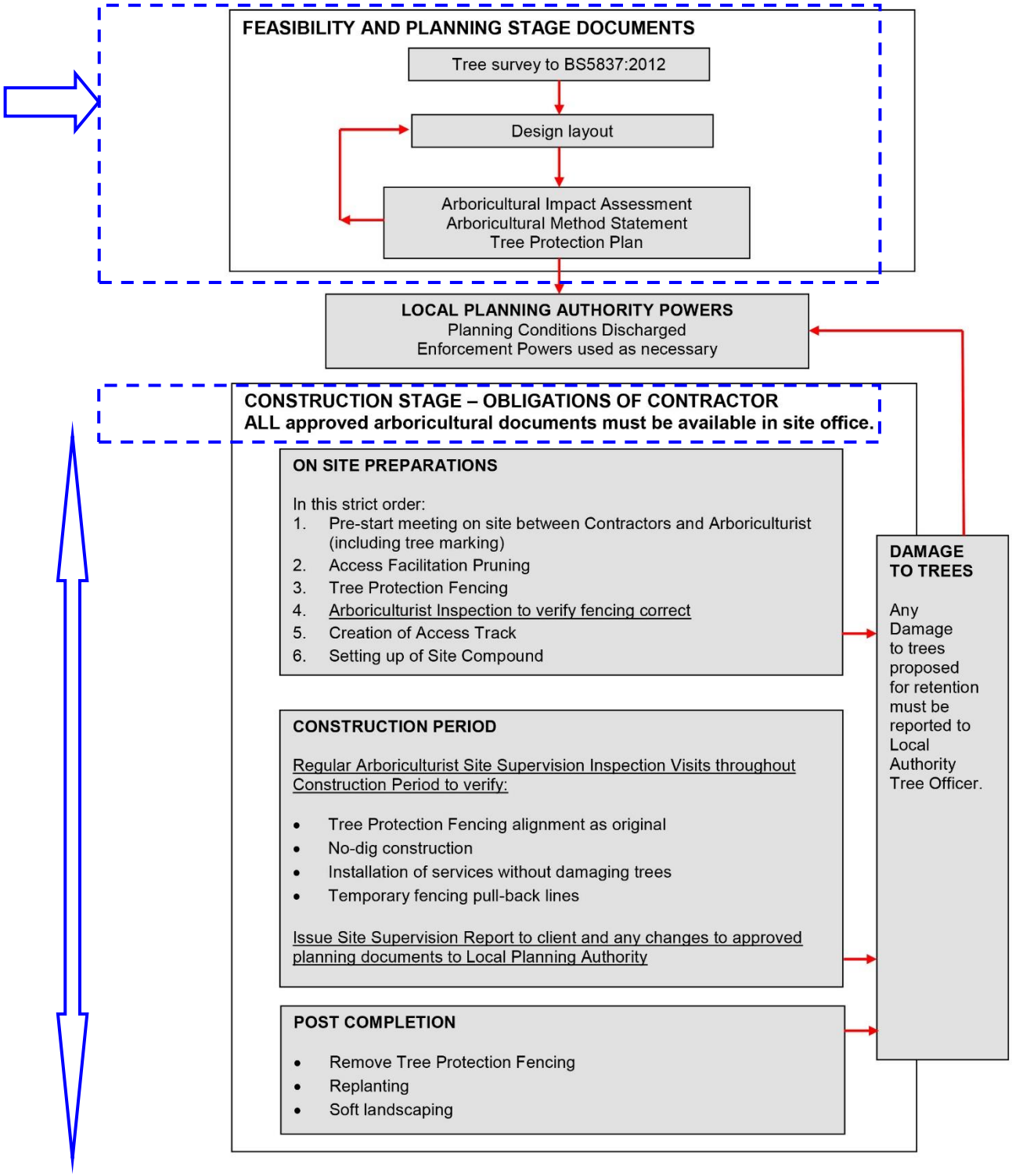
This report details the potential arboricultural impacts of development at the site and offers a range of protection measures and construction methodologies which should be adopted. These measures aim to prevent accidental damage and other adverse effects on the health of retained trees.

The report also makes recommendations for any measures to mitigate or compensate for the loss of trees within the site and the likely impact on the site and the wider local landscape.

