



Arboricultural Method Statement

Concerning property at:

York Road
Wilberfoss
York

Job Ref: 23019

Prepared on behalf of:

Blue Hill
Landscape Design



7 Blue Hill Crescent
Leeds
LS12 4PA
Tel: 0113 210 9559
Mob: 07939 058 770
Email: martin@bluehilllandscape.co.uk
Web: www.bluehilllandscape.co.uk

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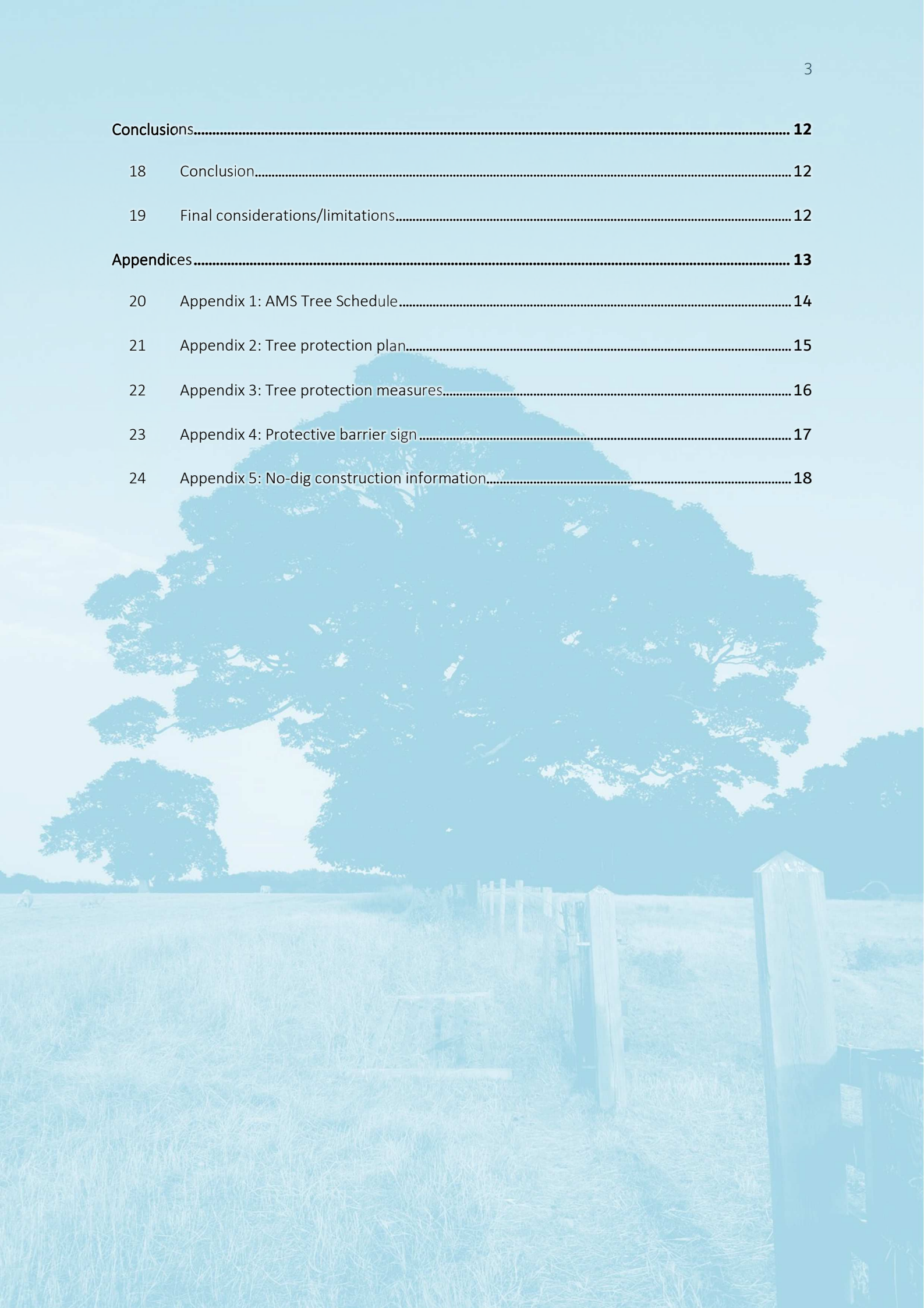
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Order of Operations

Pre-construction phase

1. Full planning consent is granted
2. Tree works prior to construction
3. Protective measures in place
4. Site planning
5. Arboricultural inspection

Main construction phase

6. Site facilities in place
7. Tree works during construction under Arboricultural supervision
8. Installation of underground utilities
9. Protective measures retained in place
10. Construction of 'no-dig' surfaces
11. Installation of cabins

Post construction phase

12. Protective measures removed
13. Final arboricultural inspection

Introduction

1 Purpose and content of this report

- 1.1 The purpose of this report is to detail the tree works, protective measures and working practices that are to be employed during the proposed development at York Road, Wilberfoss. Providing an Arboricultural Method Statement (AMS) is often a prerequisite to obtaining full planning permission or to discharge the relevant arboricultural/landscape officer responses. However, it is also prudent to provide an AMS in anticipation of formal officer responses, in order to prevent delay in the planning process.
- 1.2 The AMS Tree Schedule at **Appendix 1** includes details of the BS5837 survey, as well details on what tree works are required (if any) in order to accommodate the proposals. The Tree Protection Plan at **Appendix 2** provides a visual representation of the trees to be retained/removed, any necessary protective measures and areas that are subject to sensitive construction methods.

