



Arboricultural Impact Assessment with Arboricultural Method Statement

- Premdor, Birthwaite Business Park, Huddersfield Road, Darton, S75 5JS -

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A report for

**Premdor
Birthwaite Business Park
Huddersfield Road
Darton
S75 5JS**

Report authors



PENNINE ecological
24 The Highgrove
Heaton
Bolton
BL1 5PX

Tel/Fax. (01204) 844545

email: bob@pennineecological.co.uk

web: www.pennineecological.co.uk

Robert Godwin MSc, MArborA

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SUMMARY

Twenty-four individual trees and seventeen groups of trees were recorded. In accordance with *BS5837:2012 Trees in relation to design, demolition and construction* two groups of trees were recorded as retention category 'A'; twelve individual trees and two groups of trees were recorded as retention category 'B'; and a mixture of twelve individual trees and twelve groups of trees were recorded as retention category 'C'.

The trees were generally found to be in good to fair condition, however, one group of trees on adjacent land (**G6**) were classified as retention category 'U' (unsuitable for retention).

A statutory tree protection enquiry was made with Barnsley Metropolitan Borough Council on 22nd September 2023. It is understood that the site does not contain any Tree Preservation Orders and that the site is not located within a Conservation Area.

The proposed development directly impacts upon several trees. These trees shall require removal due to their close proximity to construction activity. The majority of the trees proposed for removal are considered to be low-quality ('C' category) specimens, many of which are self-seeded.

It is understood that the proposed tree removal will be mitigated as part of a post-development planting scheme including well-structured new trees that will add to the quality of the area and help integrate the proposed development into the surrounding landscape.

The retained trees will be protected to British Standard *BS5837:2012 Trees in relation to design, demolition and construction* to ensure that they remain in a healthy condition during and post development. The *Tree Protection Plan* to the rear of this report highlights the recommended tree protection measures.

Any arboricultural work undertaken should be done so by a competent arborist in line with British Standard *BS3998:2010 Tree Work*, and after permission has been granted to do so by the local planning authority.

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1. Introduction

1.1. Project outline

- 1.1.1. This report has been produced in accordance with *British Standard BS5837: 2012 Trees in relation to design, demolition and construction* to achieve a harmonious and sustainable relationship where tree retention or planting is proposed in conjunction with nearby construction (site-based operations with the potential to affect existing trees).

1.2. Scope of this report

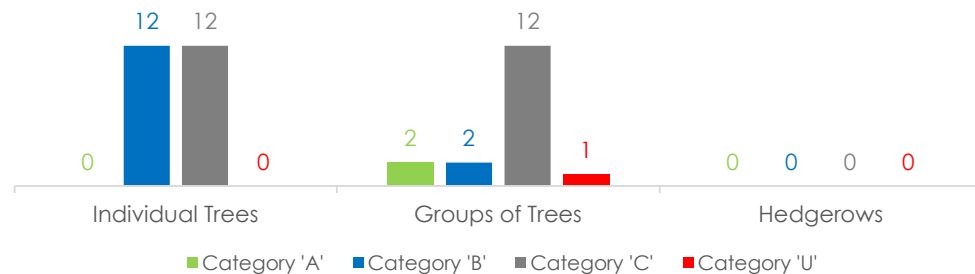
- 1.2.1. This report has been produced to comply with planning requirements where trees are to be considered as part of a proposed development. To achieve this, arboricultural constraints have been identified and a detailed plan (*Tree Constraints Plan*) has been produced showing the location, root protection areas and retention category of trees within the site.
- 1.2.2. In addition, this report provides an *Arboricultural Impact Assessment* that evaluates the direct and indirect effects of the proposed development, and where necessary makes recommendations for mitigation measures. This report also includes *Tree Protection Measures* and a *Tree Protection Plan* as part of an outline *Arboricultural Method Statement*, which demonstrate how the retained trees will be protected during construction, and where tree protection measures are to be implemented.
- 1.2.3. Recommendations for tree works within this report are specific to the construction of the proposed development. This report does not form part of a tree safety inspection or tree management strategy, and general arboricultural management works may be required post development. To manage the safety and risk from trees it is advised that trees are inspected in detail for this purpose by an arboriculturist using a suitable risk management strategy.

1.3. Data collection

- 1.3.1. A ground level inspection was undertaken by Robert Godwin on 17th August 2023. The position of all trees within the site with a stem diameter of 75 mm or more, measured at 1.5 m above highest adjacent ground level are recorded. The position of trees with an estimated stem diameter of 75 mm or more that overhang the site or are located beyond the site boundaries within a distance of up to 12 times their estimated stem diameter were also recorded. For individual trees the crown spread taken at four cardinal points; for tree groups the overall extent of the canopy was recorded.
- 1.3.2. Tree positions were plotted using a topographical plan supplied by the client (23005-A-CJCT-ZZ-XX-PL-00-0002), which is the basis for which the *Tree Constraints Plan* has been prepared.

2. Arboricultural Constraints

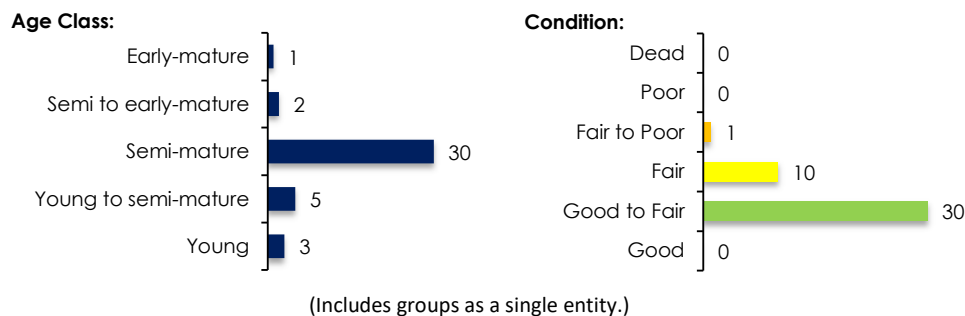
2.1. Tree retention categories



2.1.1. Twenty-four individual trees and seventeen groups of trees were recorded. In accordance with *BS5837:2012 Trees in relation to design, demolition and construction* two groups of trees were recorded as retention category 'A'; twelve individual trees and two groups of trees were recorded as retention category 'B'; and a mixture of twelve individual trees and twelve groups of trees were recorded as retention category 'C'.