1. Introduction

1.1 Context of this Report in the Planning System

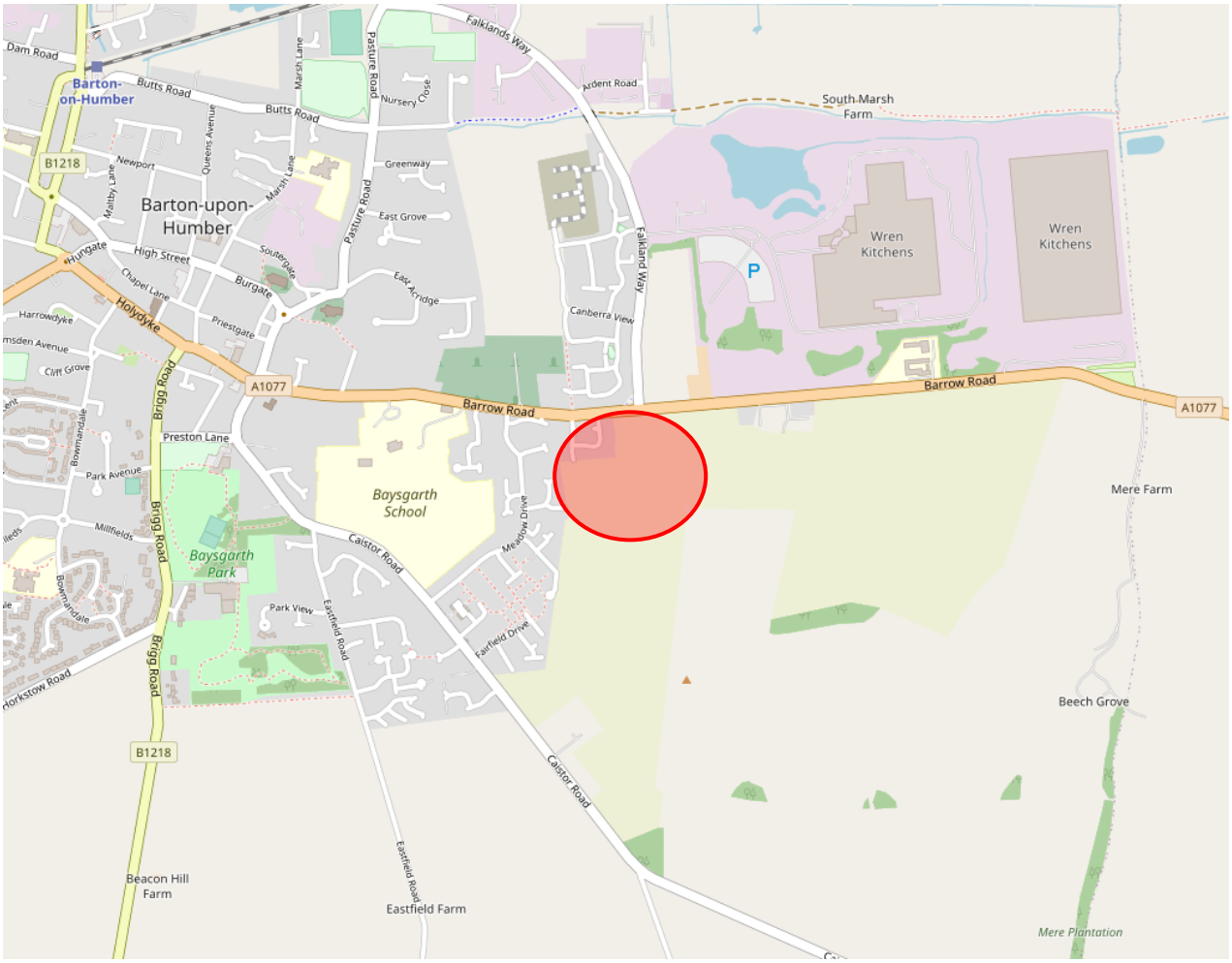
Figure 1: The Design and Construction Process and Tree Care



1.2 Location

1.2.1 Ecus Limited has been commissioned by the Client to undertake a tree survey of the site at Barrow Road, Barton-upon-Humber, DN18 6EY, Ordnance Survey UK Grid Reference TA042216, and prepare the findings in a report. The site location is shown in Figure 2.

Figure 2: Location Map



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1.3 Tree Designations

1.3.1 The information available on the North Lincolnshire Council website (www.northlincs.gov.uk/planning-and-environment/trees-and-hedges) has confirmed that the site is not located within a conservation area and no trees included in the survey are protected by a TPO.

1.3.2 The permission of the local planning authority must be sought before any works are carried out to protected trees. Potentially unlimited fines can be imposed for illegally carrying out any works to protected trees.

1.3.3 Reference to the Multi Agency Geographical Information for the Countryside (MAGIC) website indicates that no ancient woodland is present within a 15.0 m buffer of the site.