2 Legal and contractual status

- 2.1 Trees on sites subject to active planning applications are usually afforded legal protection until full planning permission has been granted. Therefore, until this AMS has been formally approved by the Local Planning Authority (LPA), no tree works should be undertaken without gaining formal consent from them.
- 2.2 As part of this service, we have also investigated whether the trees on the subject property are afforded protection by Tree Preservation Orders (TPOs), or by virtue of them being sited in a Conservation Area (see below for details). It should be highlighted that there are other forms of legal protection and also that the protective status of trees can change at any time. Therefore, we strongly urge the client to conduct their own investigation to ensure compliance with the law.
- 2.3 Using East Riding of Yorkshire Council's interactive mapping service, we are informed that no TPOs or Conservation Areas are in place on the surveyed trees at this time (18.08.23). However, if the site is part of an active application then the tree will still be afforded protection until this is determined. Therefore, we strongly recommend that no works are undertaken to trees without formal and prior consent from the LPA.
- 2.4 The AMS can form part of the contract to the building contractor and it should be kept on site during construction as a reference material. Care should be taken to ensure that the most recent version of this report is used. If in any doubt, please contact us.

3 Baseline data

- 3.1 We have been instructed by Blue Hill Landscape Design to prepare an Arboricultural Method Statement, along with a suitable plan that shows the relevant information regarding the trees. In order to do this, we have been supplied with the documents listed below. These, in addition to discussions we have had with design team members and/or local authority officers forms the basis of this method statement.
- Tree Constraints Plan (drawing ref. TCT.13346)
 - Most recent layout/proposals (drawing ref. 1024_502_Rev D)
 - Section drawings (drawing ref. Lodge Elevations 1024_504)

4 Description of development

- 4.1 The proposed development entails the construction of two new cabin style buildings within an existing tree belt off York Road, Wilberfoss. Access will be gained via the aforementioned York Road, leading immediately to a parking area. A more formalised version of the existing footpath then leads from the car park to the proposed cabins.
- 4.2 The cabins themselves will not have a traditional foundation and will not be placed on the ground. Instead, they will be attached to driven columns similar to a piled foundation type, negating the need for excavation. New drainage runs serving the cabins are proposed along the eastern boundary, at the top of the existing earth banking.

Prior to construction phase

For the purposes of this section 'prior to construction phase' means before construction or demolition begins and before construction plant and machinery enters the site. Only vehicles and machinery needed to complete the operations listed in the below section are permitted on site at this stage.

5 Tree work prior to construction

5.1 Before any other operations are undertaken on site, including installing tree protection measures, the tree works must be completed, as listed below. In addition to these works, it should be noted that on this occasion some tree work is required to be carried out during the construction phase and this is detailed in **Section 9**. The tree works comprise of those works identified as being required irrespective of the development ('preliminary management recommendations'), as well as those required in order to facilitate it. The former are listed below, and detailed in full in the original tree survey by Godwin's Arboricultural Ltd. A copy of this is included at **Appendix 1**. Those works required to facilitate the development are detailed in full below. Note that if a tree was recommended for pruning and subsequently requires removal for development, it is omitted from the pruning list below.

Preliminary Management Recommendations (i.e. irrespective of development):

- **Tree removals:** T5, T8, T12, T13, T16, T18, T22, T44, T48, T50 & T52.
- **Pruning:** T3, T4, T6, T7, T10, T11, T14, T15, T23, T24, T30, T31, T32, T35, T37, T41, T42, T43, T45, T46, G49 & G51.

Works to facilitate development:

- **Tree removals:** T17, T19, T21, T25, T26, T28, T29, T36, T38 & T54.
- **Pruning:** T14, T15, T23, T24 & T55.

- 5.2 T14, T15, T23 & T24 will be crown lifted to a height of 3.5m, to provide suitable clearance for the proposed cabins. T55 will be crown lifted to 5m over the site entrance to provide clearance for construction plant/machinery.
- 5.3 The appointed tree work contractor must be fully insured and qualified to undertake the relevant operations. They must work to BS3998:2010 – *Recommendations for tree work* wherever practically possible, and must comply with the most recent safety legislation and industry guidance. If there is any doubt regarding the prescribed works, please don't hesitate to contact us.
- 5.4 Tree Survey Solutions will not accept liability for works detailed in this method statement, unless they are undertaken under supervision by us.

6 Protective measures

- 6.1 Once the tree works listed in **Section 5** are complete, the next operation will be the installation of the protective measures. These must be in place prior to the arrival of any construction plant or machinery (other than those needed to install the protection), and prior to the commencement of the construction phase. For this development, the protective measures will entail the default barrier described in BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. As a general rule, the maximum area practically possible is afforded protection by the barriers while also allowing adequate space for construction.

Protective barrier:

