BS5837 Tree Survey, Arboricultural Impact Assessment and Method Statement.

Maelor Forest Nursery Fields Farm, Bronington, Wrexham, SY13 3HZ

12/10/20

Prepared By:	**Prepared For:**
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1 Introduction

1.1 **Instruction** I am instructed on 02/10/20 by Lyndsey Jones, Roger Parry & Partners to carry out a BS5837 Tree Survey, Arboricultural Impact Assessment and Method Statement for the proposed development at Maelor Forest Nurseries – Polly Tunnels.
This report has been prepared to take account of the constraints that the existing trees place on the site. I discussed the brief and specification of the survey with Lyndsey via emails.

1.2 **The Author**
Author/Surveyor Luke Edwards; Royal Forestry Society Certificate in Arboriculture and Lantra Award in Professional Tree Inspection. Has over a decade of experience in Arboriculture of which 8 years as a surveyor and consulting arboriculturalist. A copy of qualifications can be sent on request.

1.3 **Survey constraints**
This report was prepared for use by our client for planning purposes only. It is not a substitute for a tree condition, insurance, or mortgage service. Information provided by third parties used in the preparation of this report is assumed to be correct. The contents are copyright and may not be duplicated or used by third parties without written consent of Arbserv Ltd. The tree survey site parameters are highlighted on the location plan. This parameter has been established by reviewing the proposed building location and selecting all trees over a diameter of 75mm that could be affected by the proposed construction. Furthermore, it is the responsibility of the client to establish if trees are subject to protection from Conservation or Tree Preservation Orders. Please note trees and hedges have only been looked at from an arboricultural perspective, not an ecology perspective. This report would need to be read in conjunction with corresponding ecology reports.

2 Method

2.1 All trees in this survey have been surveyed from ground level using Visual Tree Assessment (VTA) observations. This involves a systematic, non-invasive, ground based examination of each tree, looking for signs of ill-health vulnerability or damage and their causes. Protocol described by (Lonsdale 1999), and (Mattheck & Breloer 1998) Strouts & Winter 1998) No aerial inspections or invasive decay detection surveys or soil samples have been carried out.

2.2 Data was collected in accordance with the requirements of British Standard 5837:2012. Measurements were taken using diameter tape, digital clinometer or laser measure. Where this was not possible or reasonably practical, measurements have been estimated by eye.

2.3 Data collected

- Tree ID
- Species
- Maturity
- Height
- Height and direction of first significant branch
- Stem Diameter according to annex c of BS5837:2012
- Crown spread-in four cardinal directions
- Physical and structural condition
- Retention category according to table 1 BS5837:2012

2.4 All trees surveyed have been plotted on a tree protection plan of the site and their data recorded in the BS5837 Tree survey schedule. This includes all trees and shrubs with a diameter of 75mm or above measured at 1.5m above ground level. Measured according to annex c of BS5837:2012.

2.5 *(Note in the case of woodlands or substantial tree groups, only individual trees with stem diameters greater than 150mm usually need plotting)*

2.6 The tree constraints and Root Protection Areas (RPA) are then calculated for single stemmed trees; by calculating an area equivalent to a circle radius 12 times the stem diameter.

2.7 Root Protection area (RPA) Layout design tool indicating the minimum areas around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability, and where the protection of the roots and soil structure is treated as a priority. (BS5837:2012)

2.8 The (RPA) will be calculated for all trees surveyed using the BS5837 formula. The radius of the RPA will be given and highlighted on a tree protection plan/Map attached to this document.

2.9 The current value of the trees is assessed in the Arboricultural Impact Assessment using the quality categories A, B, C, U ranging from high quality (A) to low quality or DBH <150mm (C) based on arboricultural, landscape, and cultural values. Category U trees are considered to be unsafe for arboricultural reasons and should be normally removed. With the exception of retaining standing dead habitat poles.
The arboricultural impact assessment and method statement for each tree will be recorded within the BS5837 Tree survey schedule preliminary recommendations survey comment

The remaining contribution of each tree is noted <10 10-20, 20-40 or >40years. This can only be an informed opinion based on the surveyor's experience and the current conditions of the tree, and obviously cannot take account of catastrophic weather events.

3 Key to survey & Plans

3.1 **ERC**: Means 'estimated remaining contribution', recorded in a range of years. It is the amount of *time the tree can realistically be retained for.*

3.2 **Cat**: Means 'category grading', a full explanation of the categories is given in an excerpt from BS 5837:2012 in the Tree Survey Schedule section

3.3 **Ref:** The reference number assigned to that item with a code to help identify the type or structure such as:

3.4 Letters

T	Tree
S	Shrub
G	Group of Trees
SG	Group of Shrubs
O	Orchard
W	Woodland
H	Hedgerow

3.5 **Hgt (m):** Height of the tree in metres rounded up to the nearest half metre.