1.4 Protected Species

Bats

1.4.1 Mature trees can often contain cavities or hollows which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) are protected under *The Conservation of Habitats and Species Regulations* 2017 (Habitats Regulations 2017). They also receive legal protection under the *Wildlife and Countryside Act* (WCA) 1981. Consequently, causing damage to a bat roost constitutes an offence.

1.4.2 Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

1.4.3 Trees and hedgerows can provide habitat for nesting birds which are protected under the *Wildlife and Countryside Act* (WCA) 1981. Some species are further protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

1.4.4 As the trees at the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

1.4.5 If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have fully fledged.

2. Tree Survey Methodology

2.1 Site survey

2.1.1 Ecus have undertaken the tree survey in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*, to provide detailed and independent arboricultural advice in the context of potential development. The survey was a ground based visual inspection carried out by a suitably qualified arboriculturist. No trees were tagged as part of the survey.

2.1.2 The tree inspection was carried out in August 2022 by Dave Farmer FdSc MArborA, Senior Arboricultural Consultant, when the deciduous trees were generally in leaf.

2.1.3 The weather on the day of the survey was dry and clear. This allowed for a thorough inspection of all trees included in the survey.

2.1.4 The survey recorded all trees with a stem diameter of 75 mm or more at a height of 1.5 m above ground level within the site boundary. Any significant trees outside the boundary which could be significantly affected by the future development of the site were also recorded.

2.1.2 The following characteristics were recorded:

- Species
- Stem diameter at 1.5 m above ground level (mm)
- Estimated height (m)
- Approximate crown spread (m) in North, East, South and West directions
- Estimate of the number of years that the tree is likely to remain suitable for retention
- Age class
- Condition category in accordance with BS 5837:2012. The categories are defined as:
    - Category U = Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years
    - Category A = Trees of high quality with an estimated remaining life expectancy of at least 40 years
    - Category B = Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
    - 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
- Value subcategories where appropriate in accordance with BS 5837:2012. These are defined as:
    - 1 = Mainly arboricultural qualities
    - 2 = Mainly landscape qualities
    - 3 = Mainly cultural values, including conservation
- General notes about physiological and structural condition and any management recommendations

2.1.5 All survey data has been based on a topographical survey where possible, supplied by the client. Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees and hedgerows have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of

tree locations through a topographical survey of the site is recommended to ensure future design accuracy.

2.1.6 Some measurements for trees with limited accessibility may have been estimated. This is highlighted with a hash (#) symbol in the Tree Survey Schedule at Appendix 1.

2.1.7 Where trees formed a contiguous canopy they may have been grouped, in line with the guidance of BS 5837:2012. If densely wooded areas are not expected to be directly affected by development proposals only the significant trees at the woodland perimeter will have been surveyed.

2.1.8 Trees are living organisms that change over time. A re-survey of all trees should be carried out if there have been any significant storm events or more than 12 months have passed since the survey was carried out.

2.2 Calculation of Root Protection Area (RPA)

2.2.1 The Root Protection Area (RPA) is calculated according to the formulae set out in BS 5837:2012. This is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority.

2.2.2 Due to the specific topography of the site and the presence of surrounding structures the RPA is likely to be a simplified representation of the actual morphology and disposition of tree roots. Any deviation in the shape of the RPA from the calculated circular shape will largely be based on conjecture and so should generally be avoided. However, where significant site features are present that could clearly influence the disposition of tree root growth (e.g. water courses, building foundations and retaining walls), the RPA may be amended to take these features into account.

3. Tree Survey Results

3.1 General Site Description

3.1.1 The site was an agricultural field located to the east of Barton-upon-Humber, a town and civil parish in North Lincolnshire. Further field areas were located to the east and south and there were residential properties to the north and west.

3.1.2 The trees and hedgerows at the site were exclusively located close to the boundaries, both within the site and in neighbouring properties. The majority of this vegetation consisted of managed hedgerows or tree groups that were likely to be the remnants of previous hedgerow features.

3.2 Results of Tree Survey

3.2.1 The Tree Survey Schedule at Appendix 1 details the results of the tree survey and includes any management recommendations. The schedule should be read in conjunction with the tree plans at Appendix 3 which show the location of each tree, group and hedgerow surveyed and the extent of their canopies and RPA.

3.2.2 6 individual trees, 2 tree groups and 15 hedgerows have been recorded during the survey. A summary of the tree survey findings is shown in Table 1.

Table 1: Summary of Tree Survey Findings

Category A	Category B	Category C	Category U
Trees: 0 Groups: 0 Hedgerows: 0	Trees: 0 Groups: 0 Hedgerows: 0	Trees: 6 Groups: 2 Hedgerows: 15	Trees: 0 Groups: 0 Hedgerows: 0

3.2.3 The majority of the individual trees included in the survey are of particularly low value, growing within the boundary hedgerow features.