- 6.2 The barrier will be a framework of horizontal and vertical scaffold poles, the vertical poles at 3m intervals or less, and driven securely into the ground (to a minimum depth of 0.5m). Care will be taken when doing so to avoid structural tree roots wherever possible, and to avoid underground utilities with a cable avoidance tool (CAT). Only qualified members of staff must do this. Stabilizer struts will be attached to the vertical poles and will project backwards (towards the tree) at an angle. They will be attached at the lower end to a short driven pole with a swivel coupler, or similar. This will brace the barrier against impacts. Once the framework is in place, metal mesh panels (Heras or similar) will be securely fixed to it using either wire ties or scaffold couplers, to the discretion of the scaffold contractor. An example diagram is included in **Appendix 3**.
- 6.3 The protective fencing will be located as shown on the Tree Protection Plan at **Appendix 2**. Where possible, the protective barrier will enclose the entire Root Protection Area (RPA) of the trees to make a Construction Exclusion Zone (CEZ); **this area is to be considered a restricted area; no pedestrians, vehicles, equipment or machinery are allowed within the CEZ and the storage of materials is not permitted, unless specified within this Method Statement.**
- 6.4 Once the fencing is installed, waterproof signs are to be placed at 3m intervals to ensure that all personnel are aware of the restrictions that apply to the cordoned off area. A prepared sign is available at **Appendix 4**.
- 6.5 Once installed, the appointed arboriculturist will be invited on site to inspect the protective fencing and ground protection, ensuring that it is located in the correct position and that it has been constructed in accordance with this Method Statement. No other work, including bringing materials or machinery onto site, shall commence until the barrier is installed and confirmed to be acceptable by the appointed arboriculturist.
- 6.6 It is important that the protective fencing be checked by the LPA or an arboricultural consultant prior to any construction works being carried out on site. If the protective fencing is not correctly installed or if it does not comply with BS 5837: 2012, this could result in damage being caused to trees and consequently, a stop notice may be served by the LPA.

7 Site planning

- 7.1 It is crucial that the planning of temporary structures and facilities considers the position of the tree protective barrier which is to remain in place throughout the construction phase. These include (but are not limited to) welfare stations, cabins, parking and chemical storage areas. Such facilities will be located outside the RPAs of retained trees and outside the line of the protective barrier.
- 7.2 The Tree Protection Plan highlights a working area on the west side of the tree belt. This area will be utilized for parking machinery, plant and material storage. Installation of the cabins will also be done from this side so that machinery used to transport the cabins into place is parked in this area, outside the RPA of the retained trees.

8 Arboricultural inspection – prior to construction

- 8.1 During this phase the appointed arboricultural consultant will perform a single inspection to:
- Ensure that all tree works listed in **Section 5** are complete and satisfactory; and
 - Ensure the protective fencing is located in the correct position and has been installed to the correct standard.

During the construction phase

For the purposes of this report, 'during the construction phase' means all operations entailed in implementing the proposed scheme through to material completion. This is with the exception of any activities listed in the previous section, snagging operations and soft landscaping.

9 Tree work during construction

- 9.1 Some tree work is required during the construction phase, and this takes the form of root pruning to accommodate new drainage routes through the RPAs of retained trees. This is relevant to G9, T10, T11, T14, T15, G20, T23, T24, T30, T31, T32, H34 & T35. For this method, the drainage route will be marked on site using a suitable method (e.g. biodegradable marker paint) by a qualified person such as the project engineer. The affected sections will then be hand dug with spades, under supervision by the appointed arboriculturist. Exposed roots will be cleanly pruned back by the arboriculturist using suitable hand tools (handsaws or bypass secateurs). Once dug, the drainage pipe will be installed, and the trench back filled to match surrounding ground levels.

10 Protective measures during construction

- 10.1 The tree protection barrier is to remain in place throughout the construction period, although individual panels may be removed during the drainage works described below. These will be re-attached once the operation is complete.

11 Hard surfaces

- 11.1 The proposed car park is located on an existing area of crushed stone. Where the footprint overlaps the RPAs of retained trees (T46 & G51), a 'no-dig' design will be utilised to prevent undue damage to trees via compaction.
- 11.2 The no-dig system will be installed using the following methodology, in conjunction with the product manufacturer's recommendations (**Appendix 5**). First, a level surface will be formed by filling in undulations with topsoil or sharp sand. No excavation will be undertaken to achieve the level surface. Following this a thin geotextile will be laid over the area (Treetex Geotextile by Geosynthetics).
- 11.3 A 3-dimensional cellular confinement system (AKA a 'honeycomb system') will then be laid over the area. The chosen product will be CellWeb by Geosynthetics. The depth of the CellWeb will be 100-150mm dependent on expected traffic and must be confirmed by the product manufacturer. This will then be filled with a clean, no-fines angular stone (4/20) to the height of the system which may be compacted with a hand-held vibrating plate compactor (wacker-plate). This system can be used without a final surface during the construction phase to avoid dirtying the final surface treatment.
- 11.4 The chosen final surface must be porous to ensure that rainwater can percolate to roots in the underlying soil. Examples include porous tarmac, block paving or pea gravel. However, if aggregates containing fines are to be used, another layer of geotextile must be laid on top of the angular stone to prevent compromising this layer. Edging supports are likely to be required and where within the RPA these must not entail continual trenching or excavation. Acceptable solutions include peg and board or timber sleepers.
- 11.5 The above methodology is specified for the purpose of preventing damage to trees. However, a structural engineer should be consulted to ensure that the mechanical needs of the system are also met. The chosen product supplier (Geosynthetics) will be contacted by the contractor to ensure that the correct product is chosen and installed appropriately: <http://www.geosyn.co.uk/product/cellweb-tree-root-protection>
- 11.6 Sections of the proposed footpath which a) lie within the RPA of retained trees and b) are not being excavated for the aforementioned utilities, will also be of 'no-dig' design. The specific design has not been formalized at the time of writing. However, it must entail no excavation, compaction or vehicle/machinery tracking at any point. This is relevant to T35, T37, T41 & G51.

12 Construction of buildings

12.1 With the pruning works listed in **Section 5** complete and the protective fencing in place, installation of the proposed cabins can commence. These will be transported along the west side of the tree belt and installed from the working area shown on the Tree Protection Plan. Locations for the pile-style foundations will be marked on site and then driven into place. The cabins themselves will then be moved into position and connected to the foundations. This operation will be done using banksman to spot the installation and prevent conflicts with the nearby trees. No machinery, vehicles or plant will be located on the exposed ground within the RPA during this operation.