3.6 **DBH:** 'Diameter at Breast Height' – the stem diameter measured in millimetres at 1.5m above ground level. Where the ground around the base of the tree is not level, this is taken 1.5m above the upper side of slope.

3.7 **Crown Spread**: The crown spread is given to four cardinal points, rounded up to the nearest half metre.

3.8 **Clear (m)**: The height of the crown clearance of the lowest branch above ground level, with the general direction it is growing to a cardinal point.

3.9 **Life stage**: Recorded with codes as follows, and relative to the species of the tree:

Y	Young
EM	Early-mature
SM	Semi-mature
M	Mature
OM	Over-mature
V	Veteran

3.10 **RPA**: Root protection area.

3.11 **CEZ**: Construction exclusion zone.

3.12 The trees were surveyed and assessed impartially and irrespective of the proposed development. Management recommendations should be implemented regardless of any proposed development for reasons of sound Arboricultural management or safety.

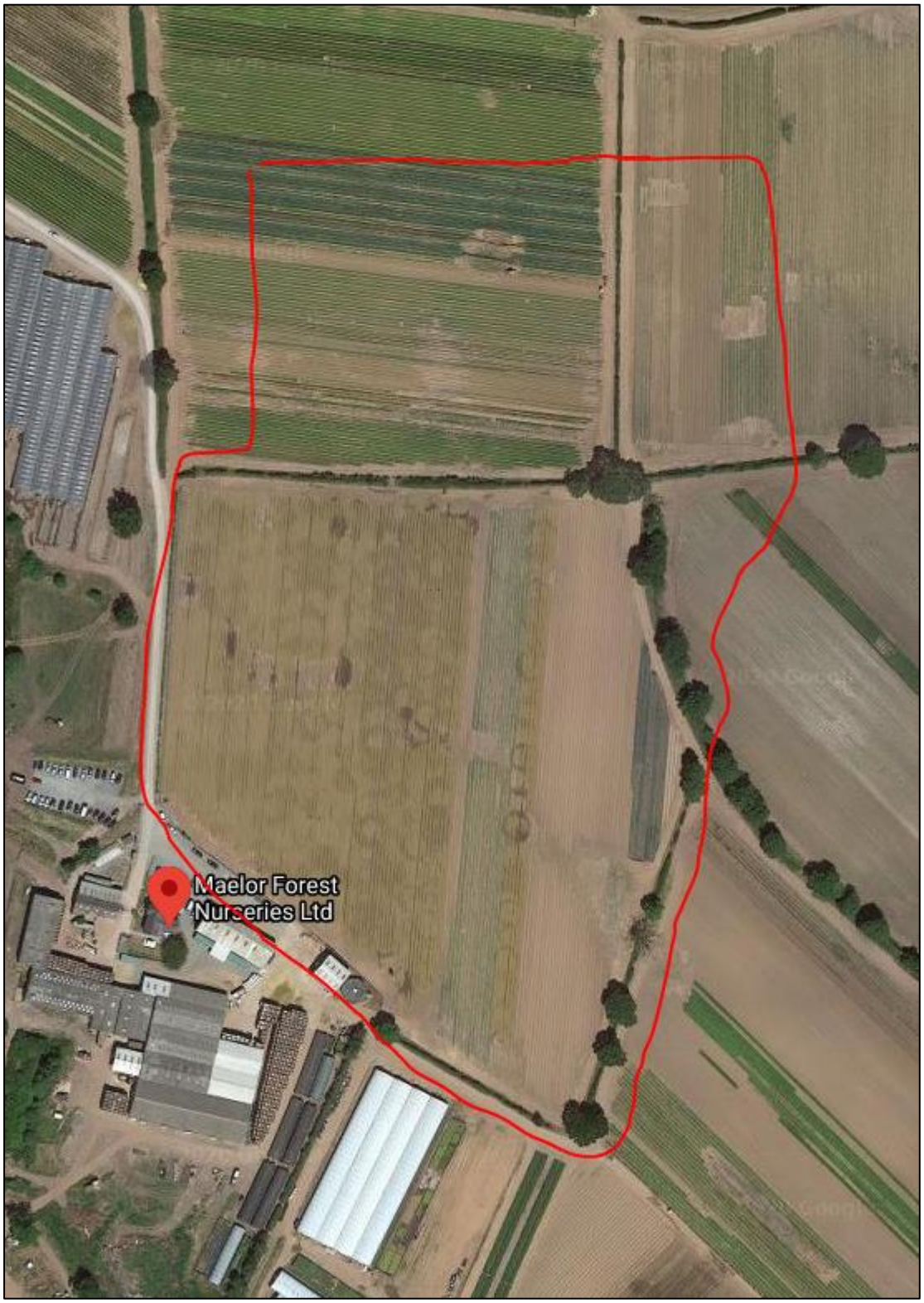
3.13 BS 5837:2012 requires retention of better quality (category A and B trees) where possible. Planning permission overrides a Tree Preservation Order and Conservation Area. Furthermore, trees are a material consideration in the UK planning system irrespective of their legal status. It is therefore not considered necessary to highlight or give additional merit to trees that have legal protection. Trees in land adjacent to the site are considered where they may be impacted by development, for example when roots or branches encroach onto the site.