2.1.2. The trees were generally found to be in good to fair condition, however, one group of trees on adjacent land (**G6**) were classified as retention category 'U' (unsuitable for retention).

2.2. Tree age class and condition



2.2.1. Please see *Appendix 1* for the detailed list on existing species, age class, dimensions and condition of trees within the site, and *Appendix 2* for an explanation of retention category criteria. Tree locations can be seen on the *Tree Constraints Plan* at the rear of this report (*Drawing 1*).

2.2.2. The inspection of several trees and groups was restricted as detailed at *Appendix 1*. The inspection of these trees was limited to a cursory observation of the parts of the trees that could be clearly observed, without obstruction, from the available vantage point. However, sufficient tree-related data was collected to fulfil the requirements detailed within the scope of this report.

- 2.2.3. Where inspections are limited by restrictions such as dense understory vegetation, limited access or being located on adjacent land, any form of tree condition hazard assessment was restricted. A full assessment of the levels of risk posed by trees can only be informed by considering site use together with assessing any hazards present within a tree. Trees are dynamic structures that continue to develop and decline; in addition, changes in site use are likely to occur during and as a result of the proposed development. On this basis, it is recommended that a suitably timed, detailed tree risk assessment is undertaken post-development to identify any potential hazards obscured during the initial tree survey, and is used to inform an arboricultural management strategy.

2.3. Root Protection Areas

- 2.3.1. The tree Root Protection Area (RPA) is a layout design tool indicating the area around a tree that, along with the tree stem and branches, must be considered during development. The protection of the roots and soil structure within the RPA should be treated as a priority. The RPA of each tree or group is marked on the *Tree Constraints Plan* at the rear of this report.

2.4. Tree protection status

- 2.4.1. A statutory tree protection enquiry was made with Barnsley Metropolitan Borough Council on 22nd September 2023. It is understood that the site does not contain any Tree Preservation Orders and that the site is not located within a Conservation Area. Please see *Appendix 5* for details.
- 2.4.2. **It is essential that no tree works (including works to category 'U' trees), and no construction works that may affect retained trees, are undertaken within the site prior to consideration and consent of the proposed works under FULL planning approval only by the local planning authority, regardless of whether the trees are currently protected or not.**

3. Arboricultural Impact Assessment

3.1. The proposed development

- 3.1.1. Two industrial units with associated car parking and landscaping is proposed. The proposed layout drawing can be seen within the *Tree Protection Plan* to the rear of this report. This drawing has been used to assess the potential direct and indirect arboricultural impacts.

3.2. Proposed tree works

- 3.2.1. The proposed development directly impacts upon several trees. These trees shall require removal due to their close proximity to construction activity. The majority of the trees proposed for removal are considered to be low-quality ('C' category) specimens, many of which are self-seeded. Please see the table below for the proposed tree removal details.

	Category 'A'	Category 'B'	Category 'C'
Trees to be removed to enable the construction of the proposed development	None	G10 (section), G11 (section) & T39	G2, G3, G4, G5, G12, G13, G14, G15, G16 (section), G17, G18, T19, T21, T22, T23, T40 & T41

- 3.2.2. In addition, several trees are considered to be of moderate quality. These trees have developed into established specimens, but still offer limited amenity value to the wider area and could be replaced as part of a post-development tree planting scheme.
- 3.2.3. No pruning works shall be required to enable the construction of the proposed development. Several trees may benefit from general arboricultural works as part of a practical post-development arboricultural management strategy; however, these works are not covered within the scope of this report.
- 3.2.4. Within *Appendix 1* the term 'No action required' relates specifically to those tree works required to enable the proposed development and does not mean that general post development arboricultural management works are not required.

3.3. Proposed mitigation measures

- 3.3.1. It is understood that the proposed tree removal will be mitigated as part of a post-development planting scheme including well-structured new trees that will add to the quality of the area and help integrate the proposed development into the surrounding landscape.

3.4. Site construction traffic

- 3.4.1. To protect the trees from construction site traffic (including demolition works) the remaining trees should be protected by a temporary protective barrier (see *Section 4.2*), put in place prior to any construction activity. The barrier will ensure that the trees remain in a healthy condition during and after development.
- 3.4.2. Several of the retained trees are located beyond topographical site features, existing boundary fencing or away from the proposed development area. As such, these trees shall not require protection via temporary protective barriers as they are already provided protection due to their inaccessible location that is remote from the proposed construction activity.

3.5. Excavations within the RPA

- 3.5.1. Minor sections of RPA from trees **T24** and **T38** theoretically extend into areas proposed for hard surface excavations. Given the small percentage of potential RPA disturbance, the proposed hard surfaces are not expected to cause any long-term harm to the adjacent trees. However, as a precautionary measure, it is recommended that any proposed hard surfaces within RPAs are constructed using a '*Minimum-Dig*' technique.

3.6. Post development impacts

- 3.6.1. No soil samples were taken during the site visit. It is recommended that soil assessment is undertaken by a competent person to determine whether the soil is shrinkable, and that foundation design is undertaken to consider the soil type. It is essential that consideration is also given by a suitably qualified professional to how the proposed tree removal may affect soil conditions and the stability of any future foundations.

4. Arboricultural Method Statement

4.1. Tree works prior to development

- 4.1.1. Care should be taken to ensure during tree removal or remedial work that damage to the retained trees and disturbance to the RPA is avoided. All tree works, as described in *Appendix 1*, should be carried out in accordance with *BS 3998: 2010 Recommendations for tree work*, and after permission has been granted to do so by the local planning authority. It is essential that those appointed to undertake any tree works carry out adequate checks to ensure that no statutory laws are contravened during tree work operations.