13 Ground level changes

13.1 With the exception of the aforementioned trenching for the drainage routes, no ground level changes are to take place within the RPA of retained trees.

14 Arboricultural inspections during construction

14.1 During the construction phase, the appointed arboriculturist will supervise the installation of drainage routes within the RPAs of retained trees, and conduct root pruning as discussed in **Section 9**.

Post construction phase

For the purposes of this report, the 'post construction phase' means once the construction phase is complete but before the site has been signed off and is occupied as per its final intended use. Remaining activities typically include snagging operations and planting/soft landscaping.

15 Protective measures post construction

15.1 Once the proposed cabins are fully installed and the drainage runs implemented, all construction machinery and plant will leave the site. At this time, the protective fencing will be dismantled and carefully removed from site.

16 Landscaping phase

16.1 We have not been provided with details on landscaping proposals at the time of writing. Therefore, the default position of this report is that no ground level changes or additional hard landscaping will occur within the RPA of retained trees.

17 Final arboricultural inspection

17.1 Upon completion of the development, a final arboricultural survey will take place. This will assess the condition of the retained trees, assess any unintentional damage, and prescribe any remedial works which are needed prior to signing off the site for its intended use.

Conclusions

18 Conclusion

18.1 In accordance with the principles of BS5837:2012, this report details the arboricultural methodology to be adopted throughout the construction of the proposed cabins at York Road, Wilberfoss. The necessary protective measures have been described in detail, along with any necessary tree works and other arboricultural considerations. The tree survey data is included at **Appendix 1** and the Tree Protection Plan can be found at **Appendix 2**.

19 Final considerations/limitations

19.1 This report is based solely on the information provided to us (including documents, discussions with design team members and the LPA) and our experience and knowledge of trees in relation to development. We cannot therefore be held accountable for any aspects of the project which we have not been made aware of before the time of writing.

19.2 Our on-site assessment represents a 'snapshot' of the existing vegetation as it is now. Trees are dynamic organisms; their health & structural integrity can change due to a large number of factors including age, pests and diseases, the effects of wind, human activities and many others. For this reason, this report is only valid for a period of one year from the date of issue. Furthermore, we cannot be held responsible for events that occur due to factors that were not apparent at the time of surveying. If any events occur which cause concern relating to the trees, please don't hesitate to contact us and we will be happy to provide advice.

19.3 We also draw your attention to the fact that tree owners are required to have their trees inspected for safety/risk assessment purposes. This is a requirement under the Occupier's Liability Acts 1957 and 1984 and is also a well-established duty of care under common law. This report does not attend to this purpose.

19.4 If anything unforeseen happens relating to the trees or for further advice, please contact us via the details below.



Scott Reid (*BSc (Hons), Dip Arb L4, ND Arb, TechArborA*).
Tree Survey Solutions
Unit 19250
PO Box 4336
Manchester
M61 0BW
07411 611 725
info@treesurveysolutions.co.uk
www.treesurveysolutions.co.uk

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Appendices

20 Appendix 1: AMS 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 (m ²)	
T 1	Fraxinus excelsior (Ash)	Early-mature	1	500	16(2)	1(S)	6	6	4	7	Asymmetrical crown. Limited inspection - situated on adjacent land.	Good to Fair	40+	No action required.	6.0	113.1	B
T 2	Acer pseudoplatanus (Sycamore)	Semi-mature	1	320	9(3)	5(S)	3.5	4	3.5	4	Asymmetrical crown. Limited inspection - situated on adjacent land.	Good to Fair	40+	No action required.	3.8	46.3	C
T 3	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	14(2)	2(S)	4.5	2.5	6	7	Asymmetrical crown. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.1	117.7	B
T 4	Acer pseudoplatanus (Sycamore)	Mature	1	640	17(2)	2(S)	5	6	6.5	5	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.7	185.3	B
T 5	Crataegus monogyna (Hawthorn)	Early-mature	1	340	6.5(2)	1(N)	4	3	2	4	Crown suppressed by adjacent trees. Stem has crack/split.	Poor	<10	Remove for arboricultural reasons.	4.1	52.3	U
T 6	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	15.5(3)	3(N)	5	5	5	7	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.1	117.7	B
T 7	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	15(3)	4(N)	5.5	6	5.5	5	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.1	117.7	B
T 8	Crataegus monogyna (Hawthorn)	Semi-mature	3	90	1.5(0.5)	0.5(W)	1.5	1	1.5	1	Multi-stemmed from ground level. Previously pollarded.	Dead	<10	Remove for arboricultural reasons.	1.9	11.0	U
G 9	Crataegus monogyna (Hawthorn)	Semi-mature	3	100	4(0.5)	0.5(W)	1.5	1.5	1.5	1.5	Multi-stemmed from ground level. Previously pollarded.	Good to Fair	40+	No action required.	2.1	13.6	C
T 10	Acer pseudoplatanus (Sycamore)	Mature	2	520,400	17(3)	2(S)	5	7	6	6	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.9	194.6	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 11	Acer pseudoplatanus (Sycamore)	Early-mature	1	530	17(3)	3(N)	6	7	3	4	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.4	127.1	B
T 12	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	16(2.5)	2.5(N)	5.5	4.5	5	5	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees. Decay present on stem. Large cavity in stem >30%.	Poor	<10	Remove for arboricultural reasons.	6.1	117.7	U
T 13	Acer pseudoplatanus (Sycamore)	Early-mature	2	510,580	16(5)	5(W)	6	2	6	8	Twin-stemmed from ground level. Crown suppressed by adjacent trees. Large cavity in stem >30%.	Fair to Poor	<10	Remove for arboricultural reasons.	9.3	269.4	U
T 14	Acer pseudoplatanus (Sycamore)	Mature	1	950	18(5)	5(W)	7	6	8	10	Occasional pruning wounds. Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees. Cavity in stem <30%.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	11.4	408.3	B
T 15	Acer pseudoplatanus (Sycamore)	Early-mature	1	600	16(3)	3(S)	6	7	6	3.5	Occasional pruning wounds. Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.2	162.9	B
T 16	Acer pseudoplatanus (Sycamore)	Semi-mature	1	440	14(2.5)	2.5(S)	4	4	3	4.5	Crown suppressed by adjacent trees. Large cavity in stem >30%.	Fair to Poor	<10	Remove for arboricultural reasons.	5.3	87.6	U
T 17	Acer pseudoplatanus (Sycamore)	Early-mature	1	410	14(4)	4(W)	2.5	2.5	2	5	Unbalanced crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Fair	20+	Remove individual dead, defective or diseased branch(es).	4.9	76.1	C
T 18	Acer pseudoplatanus (Sycamore)	Semi-mature	1	200	5(4)	4(S)	0.5	0.5	0.5	0.5	Dead.	Dead	<10	Remove for arboricultural reasons.	2.4	18.1	U
T 19	Crataegus monogyna (Hawthorn)	Early-mature	3	120	6(0.5)	0.5(W)	1.5	1.5	2	2	Multi-stemmed from ground level. Crown suppressed by adjacent trees.	Good to Fair	40+	No action required.	2.5	19.6	C
G 20	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder)	Semi-mature	3	50	2(0.5)	0.5(W)	1	1	1	1	Individuals crowns restricted by group. Linear boundary group. Previously pollarded.	Good to Fair	40+	No action required.	1.0	3.4	C