3.14 Trees may be recorded as group or woodland where:

- The canopies touch
- The trees have more group value than individual merit.
- They are part of a formal landscape feature like an avenue.
- It is impractical to record them individually.
- Trees within groups or woodlands etc. are recorded individually where it is necessary to distinguish them from others.

4. Location of survey:

Maelor Forest Nursery Fields Farm, Bronington, Wrexham, SY13 3HZ



5. Tree survey site parameters are highlighted in red above.

6 Results

6.1 The survey was carried out on 07/10/20 by Luke Edwards, the weather at the time was clear and sunny with good visibility. Figure 1 shows the general layout of the site and the locations of all trees. The full results are tabulated in BS5837 tree survey schedule table (appendix 4) and should be read in conjunction with the tree protection plan Figure 3

7 Constraints posed by existing trees

7.1 The above ground constraints posed by the existing trees are shown in the current height and spread. The height and direction of the first significant branch and any notable physical and structural defects are also shown in the BS5837 survey schedule. Appendix 6.

7.2 The effects of trees on daylight and sunlight with regards to shading can be illustrated by plotting a segment, with radius from centre of the stem equal to the height of the tree. This is drawn from due north-west to due east, indicating the shadow pattern through the main part of the day. Further details of the above ground constraints are found in the arboricultural impact assessment.

7.3 The below ground constraints are marked as Root Protection Areas (RPA'S) on the tree protection plan figure 3. The concise arboricultural impact assessments and method statements are displayed in the survey comment of the tree survey table for each tree. This is to provide uncomplicated use by operatives along with the tree protection plan on site. The arboricultural impact assessment and method statement in this report provide more detailed information.

8 Arboricultural Impact Assessment

8.1 Evaluates the direct and indirect effects of the proposed design on the trees and where necessary recommends mitigation methods. The concise arboricultural impact and method statement for each tree surveyed is included in the recommendations survey comment of the BS5837 tree survey schedule.

8.2 Four category U trees unsuitable for retention are proposed for removal. 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 no longer than 10 years.

8.3 Three sections of hedge are proposed for removal: H0496 runs through the middle of the proposed polytunnel development and much of this hedge 200 metres is proposed for removal. Whilst it is in overall good condition, it is made up of both established and relatively young woody plants. H0492 has 100 metres section proposed for removal to accommodate the new structure but whilst in good overall condition it is limited in species diversity, mainly being made up of hawthorn and maintained at a low height. H0484 is a smaller 35 metre section of hedge also proposed for removal which is in poorer condition along with most trees in this section of hedge. The stems which make up these hedges are principally below 75mm DBH. However, due to the length of hedge proposed for removal (over 20 metres) they have been included in this report. As highlighted by the preliminary ecology assessment the construction of the unit would result in some hedgerow loss. This will require mitigation and will involve the replanting of an equivalent meterage of species rich hedge as part of the site landscape design.

8.4 Seven trees 473, 485, 486, 488, 489, 493, 495 all category C are proposed for removal. These trees are of overall low quality. Tree 494, one over mature category B oak tree is also proposed for removal. The Arboricultural Impact for the proposed removal, compared to number of trees retained and the overall tree population at the Maelor Forest Nurseries Fields Farm, makes the Arboricultural impact for the whole site relatively low. Especially given that the proposed structure is key to nursery production of tree stock nationwide. Nevertheless, to mitigate the loss, especially T0494 Oak, succession tree planting is required which can utilise some of the hedgerow gaps across the farm. Many of the hedge line field boundaries are typical mature trees with maintained hedges between. Therefore, currently limited allowance is given for succession of the next generation of mature hedgerow trees, principally oak in this case. And so, there is an opportunity to offset the loss by succession planting which will be beneficial in the long-term. Please note trees have only been looked at from an arboricultural perspective, not an ecology perspective. This report must be read in conjunction with the preliminary ecology report and any sequential ecology reports before any work is carried out to trees (subject to planning).

8.5 The proposed building and polytunnel structure fall out-side the RPA'S of all other trees and hedges in the site parameter. (see figure 3 Tree Protection Plan) The Arboricultural impact on these trees can be mitigated by following the Arboricultural Method statement out-side RPA.