3.2.4 The boundary hedgerows provide some limited arboricultural value and alongside the sparse tree cover provide reasonable screening between the site and surrounding areas.

4. Arboricultural Impact Assessment (AIA)

4.1 Introduction

4.1.1 A BS 5837:2012 Arboricultural Impact Assessment (AIA) has been carried out for all trees included in the survey. The AIA methodology evaluates the potential direct and indirect impacts the proposed development could have on the trees at the site. Where necessary mitigation measures are recommended.

4.1.2 BS 5837:2012 paragraph 5.4.2 states:

> *"The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil."*

4.2 Development Proposals

4.2.1 The client proposes the construction of a residential development with associated access, landscaping and facilities.

4.2.2 This AIA is based on the development layout provided by the Client (ref: 22-CL3-SEGB-BR-01-PL RevH dated August 2023).

4.3 Tree Retention and Removal

4.3.1 The development proposals indicate that 2 trees (T018 and T020), 1 tree group (G016), 1 hedgerow (H019) and sections of 1 further hedgerow (H017) within the site boundary will need to be removed to facilitate the new development, as they are situated in the footprint of new structures or their retention and protection throughout the development is not suitable.

4.3.2 The trees that need to be removed are detailed in the Tree Survey Schedule at Appendix 1 and located on the Tree Impacts Plan at Appendix 3. A summary of the required tree removals is shown in Table 2.

Table 2: Summary of Required Tree Removals

Trees to be Removed			Trees to be Retained		
Category A	**Category B**	**Category C**	**Category A**	**Category B**	**Category C**
Trees: 0	Trees: 0	Trees: 2	Trees: 0	Trees: 0	Trees: 4
Groups: 0	Groups: 0	Groups: 1	Groups: 0	Groups: 0	Groups: 1
Hedgerows: 0	Hedgerows: 0	Hedgerows: 1	Hedgerows: 0	Hedgerows: 0	Hedgerows: 14
Total: 0	**Total: 0**	**Total: 4**	**Total: 0**	**Total: 0**	**Total: 19**

4.3.3 Due to the limited number and particularly low value of the trees to be removed the removals will have no quantifiable negative arboricultural impact.

4.3.4 While there will be some particularly minor loss of amenity value from the removal of G016, H020 and sections within H017, this will not detract from the landscape value of the wider site. Any loss can be mitigated through the planting of suitable species throughout the site once construction is complete.

4.3.5 The planting of diverse tree species that are in keeping with the surrounding landscape character and tolerant of climate change can mitigate for the required removals and, in the longer term, increase the amenity value and ecosystem service benefits that the site's trees provide.

4.4 Tree Pruning

4.4.1 The pruning of trees should only be undertaken where essential, to prevent open wounds that can lead to bacterial or fungal infection. Pruning works should generally be undertaken during the winter months when the tree is dormant or during the summer months when the tree is fully active.

4.4.2 There will be a requirement to prune many of the hedgerows back to the site boundary to allow for the installation of tree protection fencing and property boundary fencing. This will allow for overgrown hedgerows to be brought back into a regime of regular formal management.

4.4.3 Pruning should be carried out by a suitably qualified and insured arboricultural contractor and in accordance with the recommendations of BS 3998:2010 *Tree work – Recommendations.*

4.5 Impacts from Demolition/Construction Operations

4.5.1 Where proposed operations encroach beneath the canopy or into the RPA of retained trees there is the potential for damage to occur.

4.5.2 Boundary fencing is proposed within the RPA of several boundary hedgerows and the individual tree T011. The minor pruning required to the hedgerows here will not affect their value or long term prospects. The fencing should be installed following the recommendations in the Arboricultral Method Statement at Appendix 3.

4.6 Shading

4.6.1 The shade from trees can be considered both a constraint and an opportunity. Some shade from trees can be beneficial. In particular, deciduous trees provide shade in summer but allow access to sunlight in winter. However, the design proposals should avoid excessive shading, and give

adequate provision for future tree growth. The development should be fully considered to ensure a harmonious and sustainable relationship can be achieved.

4.6.2 When considering the position and orientation of new residential buildings in relation to existing trees, primary living areas should receive the largest proportion of natural sunlight. BRE guidelines recommend “at least half of the garden or open space should receive at least two hours sunlight on March 21 (Spring Equinox)”.

4.7 Mitigation and Protection

4.7.1 The retained trees, groups and hedgerows will need protecting to ensure that they are not negatively impacted by development operations. This has been detailed as part of the Arboricultural Method Statement (AMS) at Appendix 3.