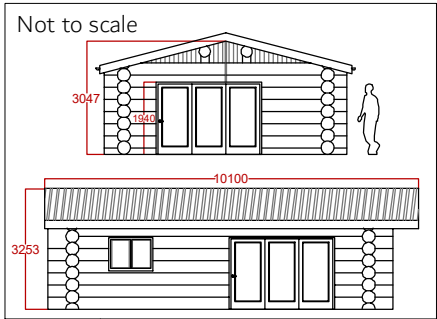
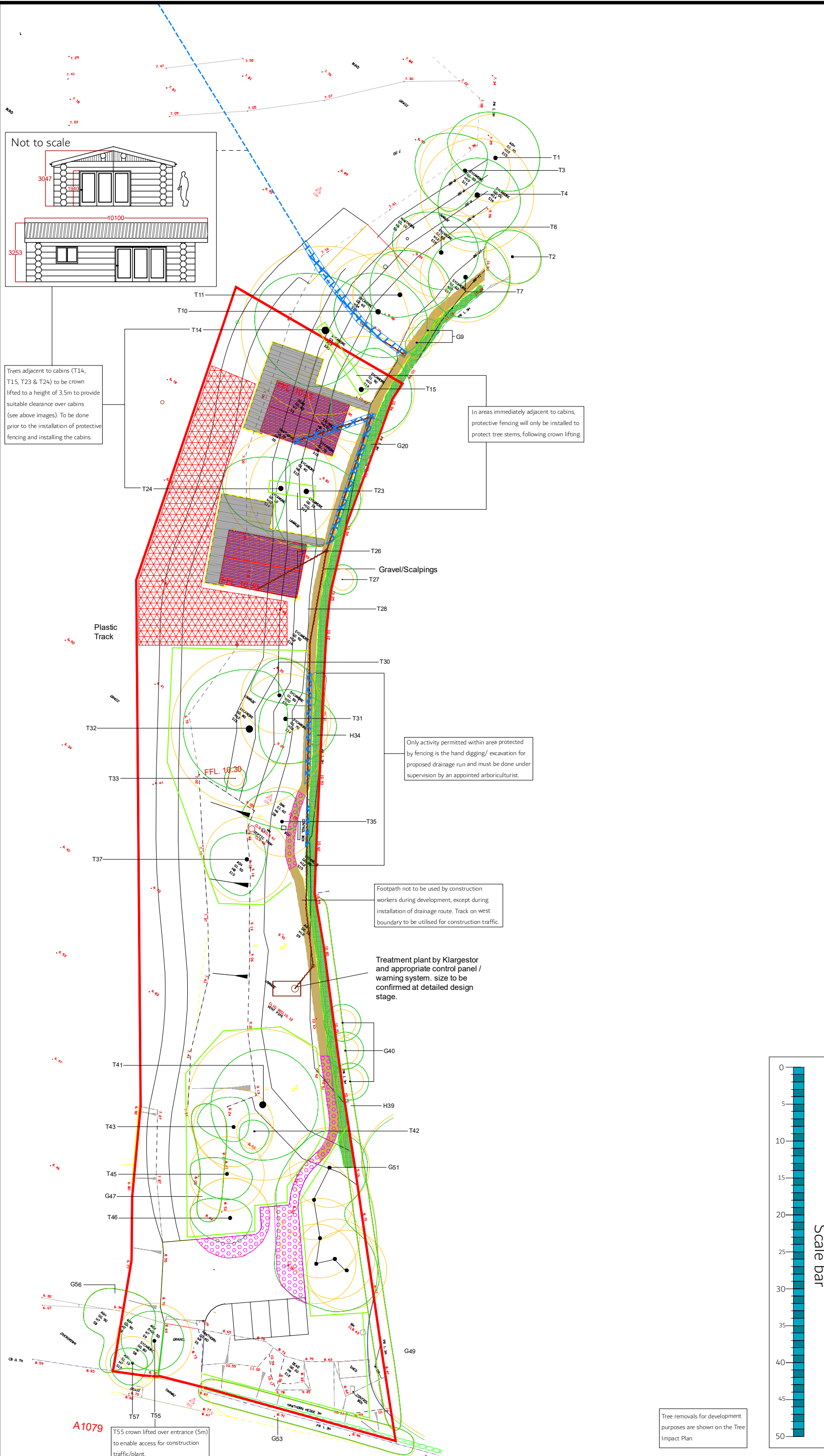
Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m)				Observations	Cond	Life Exp	Tree Works Required to Enable Development	Root Protection Area (RPA)		Retention Category
							N	E	S	W					Radius (m)	Area (m ²)	
T 21	Acer pseudoplatanus (Sycamore)	Early-mature	1	530	16(3)	3(N)	4	6	2	5	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.4	127.1	B
T 22	Acer pseudoplatanus (Sycamore)	Semi-mature	1	400	14(2.5)	2.5(W)	2	3	3	5	Crown suppressed by adjacent trees. Large cavity in stem >30%.	Fair to Poor	<10	Remove for arboricultural reasons.	4.8	72.4	U
T 23	Acer pseudoplatanus (Sycamore)	Early-mature	1	640	15(2)	2(S)	4.5	7.5	7.5	4	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.7	185.3	B
T 24	Acer pseudoplatanus (Sycamore)	Early-mature	1	620	15(2)	2(S)	4	1	6	8	Unbalanced crown. Crown - deadwood (Equal or less than 100mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.4	173.9	B
T 25	Crataegus monogyna (Hawthorn)	Semi-mature	5	90	4(0.5)	0.5(W)	2	2	2	2	Multi-stemmed from ground level.	Good to Fair	40+	No action required.	2.4	18.3	C
T 26	Ilex aquifolium (Holly)	Semi-mature	2	90	3(0.5)	0.5(W)	1.5	1.5	1.5	1.5	Multi-stemmed from ground level.	Fair	40+	No action required.	1.5	7.3	C
T 27	Fagus sylvatica (Beech)	Young	1	120	3.5(1)	1(W)	2	2	2	2	Balanced crown. Limited inspection - situated on adjacent land.	Good to Fair	40+	No action required.	1.4	6.5	C
T 28	Acer pseudoplatanus (Sycamore)	Young	12	25	2.5(0)	0(W)	2	2	2	2	Multi-stemmed from ground level. Re-growth from stump.	Fair to Poor	10+	No action required.	1.0	3.4	C
T 29	Acer pseudoplatanus (Sycamore)	Mature	1	820	17(4)	4(S)	7.5	8	7.5	8	Asymmetrical crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	9.8	304.2	B
T 30	Acer pseudoplatanus (Sycamore)	Semi-mature	1	430	15(6)	6(N)	5	5	1	4	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Fair	40+	Remove individual dead, defective or diseased branch(es).	5.2	83.7	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 (m ²)	
T 31	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	15(6)	6(N)	4	7	6	3.5	Crown - minor deadwood (less than 50mm). Crown suppressed by adjacent trees.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	6.1	117.7	B
T 32	Acer pseudoplatanus (Sycamore)	Mature	1	880	18(5)	4(S)	8	5	8.5	9	Asymmetrical crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	10.6	350.4	B
T 33	Crataegus monogyna (Hawthorn)	Semi-mature	3	50	4(2)	2(S)	1.5	1.5	1.5	1.5	Multiple pruning wounds.	Fair	20+	No action required.	1.0	3.4	C
H 34	Crataegus monogyna (Hawthorn)	Semi-mature	3	50	1.5(0.5)	0.5(W)	1	1	1	1	Linear boundary hedge. Maintained.	Good to Fair	40+	No action required.	1.0	3.4	C
T 35	Quercus robur (Common Oak)	Semi-mature	1	390	10(5)	5(W)	4	2	1	5.5	Unbalanced crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Fair	40+	Remove individual dead, defective or diseased branch(es).	4.7	68.8	C
T 36	Acer pseudoplatanus (Sycamore)	Mature	1	860	16(4)	4(S)	6.5	7.5	7.5	7	Asymmetrical crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	10.3	334.6	B