8.6 The effects of shading represent a very limited impact to the proposed polytunnel structure because trees located to the south are located some distance from the proposed structure.

9 Arboricultural Method Statement

9.1 This details best practice measures to be adopted to protect retained trees during the development process. Details included within this section should be included within the specifications and schedules of work issued to all relevant construction and landscaping contractors. The methodology should be discussed and agreed between the local authority tree officer, architect, and relevant contractors. The methods are listed in order of implementation.

9.2 Fell and remove all category U trees and trees proposed for removal in red on figure 2.

9.3 **Method out-side RPA** for all trees retained. The RPA shall be measured and clearly marked on site with the use of ground pins or marker spray. All relevant personnel should be briefed to ensure they are fully aware of the location and extent of the RPA'S Construction Exclusion Zone (CEZ). Install the section of Heras fence or similar barrier positioned as indicated on the tree protection plan to form a construction exclusion zone (CEZ).

9.4 **Drainage and utilities:** follow recommendations in the NJUG Volume 4 Code of practice relating to work in proximity to tree roots within the RPA; specifically, the avoidance of trench excavations within the RPA. Any drainage or service-related works to be carried out within the RPA must be subject to prior written approval of the LPA of a method statement detailing how such works are to be carried out and monitored, to avoid undue damage to the tree.

9.5 Weatherproof notices shall be attached to the protective fencing displaying the words Construction Exclusion Zone.

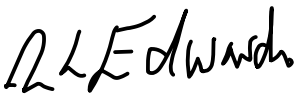
9.6 Ground levels should not be raised or lowered within the RPA and CEZ

10.0 Arboricultural site monitoring

The arborist shall visit site at pre-scheduled intervals below to ensure the method statement is followed under field conditions and ensure compliance by contractors.

- The marking out and instalment of construction exclusion zones

Written and prepared by:



Luke Edwards, RFS Cert Arb, Lantra PTI (Arboricultural Surveyor)

Approved by:

Matthew Owen. FDSc Arboriculture, RFS cert Arb (Director)

Appendix 1 figure 1 tree location plan.

Arboricultural Services
Arbserv
Pony House Crew Green Shrewsbury SY5 9BQ
01743 884671 www.arbserv.co.uk

Maelor Nursery

SCALE : 1 : 1250 @ A3

DATE : 12/10/2020

MAP FILENAME : FIG 1 Overview Tree Location Plan

N

KEY

Crown Spread
Root Protection Area
Shading Arc
Category 'A'
Category 'B'
Category 'C'
Category 'U'

0 100m

H0492 B
H0496 B
H0491 B
0495 C
0494 B
0493 C
0490 U
0489 C
0488 C
0487 U
0486 C
0485 C
H0484 C
0483 U
H0497 C
0481 C
0480 C
H0482 C
0479 B
0478 C
H0477 C
G0476 C
H0475 B
0473 C
0472 U
0471 B
H0474 B
0470 B
0467 B
H0468 B
0469 B

North Elevation
West Elevation
East Elevation
South Elevation
Proposed Shed

Fields Farm
Fields Farm
Tank

The Springs

Appendix 2 figure 2 Trees Proposed for removal.

Arboricultural Services
Arbserv
Pony House Crew Green Shrewsbury SY5 9BQ
01743 884671 www.arbserv.co.uk

Maelor Nursery

SCALE : 1 : 1250 @ A3

DATE : 12/10/2020

MAP FILENAME : FIG 2 Trees/Hedges Proposed for Removal Plan

N

KEY

Crown Spread
Root Protection Area
Shading Arc
Category 'A'
Category 'B'
Category 'C'
Category 'U'

0 100m

Trees/Hedges Proposed for removal

H0492 B
H0491 B
H0496 B
0495 C
0494 B
0493 C
0490
0489
0488
0487
0486
0485
H0484 C
0483 U
H0497 C
0481 C
0480
H0482 C
0479 B
0478 B
H0477 C
G0476 C
H0475 B
0473 C
0472 U
0471 B
H0474 B
0470 B
0467 B
H0468 B
0469 B

North Elevation
West Elevation
East Elevation
South Elevation
Proposed Shed

Fields Farm
Fields Farm
Tank

The Springs

Appendix 3 Tree Protection Plan.

Arboricultural Services
Arbserv
Pony House Crew Green Shrewsbury SY5 9BQ
01743 884671 www.arbserv.co.uk

Maelor Nursery

SCALE : 1 : 1250 @ A3

DATE : 12/10/2020

MAP FILENAME : FIG 3 Tree Protection Plan (TPP)

N

KEY

Crown Spread

Root Protection Area

Shading Arc

Category 'A' Category 'B' Category 'C' Category 'U'

0 100m

CEZ (Construction Exclusion Zone) Dotted Red Line.