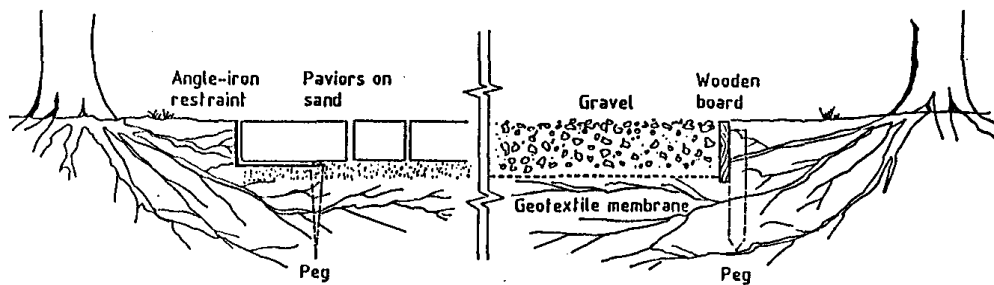
4.2. Tree protection barriers

- 4.2.1. Once the tree works have been completed, all trees that may be affected by construction activity and are being retained on site should be protected by barriers before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. No hardcore, rubble or soil from groundworks should be located within the protective barriers. It should be confirmed by an arboriculturist or the local authority that the barriers have been correctly set out on site, prior to the commencement of any other operations.
- 4.2.2. The protected area should be regarded as off limits, and once installed barriers should not be removed or altered without prior recommendation by an arboriculturist and, where necessary, approval from the local planning authority.
- 4.2.3. Please see *Appendix 4* for suggested barrier construction detail. It is recommended that in this instance the protective barrier shown in *Figure 1* would be appropriate. The suggested location for protective fencing is shown on the *Tree Protection Plan (Drawing 2)*.
- 4.2.4. Only when the development phase is complete and the site machinery has been removed, the local planning authority should be invited to inspect the site to give approval for the removal of the tree protection measures.

4.3. Hard surfaces within the RPA – Minimum-Dig

- 4.3.1. It is recommended that any proposed hard surfaces within the RPAs of **T24** and **T39** be constructed in a manner that would not cause the adjacent trees any long-term harm. In this instance, it is recommended that a 'Minimum-Dig' method is used.
- 4.3.2. Excavations within the RPA must only be undertaken by hand to establish the presence of roots. Any tree roots exposed within the RPA must be left as intact as careful digging with hand tools will allow, avoiding the use of heavy machinery within the RPA.

- 4.3.3. No more than 100mm of soil should be removed before the ground is inspected for roots. Depending on the presence of roots it may then be acceptable to remove a further 50mm of soil down to the required depth.
- 4.3.4. During excavations roots smaller than 25mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25mm diameter and over should be severed only following consultation with an arboriculturist; as such roots might be essential to the tree's health and stability.
- 4.3.5. Any roots exposed during excavations should immediately be wrapped or covered in damp hessian to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Prior to backfilling, retained roots should be surrounded with topsoil or un-compacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced.



Example of a light duty drive constructed using the **Minimum Dig Method**.

4.4. Services within the RPA

- 4.4.1. Wherever possible, under-ground services should be routed outside of the RPA of retained trees, and plans showing the proposed routeing should be drawn up. Where excavations may be required hand-held tools might be acceptable for shallow service runs, using the hand-dig technique detailed in *Section 4.3 above*.

Drawing 1. Tree Constraints Plan



T	G	H	W	S
INDIVIDUAL TREE	GROUP OF TREES	HEDGEROW	WOODLAND GROUP	SHRUB

	EXISTING LAYOUT
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TREE QUALITY ASSESSMENT CATEGORY	
	CATEGORY 'A' HIGH QUALITY
	CATEGORY 'B' MODERATE QUALITY
	CATEGORY 'C' LOW QUALITY
	CATEGORY 'U' UNSUITABLE FOR RETENTION

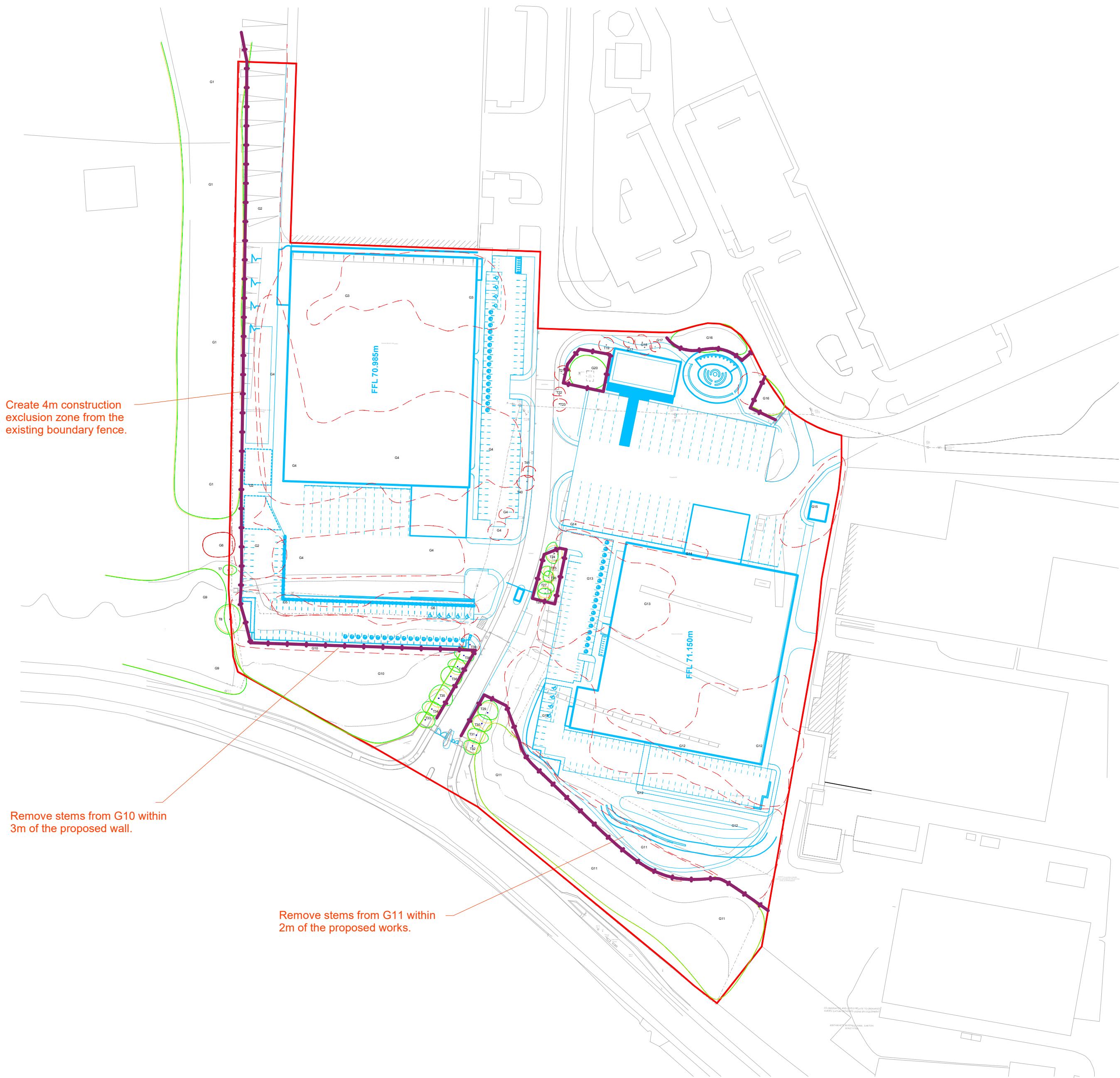
Based on British Standard 5837:2012 Table 1.
Please refer to Appendix 2 of the arboricultural report for more detailed category definitions.