T 37	Fraxinus excelsior (Ash)	Early-mature	1	480	14(4)	1(W)	3.5	2.5	5	5	Unbalanced crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Fair	40+	Remove individual dead, defective or diseased branch(es).	5.8	104.2	C
T 38	Fraxinus excelsior (Ash)	Early-mature	1	640	15(6)	6(S)	4.5	7	4.5	5	Unbalanced crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	7.7	185.3	B
H 39	Crataegus monogyna (Hawthorn)	Young	1	15	3(0.5)	0.5(W)	1	1	1	1	Limited inspection - situated on adjacent land. Linear hedge.	Good to Fair	40+	No action required.	0.2	0.1	C
G 40	Tilia X europaea (Common Lime)	Semi-mature	1	150	7(2)	1.5(W)	2.5	2.5	2.5	2.5	Limited inspection - situated on adjacent land. Individuals crowns restricted by group. Linear boundary group.	Good to Fair	40+	No action required.	1.8	10.2	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	Acer pseudoplatanus (Sycamore)	Mature	1	850	17(2)	1.5(W)	7.5	7.5	7.5	7	Asymmetrical crown. Occasional pruning wounds. Crown - minor deadwood (less than 50mm).	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	10.2	326.9	B
T 42	Acer pseudoplatanus (Sycamore)	Semi-mature	1	200	8(3)	3(S)	1.5	2	3	2	Asymmetrical crown. Crown - deadwood (Equal or less than 100mm).	Fair	10+	Remove individual dead, defective or diseased branch(es).	2.4	18.1	C
T 43	Acer pseudoplatanus (Sycamore)	Early-mature	1	450	12.5(3)	3(W)	4	2	2	5	Asymmetrical crown. Crown - deadwood (Equal or less than 100mm).	Fair	40+	Remove individual dead, defective or diseased branch(es).	5.4	91.6	C
T 44	Acer pseudoplatanus (Sycamore)	Early-mature	1	550	14(3)	3(W)	3	3.5	3	5	Asymmetrical crown. Cavity in stem <30%. Tear-out wound on stem.	Fair to Poor	<10	Remove for arboricultural reasons.	6.6	136.9	U
T 45	Acer pseudoplatanus (Sycamore)	Early-mature	1	420	15(3)	3(W)	2	3.5	3.5	5	Asymmetrical crown. Crown - minor deadwood (less than 50mm).	Fair	40+	Remove individual dead, defective or diseased branch(es).	5.0	79.8	C
T 46	Acer pseudoplatanus (Sycamore)	Early-mature	1	450	15(4)	4(W)	2.5	3	3.5	5.5	Asymmetrical crown. Crown - minor deadwood (less than 50mm). Limited inspection - dense ivy on stem/base.	Fair	40+	Remove individual dead, defective or diseased branch(es).	5.4	91.6	C
G 47	Crataegus monogyna (Hawthorn)	Semi-mature	3	50	3(0.5)	0.5(W)	1	1	1	1	Multiple pruning wounds. Individuals crowns restricted by group. Linear group.	Fair	40+	No action required.	1.0	3.4	C
T 48	Acer pseudoplatanus (Sycamore)	Early-mature	1	550	16(6)	6(W)	4.5	6	6	5.5	Asymmetrical crown. Multiple pruning wounds. Limited inspection - dense ivy on stem/base. Cavity in stem <30%.	Poor	<10	Remove for arboricultural reasons.	6.6	136.9	U
G 49	Acer pseudoplatanus (Sycamore)	Early-mature	1	450	16(4)	5(W)	5	5	5	5	Crown - minor deadwood (less than 50mm). Individuals crowns restricted by group.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	5.4	91.6	B
T 50	Acer pseudoplatanus (Sycamore)	Early-mature	1	400	16(7)	7(W)	3	3	4	3	Asymmetrical crown. Large cavity in stem >30%.	Fair to Poor	<10	Remove for arboricultural reasons.	4.8	72.4	U