4.7.2 Where existing hard surfaces are present within the RPA of retained trees they should be kept in place where possible, even if they are not part of the design proposals. These hard surfaces will provide ground protection for any roots present beneath the hard surface during development works.

4.7.3 Any works that are proposed beneath the canopy or within the RPA of retained trees must be carried out as specified in the AMS. It is likely that these works will need to be supervised by the project arboriculturist so that any tree related issues that occur can be suitably dealt with.

4.7.4 To compensate for potential root damage and stress caused by construction activities, retained trees onsite should be mulched. The materials that may be used include wood chip, pulverized bark, or leaf mould. The mulched area should extend throughout the open ground within the RPA. The depth of an organic mulch should not be so much as to inhibit aeration of the root system or to cause overheating (Approximately 50 mm to 100 mm).

4.7.5 Where the removal of trees is required to facilitate the development, the planting of suitable replacement trees will be required as part of a wider landscaping scheme. It is recommended that tree planting follows a 5 – 10 – 20 - 30 formula (i.e. No more than 5% of any one cultivar, no more than 10% of any one species, no more than 20% of any one genus, and no more than 30% of any one family.) This gives any new tree population maximum resilience against pests and diseases.

4.7.6 Tree planting and establishment should be carried out in accordance with BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations*.

5. References

BS 3998:2010 *Tree work – Recommendations*. ISBN 978 0 580 53777 6

BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. ISBN 978 0 580 69917 7

BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations.* ISBN 978 0 580 713170

Littlefair P. (2011). *Site layout planning for daylight and sunlight: a guide to good practice (BR 209).* ISBN 978 1 84806 178 1.

Volume 4 National Joint Utilities Group (NJUG) *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees*, Volume 4: Issue 2: 16/11/2007, www.njug.org.uk

Appendix 1: Tree Survey Schedule

Table 3: Tree Survey Schedule

Key:	Symbols used	Age Class	Est Yrs	Comments	Tree Management	BS 5837:2012 Retention Categories
	< = less than ~ = approximately > = greater than # = estimated	Young, Semi mature, Early mature, Mature or Over mature	Estimate of safe life expectancy (<10, 10+, 20+ or 40+ years)	AGL – Above Ground Level MS – Multi-stemmed TD – Trunk division (height in metres) DED – Dutch Elm Disease ADB – Ash Die Back AHC (1, 2, 3 or 4) – Ash Health Class	*Tree works that are recommended regardless of future development are in italics* **Tree works that are required to facilitate the proposed development are in bold**	U – Unsuitable for retention A – High B – Moderate C – Low **Sub-categories:** 1 = mainly arboricultural qualities 2 = mainly landscape qualities 3 = mainly cultural values