	ROOT PROTECTION AREA (RPA)
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The Root Protection Area (RPA) is a layout design tool highlighting the underground tree constraints.
Along with the tree stem and branches the RPA must be considered prior to and during development.

PROJECT TITLE: Premdor, Birthwaite Business Park, Huddersfield Road, Darton, S75 5JS		
DRAWING TITLE: TREE CONSTRAINTS PLAN	SCALE: 1:1250 @ A2	ISSUE DATE: 22.08.23
DRAWING NUMBER: TCP.13687	REVISION: .01	DRAWN BY: RG

Drawing 2. Tree Protection Plan



T	G	H	W	S
INDIVIDUAL TREE	GROUP OF TREES	HEDGEROW	WOODLAND GROUP	SHRUB

EXISTING LAYOUT

PROPOSED LAYOUT

PROPOSED TREE WORKS

TREE PROPOSED FOR RETENTION

TREE PROPOSED FOR PRUNING

None

TREE UNSUITABLE FOR RETENTION
(ARBORICULTURAL REASONS)

G6

TREE PROPOSED FOR REMOVAL
(TO ENABLE DEVELOPMENT)

G2, G3, G4, G5, G10 (section), G11 (section), G12, G13, G14, G15
G16 (section), G17, G18, T19, T21, T22, T23, T39, T40 & T41

Please refer to Appendix 1 of the Arboricultural Impact Assessment for details on tree condition and proposed works.

ROOT PROTECTION AREA (RPA)

The Root Protection Area (RPA) is a layout design tool highlighting the underground tree constraints. Along with the tree stem and branches the RPA must be considered prior to and during development.

TREE PROTECTION MEASURES

TEMPORARY PROTECTIVE BARRIER
Refer to Appendix 4 of the Arboricultural Impact Assessment for specification details.

Please refer to Section 3 of the Arboricultural Impact Assessment for details on potential impacts.

PROJECT TITLE:
Premdor, Birthwaite Business Park, Huddersfield Road, Darton, S75 5JS

DRAWING TITLE:
TREE PROTECTION PLAN

SCALE:
1:1250 @ A2

ISSUE DATE:
02.10.23

DRAWING NUMBER:
TPP.13687

REVISION:
.01

DRAWN BY:
RG

Appendix 1. Tree Schedule

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m²)	
G 1	Corylus avellana (Hazel), Fraxinus excelsior (Ash), Betula pendula (Silver Birch), Pinus sylvestris (Scots Pine), Salix fragilis (Crack Willow), Populus alba (White Poplar)	Semi-mature	1	400	15(0.5)	0.5(E)	6	6	6	6	Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - situated on adjacent land. Limited inspection - dense canopy from adjacent trees. Individuals crowns restricted by group. Linear boundary group.	Good to Fair	40+	No action required.	4.8	72.4	A
G 2	Corylus avellana (Hazel), Fraxinus excelsior (Ash), Betula pendula (Silver Birch), Salix caprea (Goat Willow), Acer pseudoplatanus (Sycamore), Acer campestre (Field Maple), Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn), Quercus robur (Common Oak)	Young to semi-mature	1	150	10(0.5)	0.5(E)	2.5	2.5	2.5	2.5	Limited inspection - restricted access. Limited inspection - dense undergrowth. Individuals crowns restricted by group. Linear boundary group. Occasional poor/dead specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	1.8	10.2	C
G 3	Fraxinus excelsior (Ash), Betula pendula (Silver Birch), Salix caprea (Goat Willow), Crataegus monogyna (Hawthorn), Quercus robur (Common Oak), Salix fragilis (Crack Willow)	Young to semi-mature	5	150	8(0)	0(E)	4.5	4.5	4.5	4.5	Multi-stemmed from ground level. Limited inspection - restricted access. Limited inspection - dense undergrowth. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	4.0	50.8	C
G 4	Fraxinus excelsior (Ash), Betula pendula (Silver Birch), Salix caprea (Goat Willow), Crataegus monogyna (Hawthorn), Quercus robur (Common Oak), Salix fragilis (Crack Willow), Alnus glutinosa (Common Alder)	Young	5	50	6(0)	0(E)	2	2	2	2	Multi-stemmed from ground level. Limited inspection - restricted access. Limited inspection - dense undergrowth. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	1.3	5.6	C
G 5	Fraxinus excelsior (Ash), Betula pendula (Silver Birch), Salix caprea (Goat Willow), Crataegus monogyna (Hawthorn), Quercus robur (Common Oak), Salix fragilis (Crack Willow), Alnus glutinosa (Common Alder), Acer campestre (Field Maple), Salix alba (White Willow)	Young to semi-mature	1	350	12(0)	0(N)	5	5	5	5	Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - dense canopy from adjacent trees. Individuals crowns restricted by group.	Good to Fair	40+	Remove to enable the construction of the proposed development.	4.2	55.4	C