H0492 B

H0491 B

H0497 C

North Elevation

Proposed Shed

West Elevation

East Elevation

South Elevation

0481 C

0480 C

H0482 C

0479 B

0478 C

H0477 C

G0476 C

H0475 B

Fields Farm

Fields Farm

Tank

0467 B

H0468 B

0469 B

0470 B

0471 B

H0474 B

The Springs

Appendix 4: BS5837 2012 Tree Survey

BS5837:2012 Tree Survey

Client: Roger Parry & Partners LLP
Project: Maelor Forest Nurseries Ltd
Survey Date: 07/10/2020
Surveyor: Luke Edwards

Arbserv Ltd

Crew Green
Shrewsbury
Shropshire
SY5 9BQ
Phone: 01743 884671
Mobile: 07912599933

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G0476 G0476											
Common Ash *Fraxinus excelsior*	11.2	10	506 (Eq)	N 3 E 3 S 3 W 3	3.1 3.1 3 2.9	M	A: 115.8 R: 6.07	Poor	C: Fair S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Group of lapsed hedgerow ash.	C <10 yrs
H0468 468											
A Hedgerow - *Unknown*	2	1	70	N 1 E 1 S 1 W 1	2 2 2 2	M	A: 2.2 R: 0.83	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 10 to 20 yrs
H0474 H0474											
A Hedgerow - *Unknown*	2	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Mature mix hedge 1m to 1.5m wide 2m tall. Mainly blackthorn & holly.	B 10 to 20 yrs

Age Classifications:
N Newly planted
Y Young
SM Semi-mature
EM Early Mature
M Mature
OM Over Mature