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 51	Acer pseudoplatanus (Sycamore)	Early-mature	1	450	16(7)	7(W)	5.5	5.5	5.5	5.5	Limited inspection - situated on adjacent land. Not inspected - located away from the proposed development area.	Good to Fair	40+	Remove individual dead, defective or diseased branch(es).	5.4	91.6	B
T 52	Acer pseudoplatanus (Sycamore)	Early-mature	1	600	15(6)	6(N)	6	6	6	6	Dead.	Dead	<10	Remove for arboricultural reasons.	7.2	162.9	U
G 53	Crataegus monogyna (Hawthorn)	Semi-mature	3	100	3(0)	0(N)	1.5	1.5	1.5	1.5	Limited inspection - restricted access. Limited inspection - dense undergrowth. Individuals crowns restricted by group. Linear boundary group.	Good to Fair	40+	No action required.	2.1	13.6	C
T 54	Crataegus monogyna (Hawthorn)	Semi-mature	3	100	5(1)	1(N)	2	2	2	2	Multi-stemmed from ground level. Limited inspection - dense ivy on stem/base.	Fair	10+	No action required.	2.1	13.6	C
T 55	Fraxinus excelsior (Ash)	Semi-mature	2	300	10(3)	3(E)	4	4	4	4.5	Twin-stemmed from ground level. Limited inspection - dense undergrowth. Tree RPA located within existing hard surface area.	Fair	40+	No action required.	5.1	81.4	C
G 56	Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	Young	1	100	6(1)	1(E)	2	2	2	2	Limited inspection - dense undergrowth. Individuals crowns restricted by group.	Fair	40+	No action required.	1.2	4.5	C
T 57	Fraxinus excelsior (Ash)	Semi-mature	1	300	8(3)	3(S)	2	2	3	3	Unbalanced crown. Limited inspection - dense undergrowth.	Fair	40+	No action required.	3.6	40.7	C