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m ²)	
G 6	Salix alba (White Willow)	Semi-mature	2	250	14(2)	3(E)	4	4	4	4	Crown - minor deadwood (less than 50mm). Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - situated on adjacent land. Individuals crowns restricted by group. Dieback in crown. Unsuitable for retention.	Fair to Poor	<10	No action required.	4.3	56.8	U
T 7	Alnus glutinosa (Common Alder)	Semi-mature	2	120	9(4)	4(E)	2	3.5	2	2	Unbalanced crown. Twin-stemmed from ground level. Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - situated on adjacent land.	Fair	40+	No action required.	2.0	13.1	C
T 8	Acer pseudoplatanus (Sycamore)	Early-mature	1	450	16(7)	8(E)	6	4	6	6	Limited inspection - restricted access. Limited inspection - situated on adjacent land. Limited inspection - dense canopy from adjacent trees.	Good to Fair	40+	No action required.	5.4	91.6	B
G 9	Acer pseudoplatanus (Sycamore), Crataegus monogyna (Hawthorn), Betula pendula (Silver Birch)	Semi-mature to early-mature	1	400	16(1)	1(E)	6	6	6	6	Limited inspection - restricted access. Limited inspection - situated on adjacent land. Limited inspection - dense canopy from adjacent trees. Individuals crowns restricted by group.	Good to Fair	40+	No action required.	4.8	72.4	A
G 10	Acer pseudoplatanus (Sycamore), Fagus sylvatica (Beech), Crataegus monogyna (Hawthorn), Betula pendula (Silver Birch), Fraxinus excelsior (Ash), Pinus sylvestris (Scots Pine), Salix fragilis (Crack Willow), Prunus sp. (Cherry), Corylus avellana (Hazel)	Semi-mature to early-mature	1	400	16(1)	1(E)		6	6	6	Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - dense canopy from adjacent trees. Individuals crowns restricted by group.	Good to Fair	40+	Remove section to enable the construction of the proposed development.	4.8	72.4	B

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m ²)	
G 11	Crataegus monogyna (Hawthorn), Betula pendula (Silver Birch), Fraxinus excelsior (Ash), Salix fragilis (Crack Willow), Prunus sp. (Cherry), Corylus avellana (Hazel), Acer campestre (Field Maple), Quercus robur (Common Oak), Prunus spinosa (Blackthorn)	Young to semi-mature	1	200	12(0)	0(S)	3	3	3	3	Limited inspection - restricted access. Limited inspection - dense undergrowth. Limited inspection - dense canopy from adjacent trees. Individuals crowns restricted by group.	Good to Fair	40+	Remove section to enable the construction of the proposed development.	2.4	18.1	B
G 12	Crataegus monogyna (Hawthorn), Betula pendula (Silver Birch), Fraxinus excelsior (Ash), Alnus glutinosa (Common Alder), Acer pseudoplatanus (Sycamore), Salix fragilis (Crack Willow)	Young	1	120	6(0)	0(S)	2	2	2	2	Limited inspection - restricted access. Limited inspection - dense undergrowth. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	1.4	6.5	C
G 13	Betula pendula (Silver Birch), Salix caprea (Goat Willow)	Young to semi-mature	1	100	7(0)	0(S)	2	2	2	2	Limited inspection - restricted access. Limited inspection - dense undergrowth. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	1.2	4.5	C
G 14	Betula pendula (Silver Birch), Fraxinus excelsior (Ash), Salix caprea (Goat Willow)	Young	3	90	6(0)	0(S)	2	2	2	2	Individuals crowns restricted by group. Linear group. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	1.9	11.0	C
G 15	Salix caprea (Goat Willow), Salix fragilis (Crack Willow), Betula pendula (Silver Birch)	Semi-mature	5	100	7(0)	0(S)	3.5	3.5	3.5	3.5	Limited inspection - dense undergrowth. Individuals crowns restricted by group. Self-seeded specimens.	Good to Fair	40+	Remove to enable the construction of the proposed development.	2.7	22.7	C

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m²)	
G 16	Quercus robur (Common Oak),Sorbus aucuparia (Rowan),Pinus nigra 'maritima' (Corsican Pine),Salix caprea (Goat Willow),Betula pendula (Silver Birch),Fraxinus excelsior (Ash)	Semi-mature	1	250	9(1)	1(S)	4	4	4	4	Occasional pruning wounds. Individuals crowns restricted by group.	Good to Fair	40+	Remove section to enable the construction of the proposed development.	3.0	28.3	C
G 17	Sorbus aucuparia (Rowan)	Semi-mature	1	100	4(1.5)	1.5(S)	2	2	2	2	Occasional pruning wounds. Asymmetrical crowns.	Fair	20+	Remove to enable the construction of the proposed development.	1.2	4.5	C
G 18	Larix decidua (European Larch)	Semi-mature	1	230	7(1)	1(S)	3	3	3	3	Occasional pruning wounds. Asymmetrical crowns.	Good to Fair	40+	Remove to enable the construction of the proposed development.	2.8	23.9	C
T 19	Acer campestre (Field Maple)	Semi-mature	4	120	5.5(1)	1(S)	3	3	3	3	Asymmetrical crown. Multi-stemmed below 1.5m.	Good to Fair	40+	Remove to enable the construction of the proposed development.	2.9	26.1	C
G 20	Betula pendula (Silver Birch),Salix caprea (Goat Willow)	Semi-mature	1	200	6(1)	1(S)	2.5	2.5	2.5	2.5	Individuals crowns restricted by group. Self-seeded specimens.	Fair	40+	No action required.	2.4	18.1	C