Condition:
C Crown
S Stem
B Basal area

Stems:
Ø Diameter
(Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
H0475 H0475 A Hedgerow - *Unknown*	2	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Fair	C: Good S: Fair B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Mixed hedge 2m hight 1.5m Wide with breaks in the hedge line. Mainly hawthorn & hazel.	**B** 10 to 20 yrs
H0477 H0477 A Hedgerow - *Unknown*	4	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Fair	C: Fair S: Fair B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Tall mixed hedge row mainly hazel, hawthorn & alder erosion ditch side of root plate.	**C** <10 yrs
H0482 H0482 A Hedgerow - *Unknown*	2.5	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Fair	C: Fair S: Fair B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Old hawthorn hedge with erosion on West from ditch.	**C** 10 to 20 yrs
H0484 H0484 A Hedgerow - *Unknown*	3.5	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Fair	C: Fair S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal 35m section of hedge. Mixed willow and alder lapsed coppice/hedge row multi stem.	**C** <10 yrs
H0491 H0491 A Hedgerow - *Unknown*	2.5	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Mixed species broadleaf hedge 2.5m high 3m wide.	**B** 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
H0492 H0492											
A Hedgerow - *Unknown*	2.2	0		N 1 E 1 S 1 W 1		M	A: 0 R: 0	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal 100m section of hedge. Broadleaf hedge row mainly hawthorn with some elder. 2.2m heigh by 1.5m wide.	B 20 to 40 yrs
H0496 H0496											
A Hedgerow - *Unknown*	2.2	0		N 1 E 1 S 1 W 1		SM	A: 0 R: 0	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal 200m section of hedge. Mixture of mature and newly planted hedge row. 2.2m high by 2.5 to 3m wide. X2 small oaks been left to grow but are under 75mm DBH. Some gaps in hedge line.	B >40 yrs
H0497 H0497											
A Hedgerow - *Unknown*	2.8	0		N 1 E 1 S 1 W 1		Y	A: 0 R: 0	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: NA Row/hedge line of young Douglas Fir planted along drive as windbreak and screen to nursery field. Mono species all under 70mm DBH avg height of 2.8m with crown spread diameter of approx. 1.8m.	C n/a
467 467											
Common Ash *Fraxinus excelsior*	8.5	4	500 (Eq)	N 4 E 4 S 4 W 4	4 4 4 4	M	A: 113.1 R: 6	Fair	C: Fair S: Poor B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 10 to 20 yrs
469 469											
Common Oak *Quercus robur*	8.6	1	800	N 7 E 6.9 S 7.1 W 7	3 3 3 3	OM	A: 289.6 R: 9.6	Good	C: Good S: Good B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 10 to 20 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
470 470											
Common Oak *Quercus robur*	8.5	1	710	N 5 E 5.6 S 7 W 5.5	3.3 3.3 3.2 3	OM	A: 228.1 R: 8.52	Good	C: Fair S: Good B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 10 to 20 yrs
471 471											
Common Oak *Quercus robur*	7.8	1	610	N 7 E 7 S 7 W 7	4 4.1 3.9 4	OM	A: 168.4 R: 7.32	Fair	C: Fair S: Fair B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 10 to 20 yrs
472 472											
Common Oak *Quercus robur*	4	1	995	N 1 E 1 S 1 W 1	1.8 1.8 1.8 1.8	Dead	A: 447.9 R: 11.94	Dead	C: Poor S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Trees unsuitable for retention. Proposed for Removal. Heavily retrenched /pollard oak. buds on epicormic growth are dead. Bat box on union crotch. Multiple large wounds are starting to decay.	U n/a
473 473											
Common Ash *Fraxinus excelsior*	8.2	5	263 (Eq)	N 3 E 4 S 2.9 W 3.2	2.8 2.8 2.9 2.7	M	A: 31.2 R: 3.15	Poor	C: Poor S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Old lapsed hedge row ash. Muti stem with deadwood in crown and limited growth. Water pocket cavity in main union.	C <10 yrs
478 478											
Common Alder *Alnus glutinosa*	4	2	241 (Eq)	N 2 E 2 S 2 W 2	0.2 0.2 0.2 0.2	M	A: 26.2 R: 2.88	Fair	C: Fair S: Fair B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ. Lapsed hedge row alder maintained by tractor flail. erosion from ditch.	C <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