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m²)
					N	E	S	W									
T001	Cherry *(Prunus sp.)*	4.5	1	130	1.5	1.5	1.5	1.5	1.5	Semi Mature	40+ Years	Good	No obvious defects		C1	1.56	8
H002	Elder *(Sambucus nigra)* Hawthorn *(Crataegus monogyna)*	5	10+	50 avg	See Plan				0.5	Semi Mature	40+ Years	Good	Previously managed hedgerow, now becoming overgrown		C2	-	-
H003	Hawthorn *(Crataegus monogyna)*	2	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Fair	Managed hedgerow, some sections full of nettles & various creepers		C2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
H004	Hawthorn *(Crataegus monogyna)*	6	10+	60 avg	See Plan				0	Semi Mature	40+ Years	Fair	Previously managed hedgerow, now becoming overgrown, various shrubs growing through from neighbouring private gardens, most sections full of nettles & various creepers		C2	-	-
T005	Black Hybrid Poplar *(Populus x canadensis)*	13	1	250 #	4	4	4	4	5	Semi Mature	10+ Years	Poor	Very limited visibility due to surrounding hedgerow, significant crown dieback, high proportion of deadwood throughout crown, may be unsuitable close to any future development		C1	3	28
H006	Elder *(Sambucus nigra)* Hawthorn *(Crataegus monogyna)*	3	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Good	Previously managed hedgerow, now becoming overgrown	**Prune back close to boundary line to allow for usable private garden space**	C2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
H007	Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)*	1.5	10+	40 avg	See Plan				0	Semi Mature	40+ Years	Good	Well managed hedgerow	**Prune back close to boundary line to allow for usable private garden space**	C2	-	-
G008	Hawthorn *(Crataegus monogyna)*	5	10+	80 avg	See Plan				1	Semi Mature	40+ Years	Fair	2 multi-stemmed trees forming a single canopy, likely to be the overgrown remains of a hedgerow		C2	-	-
H009	Hawthorn *(Crataegus monogyna)*	1.5	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Fair	Managed hedgerow, becoming overgrown, several sparse sections & the occasional small gap		C2	-	-
H010	Elder *(Sambucus nigra)* Hawthorn *(Crataegus monogyna)*	2	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Good	Managed hawthorn hedgerow with the occasional elder		C2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
T011	Hawthorn *(Crataegus monogyna)*	5	2	150, 120	3	2	3	1	1	Semi Mature	40+ Years	Fair	Growing within hedgerow & approx. 40cm from telegraph pole, signs of historical decay at base		C2	2.304	17
H012	Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)*	2	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Good	Small section of managed hedgerow	**Prune back close to boundary line to allow for usable private garden space**	C2	-	-
H013	Hawthorn *(Crataegus monogyna)*	2	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Fair	Managed hedgerow with several gaps, some sections are relatively sparse		C2	-	-
H014	Hawthorn *(Crataegus monogyna)*	1.5	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Fair	Managed hedgerow with several gaps, some sections are relatively sparse		C2	-	-
H015	Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)*	1.5	10+	50 avg	See Plan				0	Semi Mature	40+ Years	Fair	Managed hawthorn hedgerow with several gaps, some sections are relatively sparse, 1 elder at northern end		C2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
G016	Hawthorn *(Crataegus monogyna)*	7	10+	90 avg	See Plan				0.5	Semi Mature	40+ Years	Fair	Approx. 5 multi-stemmed trees forming a single canopy, likely to be the overgrown remains of a hedgerow, evidence of historical decay at base	**Removal of required to allow for construction of sub-station**	C2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
H017	Hawthorn *(Crataegus monogyna)*	2	10+	40 avg	See Plan				0	Young	40+ Years	Fair	Generally sparse recently planted hedgerow with several gaps, becoming overgrown	**Removal of small eastern section required to allow for construction of sub-station** **Removal of small central section required to allow for temporary site access** **Removal of western section required to allow for new site entrance**	C2	-	-
T018	Sycamore *(Acer pseudoplatanus)*	4.5	2	80, 50	1	1	1	1	1	Young	40+ Years	Good	Growing within hedgerow, no obvious defects	**Removal required to allow for new site entrance**	C2	1.128	4

Tree No.	Species	Height (m)	No. of Stems	Stem Diam. @ 1.5 m (mm)	Canopy Spreads (m)				Height of Crown Clearance (m)	Age Class	Est Yrs	Overall Condition	Comments	Tree Management	BS 5837:2012 Retention Category	RPA Radius (m)	RPA (m^2)
					N	E	S	W									
H019	Hawthorn *(Crataegus monogyna)*	2	10+	40 avg	See Plan				0	Young	40+ Years	Fair	Generally sparse recently planted hedgerow with several gaps, becoming overgrown	**Removal required to allow for new site entrance**	C2	-	-
T020	Sycamore *(Acer pseudoplatanus)*	4.5	1	90	1	1	1	1	1	Young	40+ Years	Good	Growing within hedgerow, no obvious defects	**Removal required to allow for new site entrance**	C2	1.08	4
H021	Leyland Cypress *(X Cuprocyparis leylandii)*	2	10+	80 avg	See Plan				0	Semi Mature	20+ Years	Good	Well managed hedgerow		C2	-	-
T022	Sycamore *(Acer pseudoplatanus)*	4	1	170 #	3.5	2	2	2	2	Semi Mature	40+ Years	Good	Very limited visibility due to surrounding structures, no obvious defects		C1	2.04	13
H023	Beech *(Fagus sylvatica)*	2	10+	60 avg	See Plan				0	Semi Mature	40+ Years	Good	Well managed hedgerow		C2	-	-

Appendix 2: Site Photographs

Plate 1: H002, H003 and H004 from the south east

Plate 2: T005 behind H004 from the east

Plate 3: H009 from the west

Plate 4: T011 within H010 from the west

Plate 5: H013, H014, H015 and G016 from the south west

Plate 6: G016 from the south west

Plate 7: H017, H019 and T020 from the south east

Plate 8: T022 from the east

Appendix 3: Figures

GENERAL NOTES

- Drawing for Planning purposes only
- Refer to arboricultural report produced by Ecus Ltd titled 'Barrow Road Barton-upon-Humber – BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement'.
- Based on topographic survey provided by the client.
- Check all dimensions on site.
- Do not scale from this drawing.
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KEY

Tree Stem

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Category U Trees

Root Protection Area (RPA)

The original version of the drawing was produced in colour. Monochrome copies should not be relied upon.