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m²)	
T 21	Salix caprea (Goat Willow)	Semi-mature	5	120	6(2.5)	2.5(W)	3.5	3	3	3.5	Asymmetrical crown. Crown - minor deadwood (less than 50mm). Multi-stemmed below 1.5m.	Fair	10+	Remove to enable the construction of the proposed development.	3.2	32.6	C
T 22	Betula pendula (Silver Birch)	Semi-mature	1	180	8(2)	2(W)	3	2.5	0.5	2.5	Asymmetrical crown.	Good to Fair	40+	Remove to enable the construction of the proposed development.	2.2	14.7	C
T 23	Salix caprea (Goat Willow)	Semi-mature	7	100	5.5(2.5)	2.5(W)	2	3	3	2.5	Asymmetrical crown. Multi-stemmed from ground level. Stem - bark wound (healing well).	Fair	20+	Remove to enable the construction of the proposed development.	3.2	31.8	C
T 24	Salix caprea (Goat Willow)	Semi-mature	7	100	6(2)	2(W)	4.5	1.5	4	3.5	Asymmetrical crown. Multi-stemmed from ground level.	Fair	20+	No action required.	3.2	31.8	C
T 25	Salix caprea (Goat Willow)	Semi-mature	2	110	6(2)	2(W)	2	0.5	2	3	Asymmetrical crown. Multi-stemmed from ground level.	Fair	20+	No action required.	1.9	11.0	C
T 26	Betula pendula (Silver Birch)	Semi-mature	1	200	9(2)	2(W)	2.5	2	2	2	Asymmetrical crown.	Fair	40+	No action required.	2.4	18.1	C
T 27	Salix caprea (Goat Willow)	Semi-mature	6	120	7(2)	2(W)	3	3.5	2	3	Asymmetrical crown. Multi-stemmed from ground level.	Fair	20+	No action required.	3.5	39.2	C
T 28	Betula pendula (Silver Birch)	Semi-mature	2	120,170	9(2)	2(W)	2	2.5	3	3	Asymmetrical crown. Twin-stemmed from ground level.	Good to Fair	40+	No action required.	2.5	19.6	C
T 29	Acer platanoides (Norway Maple)	Semi-mature	1	340	11(3)	3(W)	5	4	2.5	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	4.1	52.3	B
T 30	Acer platanoides (Norway Maple)	Semi-mature	1	290	11(3)	3(W)	3.5	4	3	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.5	38.1	B

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m ²)	
T 31	Acer platanoides (Norway Maple)	Semi-mature	1	300	10(3)	3(W)	2.5	5	3	3.5	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.6	40.7	B
T 32	Acer platanoides (Norway Maple)	Semi-mature	1	240	10(3)	3(W)	2	3.5	3.5	3.5	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	2.9	26.1	B
T 33	Acer platanoides (Norway Maple)	Semi-mature	1	270	9(3)	3(E)	3	4	3	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.2	33.0	B
T 34	Acer platanoides (Norway Maple)	Semi-mature	1	230	11(3)	3(E)	3	4	2.5	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	2.8	23.9	B
T 35	Acer platanoides (Norway Maple)	Semi-mature	1	300	10(3)	3(E)	5.5	5.5	2.5	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.6	40.7	B
T 36	Acer platanoides (Norway Maple)	Semi-mature	1	340	10(3)	3(E)	4	4.5	3.5	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	4.1	52.3	B
T 37	Acer platanoides (Norway Maple)	Semi-mature	1	260	10(3)	3(E)	3	3.5	2	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.1	30.6	B
T 38	Acer platanoides (Norway Maple)	Semi-mature	1	250	9(3)	3(E)	3	4	2	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	No action required.	3.0	28.3	B
T 39	Acer platanoides (Norway Maple)	Semi-mature	1	280	9(3)	3(E)	4.5	4	2.5	4	Asymmetrical crown. Occasional pruning wounds. Tree RPA located within existing hard surface area.	Good to Fair	40+	Remove to enable the construction of the proposed development.	3.4	35.5	B
T 40	Salix caprea (Goat Willow)	Semi-mature	1	220	6(1.5)	1.5(E)	2.5	3	3.5	4	Asymmetrical crown. Stem - bark wound (healing well).	Fair	20+	Remove to enable the construction of the proposed development.	2.6	21.9	C

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m ²)	
T 41	Betula pendula (Silver Birch)	Semi-mature	1	200	9(1.5)	1.5(E)	2	3	2.5	2	Asymmetrical crown.	Good to Fair	40+	Remove to enable the construction of the proposed development.	2.4	18.1	C

Appendix 2. Explanatory Notes

A2.1. Tree statistics and measurements

Survey record	Description
<i>Tree No.</i>	Unique tree reference number. (T) = Individual tree, (G) = Group of trees or woodland that form cohesive arboricultural features, (H) = Hedgerows and substantial internal or boundary hedges.
<i>Species</i>	Species listed by scientific name, with (common name).
<i>Age</i>	Life stage – Young, Semi-mature, Early-mature, Mature, Over-mature and Veteran.
<i>Stem Count</i>	Number of stems recorded at 1.5m above ground level.
<i>Stem Diameter</i>	Stem diameter recorded in millimetres at 1.5 meters above ground. Where the tree is multiple stemmed, each stem has been recorded.
<i>Height (Crown Height)</i>	Height of the tree in metres – to the closest 0.5m. Average canopy height in brackets, e.g. 10(3).
<i>First Significant Branch</i>	Existing height above ground level of first significant branch and direction of growth, e.g. 3(N)
<i>Branch Spread</i>	Branch spread, taken as a minimum at the four cardinal points – North, East, South and West.
<i>Observations</i>	General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay, physical defect or historic pruning).
<i>Cond</i>	Condition of the tree recorded as Good, Good to Fair, Fair, Fair to Poor, Poor or Dead.
<i>Life Exp</i>	Life Expectancy - classed as less than 10 years, 10 plus years, 20 plus years, or more than 40 years.
<i>Tree Works Required to Enable Development</i>	Tree works specifically required to enable the proposed development, or to reduce significant risk of harm. The term 'No action required' does not mean that general post development arboricultural management works are not required.
<i>RPA Radius</i>	Radius of the root protection area, when plotted as a circle centred on the base of the stem.
<i>RPA Area</i>	Total area of RPA in metres squared, e.g. 100m ² .
<i>Retention Category</i>	See below – A2.2.