479 479 Common Oak *Quercus robur*	10.2	1	590	N 7 E 6.9 S 6.8 W 7	3.8 3.8 3.7 3.9	M	A: 157.5 R: 7.08	Good	C: Good S: Good B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	B 20 to 40 yrs
480 480 Common Oak *Quercus robur*	10.8	1	840	N 3 E 4 S 5 W 4.1	4 4.2 3 3.6	OM	A: 319.2 R: 10.07	Decline	C: Poor S: Fair B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	C 10 to 20 yrs
481 481 Common Oak *Quercus robur*	12.6	1	790	N 7 E 6.5 S 4.1 W 5	4 4 4 4	OM	A: 282.4 R: 9.48	Fair	C: Fair S: Good B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: The proposed build fall out-side the RPA. METHOD STATEMENT: Install the section of Haras fence barrier positioned as indicated on the tree protection plan to create the CEZ.	C 10 to 20 yrs
483 483 Goat Willow *Salix caprea*	4.2	6	372 (Eq)	N 2.5 E 2 S 2 W 2.5	3 3 3 3	OM	A: 62.7 R: 4.46	Poor	C: Poor S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Trees unsuitable for retention. Proposed for Removal. Old lapsed hedge row willow coppice.	U <10 yrs
485 485 Common Oak *Quercus robur*	13.8	1	920	N 7.5 E 3.8 S 7 W 8	5.5 5.5 5.5 5.5	OM	A: 383 R: 11.04	Fair	C: Fair S: Good B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Mature oak with sparse crown, has been side pruned on east heavily in past or storm damage. Roots compromised by ditch and green headland track.	C 10 to 20 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
486 486 Common Alder *Alnus glutinosa*	10.2	3	375 (Eq)	N 4 E 3 S 2 W 3	5 5 5 5	M	A: 63.7 R: 4.5	Poor	C: Fair S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Alder multi stem with tight included union, roots in ditch area which is cleaned out.	C <10 yrs
487 487 Silver Birch *Betula pendula*	6.1	1	194	N 2.8 E 3 S 2.8 W 3.1	4 4 4 4	M	A: 17 R: 2.32	Poor	C: Fair S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Trees unsuitable for retention. Proposed for Removal. Mechanical damage to roots and lower trunk from ditch cleaning. Propose to fell.	U <10 yrs
488 488 Goat Willow *Salix caprea*	6	3	276 (Eq)	N 2.8 E 2.7 S 2 W 3.2	4 4 4 4	OM	A: 34.4 R: 3.3	Fair	C: Fair S: Poor B: Fair	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Old lapsed hedge row willow coppice.	C 10 to 20 yrs
489 489 Goat Willow *Salix caprea*	6	3	297 (Eq)	N 2.2 E 3.1 S 2 W 2.8	2 4 2 4	OM	A: 39.9 R: 3.56	Poor	C: Fair S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Old lapsed hedge row willow multi stem with cavities and tight unions.	C <10 yrs
490 490 Common Alder *Alnus glutinosa*	7.9	3	411 (Eq)	N 2 E 4 S 3 W 3.4	2 4 2 4	OM	A: 76.2 R: 4.92	Decline	C: Poor S: Poor B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Trees unsuitable for retention. Proposed for Removal. Lapsed hedge row alder coppice, major apical dieback on x1 stem. Tight basal unions. Propose to fell / coppice.	U <10 yrs
493 493 Common Oak *Quercus robur*	13.1	1	796	N 6.2 E 8.5 S 8.3 W 2.9	4 4 4 4	OM	A: 286.7 R: 9.55	Fair	C: Fair S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Compaction around root plate due to multiple gateways. Leaning, out competed main stem and crown from neighbouring oak. Sparse crown.	C 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)		Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
494 494												
Common Oak *Quercus robur*	13.8	1	1001	N E S W	8 8.1 8.3 9.2	4.2 4.2 4.2 4.2	OM	A: 453.4 R: 12.01	Good	C: Good S: Good B: Good	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Over mature oak, crown sparse with canopy apical termination. Small leaves with some soil compaction from field headland tracks on both sides of hedge line.	B 20 to 40 yrs
495 495												
Common Oak *Quercus robur*	7.4	1	854	N E S W	4 3.4 5.3 6.6	3.7 3 4 2.8	OM	A: 330 R: 10.24	Decline	C: Poor S: Fair B: Poor	ARBORICULTURAL IMPACT ASSESSMENT: Proposed for Removal. Mature naturally retrenched squat oak with cavities, cracks and decay in main scaffold branches.	C 20 to 40 yrs