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ecus part of CuraTerrae

Brook Holt
Blackburn Road
Sheffield S61 2DW
Tel. (0114) 2669292
www.ecusltd.co.uk

Job
19500 - Barrow Road Barton-upon-Humber

Title
Figure 3 - Tree Constraints Plan

By	Date	Scale @ A1	Drg. no.
DF	Jan 2023	1:500	19500-ARB-01

GENERAL NOTES

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- Building layout and masterplan provided by the client.
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KEY

Tree Stem

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Existing Tree to be Removed

RPA Root Protection Area (RPA)

While minor pruning management may be required to many boundary hedgerows, more significant pruning will be required to the overgrown hedgerows H006, H007 and H012

Section of link road shown beyond the red line boundary to be delivered by others

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0m 10m 20m 50m

SCALE BAR 1:500

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Blackburn Road
Sheffield S61 2DW
Tel. (0114) 2669292
www.ecusltd.co.uk

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Title
Figure 4 - Tree Impacts Plan

By	Date	Scale @ A1	Drg. no.
DF	Jan 2023	1:500	19500-ARB-02

General

This Arboricultural Method Statement (AMS) details the specific measures to be adopted to ensure that the retained trees are suitably protected for the duration of the proposed development.

No equipment, machinery or materials shall be brought onto the site in connection with the development until this AMS has been submitted to and approved in writing by the Local Planning Authority.

Sequence of Events

For the purpose of protecting the retained trees, the development works on site should be completed in line with the following sequence of events:

- Pre-commencement site meeting
- Tree works
- Installation of tree protection measures
- Construction operations
- Removal of tree protection measures

Pre-Commencement Site Meeting

A pre-commencement site meeting should take place prior to any works being started, to finalise plans for the layout of the tree protection measures and to ensure that all potential issues are adequately considered.

The site developer and the project arboriculturist should be in attendance for the meeting.

Tree Works

Prior to the commencement of any development operations and the storage of plant, machinery and materials on site, any required tree works should be carried out. The trees to be removed to facilitate the development are detailed in the Tree Survey Schedule at Appendix 1 of the associated arboricultural report.

There will be a requirement to prune many of the hedgerows back to the site boundary to allow for the installation of tree protection fencing and property boundary fencing. This will allow for overgrown hedgerows to be brought back into a regime of regular formal management.

All tree works should be carried out by a suitably qualified and insured arboricultural contractor and in accordance with the recommendations of BS 3998:2010 Tree work – Recommendations.

It is recommended that trees should be checked in advance of any works by a suitably qualified ecologist to ensure there is no disturbance to nesting birds or roosting bats.

Tree Protection Fencing

Prior to the commencement of any development operations and the storage of plant, machinery and materials on site the tree protective fencing should be located as shown. Where possible this fencing should exclude all site activities from the RPA of retained trees, creating a sacrosanct Construction Exclusion Zone (CEZ).

It should be confirmed by the project arboriculturist that the fencing has been correctly set out on site, prior to the commencement of any other operations.

The default specification for tree protection fencing is shown here. However, where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority.

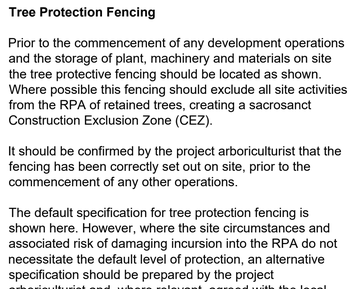
An example of an alternative specification is 2 m tall welded mesh panels on rubber or concrete feet. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate secured with ground pins or mounted on a block tray.

Where retained trees and hedgerows fall outside of the official site boundary line, robust site hoardings would provide adequate protection. No additional protection measures will be required in these locations if site hoardings are installed in the locations shown here.

All-weather notices should be attached to the fencing to indicate that operations are not permitted within the CEZ, with words such as “CONSTRUCTION EXCLUSION ZONE – NO ACCESS”.

Once the tree protection fencing has been installed it should not be altered or removed without prior consultation with the project arboriculturist. If the tree protection fencing needs to be re-positioned to allow for development operations to continue, this must be carried out under the supervision of the project arboriculturist and with prior consent from the LPA.

The tree protective fencing must remain in place until all construction operations on site have been completed and all plant and machinery has been removed.



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

Installation of Utilities and Services

Where possible all above and below ground utilities and services are to be directed away from the retained trees. Above ground services should be routed away from tree canopies, allowing sufficient space to allow for likely future crown growth. Below ground services should be grouped together and routed away from the RPA of retained trees.