A2.2. Tree retention categories

Retention category and definition	Criteria
<i>U (marked in red on the Tree Constraints Plan) = trees for removal.</i>	Trees 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.
<i>A (marked green on the Tree Constraints Plan) = Trees of high quality</i>	Trees of high quality with an estimated remaining life expectancy of at least 40 years.
<i>B (marked in blue on the Tree Constraints Plan) = Trees of moderate quality</i>	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
<i>C (marked in grey on the Tree Constraints Plan) = Trees of low quality</i>	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Appendix 3. Report Limitations & General Guidelines

- A3.1 Where the inspection of trees was limited (*see Appendix 1*), the 'Tree statistics and measurements' (*Appendix 2.1*) are estimated, and observations, condition and life expectancy are based on an inspection from the available vantage point.
- A3.2 It is recommended that qualified and experienced companies are sought when appointing tree work contractors and they should be approved under the Arboricultural Association Approved Contractors scheme. It is essential that all appointed tree work contractors have adequate Public Liability, Products Liability and Employers Liability Insurance. All tree works must conform to the current BS 3998 "*Recommendations for Tree Work*".
- A3.3 PENNINE *Ecological* will not accept liability for works undertaken by third party companies. All necessary checks must be made by the appointed tree work contractor prior to undertaking any works to ensure that no statutory tree protection measures or relevant laws are contravened.
- A3.4 The validity, accuracy and findings of this report are directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. PENNINE *Ecological* will not be responsible for the recommendations within this report where essential data are not made available, or are inaccurate.
- A3.5 The assessment and works recommendations relate to conditions found at the time of our inspection. Any significant alteration to the site post our site inspection but pre submission for planning that may affect the trees present, or have a bearing on the planning implications (including level changes, hydrological changes, storms, extreme climatic events or site works) will necessitate a re-assessment of the trees and the site.
- A3.6 This report has been carried out in order to inform the planning process, and not to assess the potential hazards and risks posed by trees. Where clear and obvious hazards have been observed to accessible trees, these have been addressed in the works recommendations. Where inspections were limited by restrictions such as stem ivy, understory vegetation, limited access, epicormic growth or being located on adjacent land, any form of tree condition assessment was restricted. A full assessment of the levels of risk posed by trees can only be informed by considering site use together with assessing any hazards present within a tree.
- A3.7 Trees are dynamic structures that continue to develop and decline; in addition, changes in site use are likely to occur during and as a result from the proposed development. On this basis, regular tree risk assessments are advised.
- A3.8 PENNINE *Ecological* plans are to scale whenever possible but care should be taken when measuring from a plan without first checking the original data.

Appendix 4. Protective Barrier Construction

- A4.1 The default specification for protective barriers should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated below. The vertical tubes should be spaced at a *maximum* interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots.

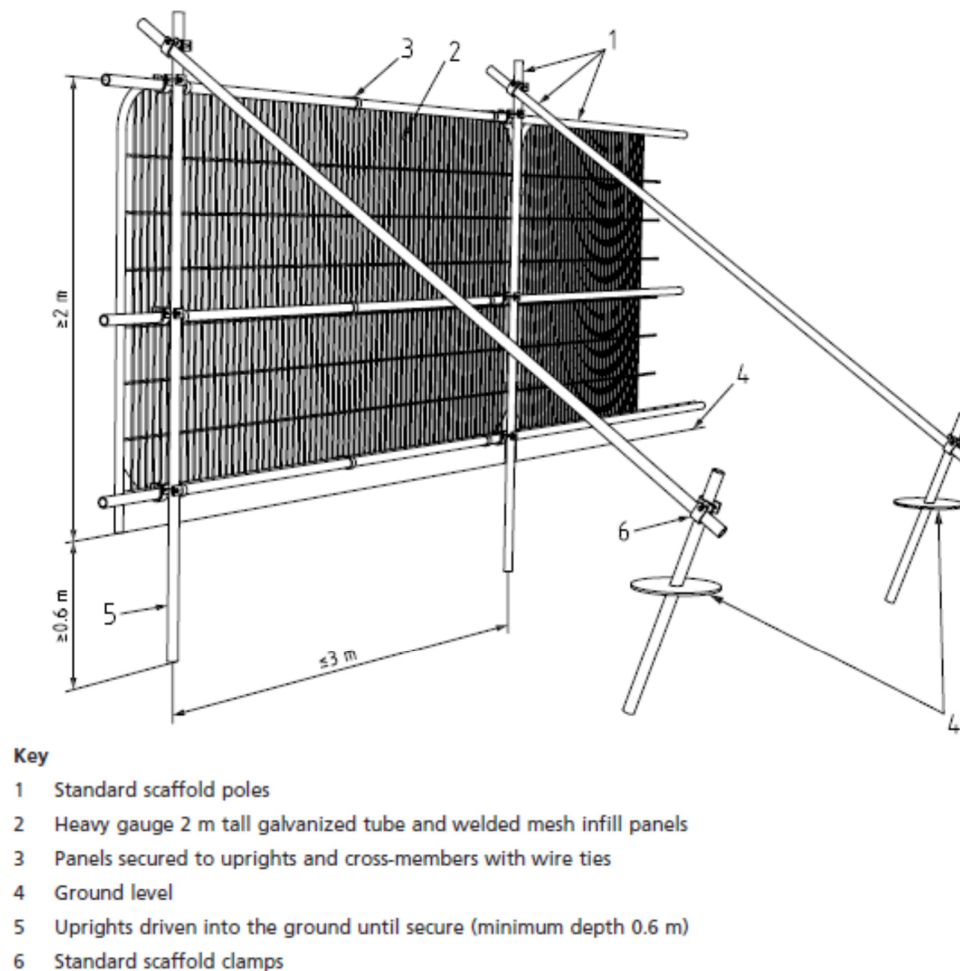


Figure 1. Default protective fencing barrier as detailed in BS 5837: 2012.

- A4.2 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification may be adopted. This system includes 2 m tall welded mesh panels on rubber or concrete feet, secure enough to provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. 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 normally be attached to a base plate secured with ground pins (Figure 2a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 2b).