Age Classifications:
N Newly planted
Y Young
SM Semi-mature
EM Early Mature
M Mature
OM Over Mature

Condition:
C Crown
S Stem
B Basal area

Stems:
Ø Diameter
(Eq) Equivalent stem diameter using BS5837:2012 definition

Appendix 5 British standard cascade chart for tree quality.

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
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	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix 6 Barriers.

Barriers

6.2.2.1 Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

6.2.2.2 The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in Figure 2. 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. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

6.2.2.3 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. For example, 2 m tall welded mesh panels on rubber or concrete feet might 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 3a). Where the fencing is to be erected

Figure 3 **Examples of above-ground stabilizing systems**

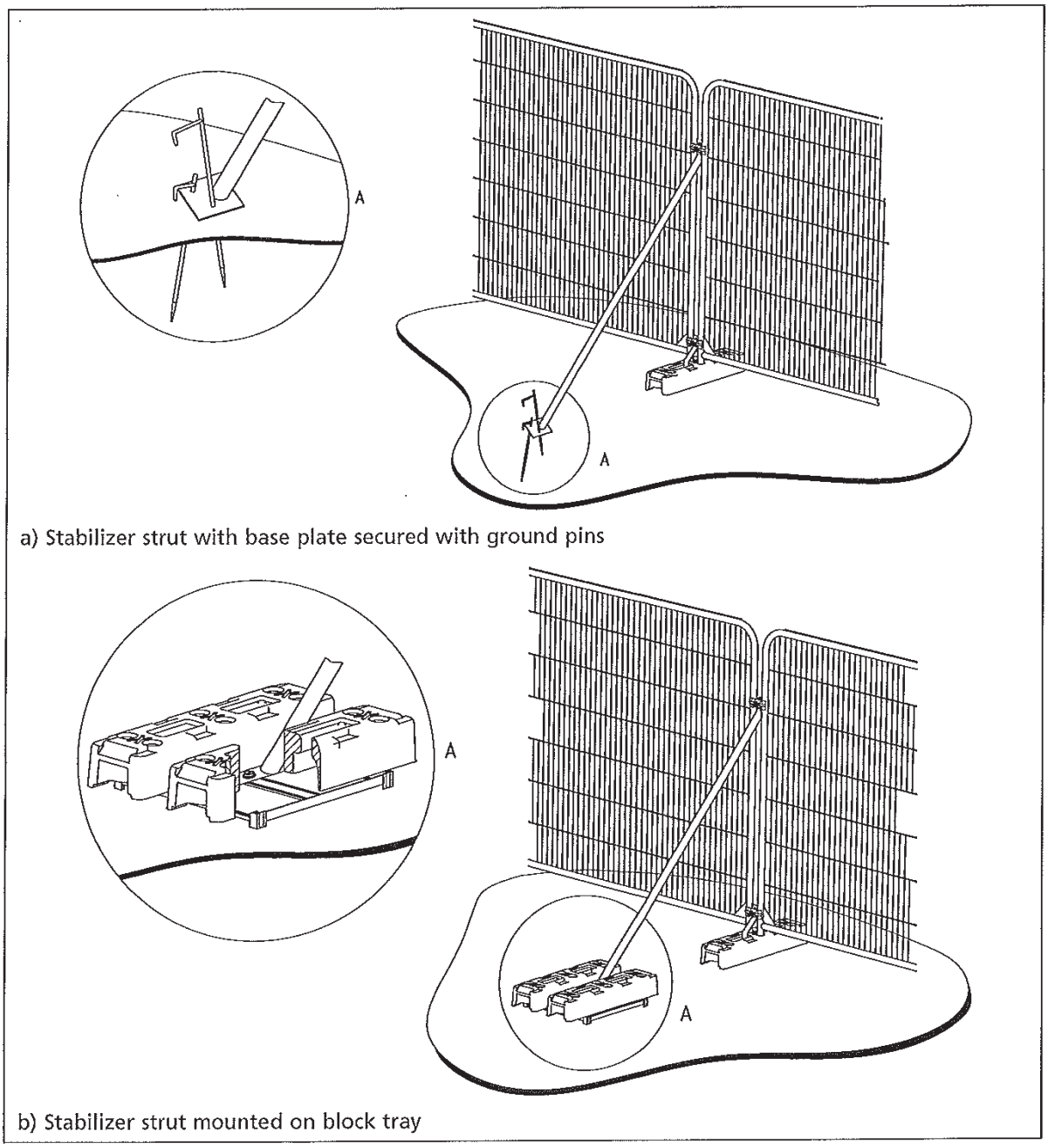
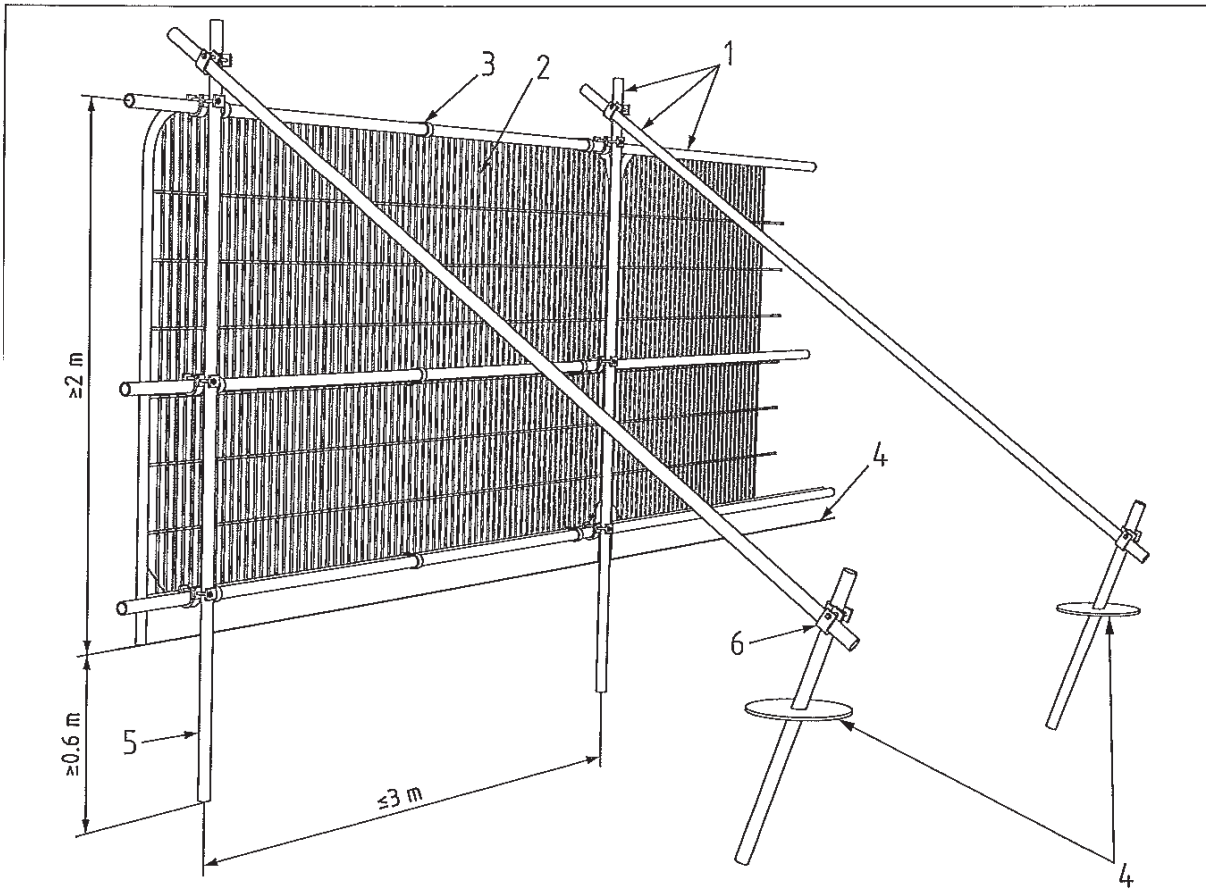


Figure 2 **Default specification for protective barrier**



Key

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

Appendix 7 References.

Arboricultural Practice Note No 12 'Through the Trees to Development' by Derek Patch and Ben Holding 2007.

BS5837: 2012 Trees in Relation to Design, Demolition and Construction Recommendations.

Diagnosis of ill-health in trees by R.G. Strouts and T.G Winter

Trees Pests and Diseases an arborists field Guide. Arborictural Association.

Barrell Tree Consultancy: Buildings near trees.