Any below ground utilities or services that must be routed through the RPA should be installed in accordance with BS 5837:2012 clause 7.7.2 and NJUG 10: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

Management of Exposed / Damaged Roots

Provided that works in close proximity to retained trees are carried out in line with the specifications detailed within this report the potential for damage to significant roots is low. However, on occasion approved works that are close to or within the RPA of retained trees can result in accidental root damage or roots becoming exposed.

If any exposed roots are smaller than 25 mm diameter they can be pruned back if required, however roots occurring in clumps or of 25 mm diameter and over should be retained where possible and worked around.

Where the severance of larger roots is unavoidable, the advice of the project arboriculturist must be sought, as such roots might be essential to the tree’s health and stability. It may be determined that the design layout must be slightly altered to allow for the retention and adequate protection of significant roots.

Roots that are heavily damaged or severed during approved works may need to be pruned back using a suitable sharp tool, such as secateurs or a handsaw. The cut must be made cleanly, leaving the smallest surface area possible, and beyond any obvious damage, towards the tree that the root is likely to have come from. If it is not clear which direction the root has grown from, the root should be pruned back to both sides of the damage/severance.

A health and safety assessment should be carried out or a regular monitoring regime put in place for trees that have incurred damage to roots in close proximity to their stems or where the damaged roots are 100 mm in diameter or greater. Such damage could lead to instability or a decline in health and condition.

Exposed roots or roots that have been pruned should be immediately recovered with earth to prevent desiccation. If this is not possible they should be wrapped in hessian sheets which are dry in winter, wet in summer. These should be removed prior to backfilling.

Landscaping Works

Where soft landscaping is proposed within the RPA of retained trees, excavations should be kept to the minimum required to provide adequate conditions for the establishment of new shrubs and trees. Excavations should be carried out carefully and by hand, avoiding the severance of any roots larger than 25mm diameter.

Ground levels within the RPA should generally not be altered to avoid the potential for damage to tree roots. Roots are considered to be primarily within the top 0.6 m of the soil. Any excavations have the potential to damage or remove part of the root system and could affect the vigour or stability of the tree. Conversely, increasing the ground level can compact the soil, potentially suffocating the roots and causing them to die off. If minor level changes are unavoidable as part of an approved landscaping scheme, the advice of the project arboriculturist should be sought.

Where fencing is to be installed within the RPA of retained trees this must consist of posts and panels or rails only, trenched footings are not acceptable within the RPA. The holes for posts should be kept to the minimum depth required and excavated using hand tools only.

Fence posts should be erected a minimum of 1.0 m from tree stems. The post locations may need adjusting if significant roots are uncovered, so that the roots remain intact. If wet concrete is to be used, post holes should be lined with an impermeable membrane to prevent soil contamination close to tree roots.

The fencing alignment should allow for a minimum distance of 0.5 m between any tree stem and the fence, providing sufficient room for future growth and minimising the risk of potential conflicts between the fence structure and tree stems.

Any landscaping works that are within the RPA of retained trees or will require the tree protection fencing to be temporarily breached should be carried out in consultation with the project arboriculturist.

Additional Precautions

Consideration should be given to site operations outside of the CEZ that could indirectly impact the retained trees, including the provision of adequate space for site cabins, welfare facilities and other temporary structures.

Site operations should take sufficient account of wide or tall loads in order that they can operate without coming into contact with retained trees. The movement of plant in proximity to trees should be supervised by a banksman, to ensure adequate clearance from trees is maintained at all times.

Fires on sites should generally be avoided. Where fires are unavoidable, they should not be lit in a position where heat could affect the foliage or branches of retained trees. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times.

Any materials that could contaminate the ground around tree roots, such as fuels, oils or cement, should be stored and handled well away from the outer edge of the RPA.

Arboricultural Site Supervision

Site monitoring and supervision by the project arboriculturist is likely to be required on a regular basis throughout the development. The specific site operations in close proximity of retained trees that will require supervision include:

- Tree removal and tree pruning works
- Installation of tree protection measures
- Installation of any service runs in proximity to retained trees

A minimum of one week’s notice should be given to the supervising arboriculturist where possible before the start of any works within the RPA of retained trees, to allow the site visit to be scheduled.

All site visits will be recorded with the date and time along with any findings or comments relating to the tree protection measures and the specific operations supervised. These can be made available to the LPA tree officer on request.

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N

0m 10m 20m 50m

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KEY

Tree Stem

Tree Categories (BS 5837:2012)

Category A Trees
Category B Trees
Category C Trees

Root Protection Area (RPA)

Tree Protection Fencing*

***See note on drawing**

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Brook Holt
Blackburn Road
Sheffield S61 2DW
Tel. (0114) 2669292
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Figure 5 - Arboricultural Method Statement

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