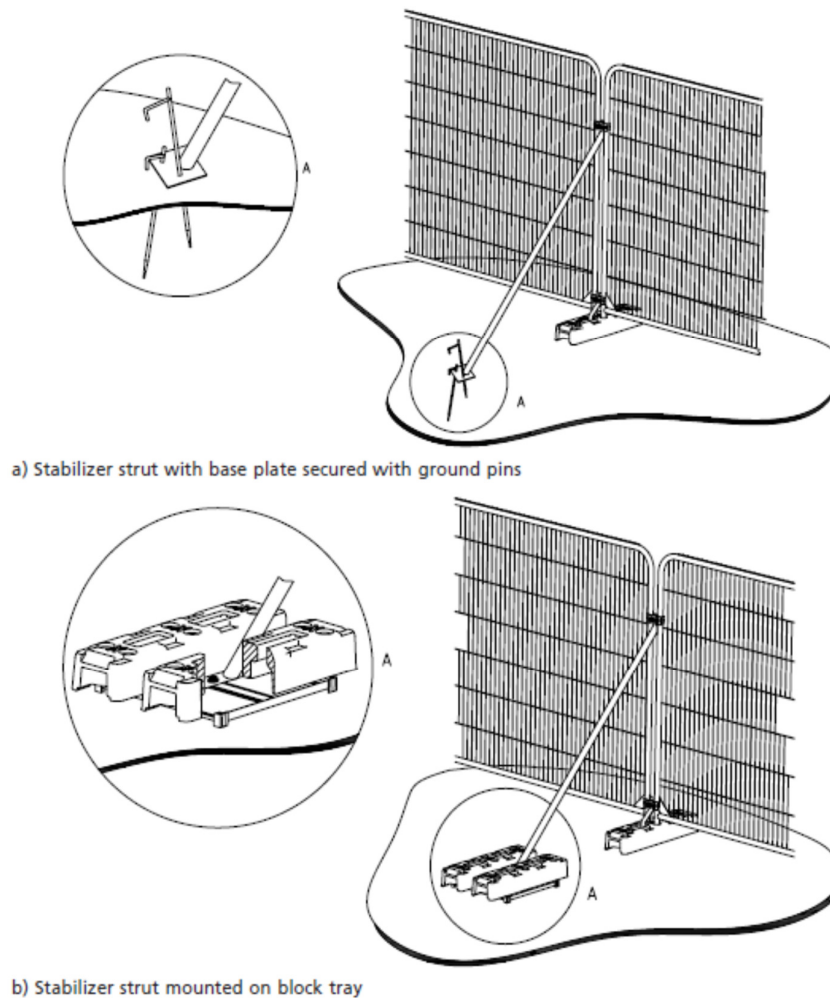


Figure 2. Examples of above-ground stabilizing systems

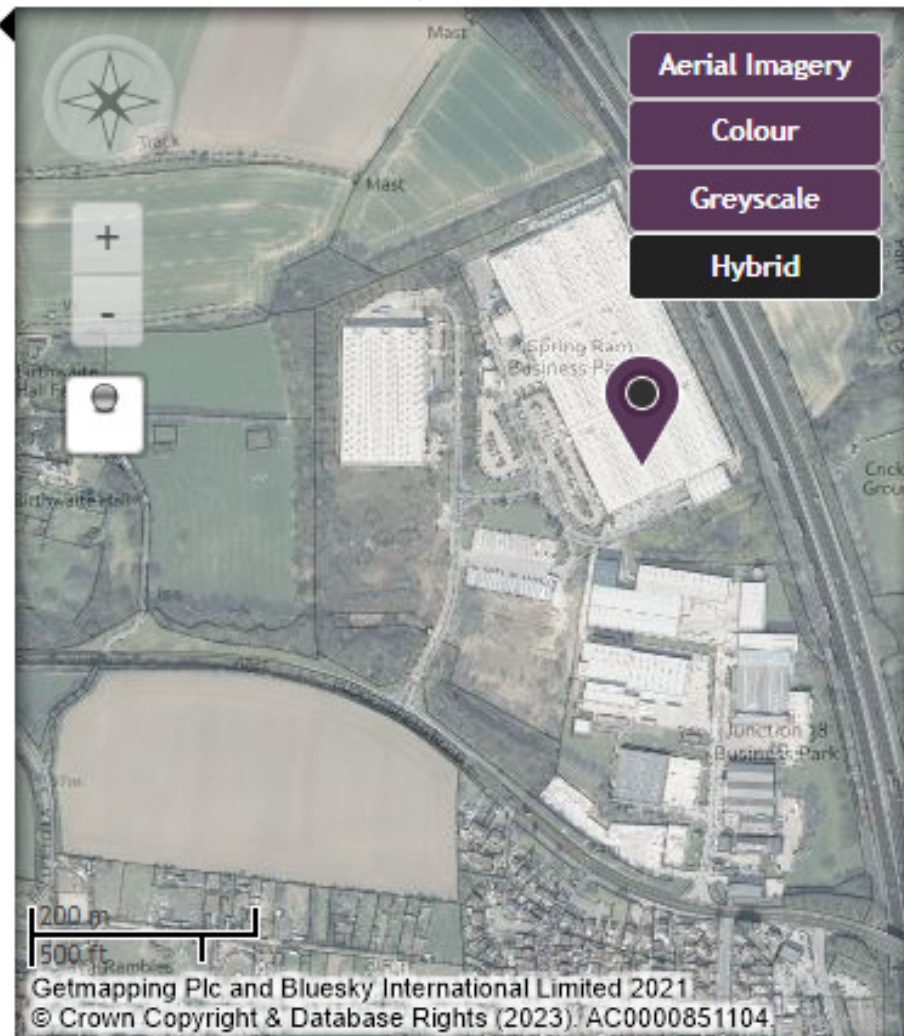
Appendix 5. Statutory Tree Protection Enquiry Results

Tree preservation orders

Location: 

Legend

- ☐ Heritage
 - ☐ Listed Buildings
 - ☒ Conservation Area
 - ☐ Historic Parks & Gardens
- ☒ Tree Preservation Orders
 - 
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