21 Appendix 2: Tree protection plan



Trees adjacent to cabins (T14, T15, T23 & T24) to be crown lifted to a height of 3.5m to provide suitable clearance over cabins (see above images). To be done prior to the installation of protective fencing and installing the cabins.

In areas immediately adjacent to cabins, protective fencing will only be installed to protect tree stems, following crown lifting.

Only activity permitted within area protected by fencing is the hand digging/ excavation for proposed drainage run and must be done under supervision by an appointed arboriculturist.

Footpath not to be used by construction workers during development, except during installation of drainage route. Track on west boundary to be utilised for construction traffic.

Treatment plant by Klargestor and appropriate control panel / warning system. size to be confirmed at detailed design stage.

A1079
T55 crown lifted over entrance (5m) to enable access for construction traffic/plant.

Tree removals for development purposes are shown on the Tree Impact Plan



Appendix 2: Tree Protection Plan

Site: York Road, Wilberfoss, York.

Project Ref:	23019	Drawing Ref:	002
Scale:	1:500	Printing size:	A3

T1 Tree reference number. Sequential number preceded by item type: T=individual tree, G=group, H=hedge, W=woodland group.

Retained trees

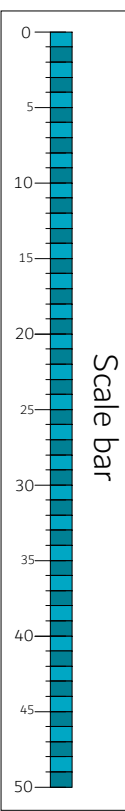
Root protection area (RPA)

Hand excavation with root pruning.

'No-dig' surfacing used within RPAs of retained trees.

Line of protective fencing.

Working area: All construction plant, machinery and material storage located outside the RPA of retained trees.



-This plan should be printed in colour; a monochrome version should not be relied upon.

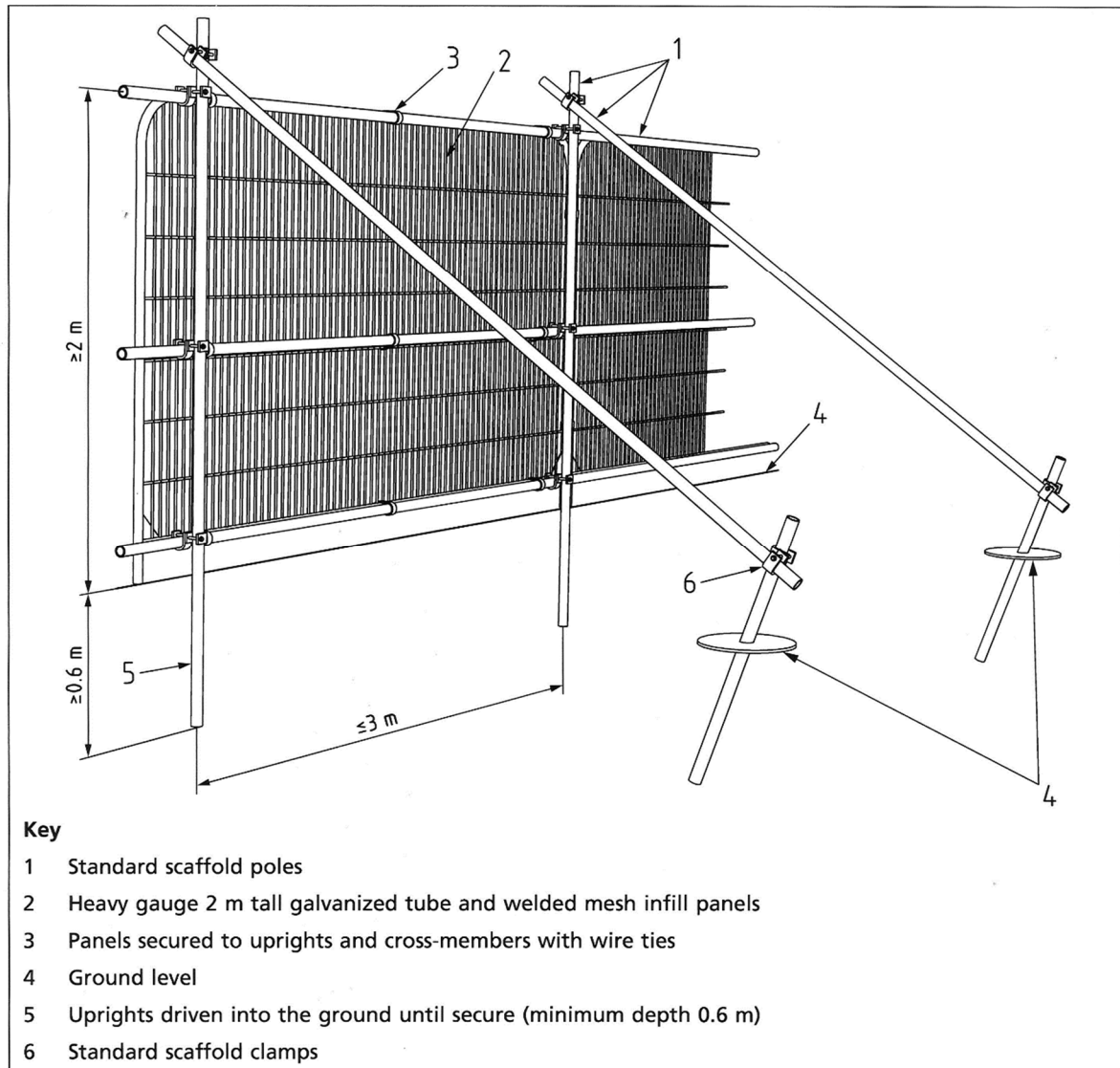
-This plan should be read alongside the associated arboricultural report.

-Any development proposals should be designed with consultation with the appointed arboriculturist to avoid delays/rejection at planning or breach of tree-related legislation.

22 Appendix 3: Tree protection measures

Default tree protection barrier as per BS5837:2012, comprising a framework of driven scaffold poles onto which metal mesh fencing is secured.

Fig 1: Default Protective barrier in BS5837:2012



23 Appendix 4: Protective barrier sign



Tree Protective Barrier

KEEP OUT!

Trees in this area are legally protected. To prevent prosecution **do not:**

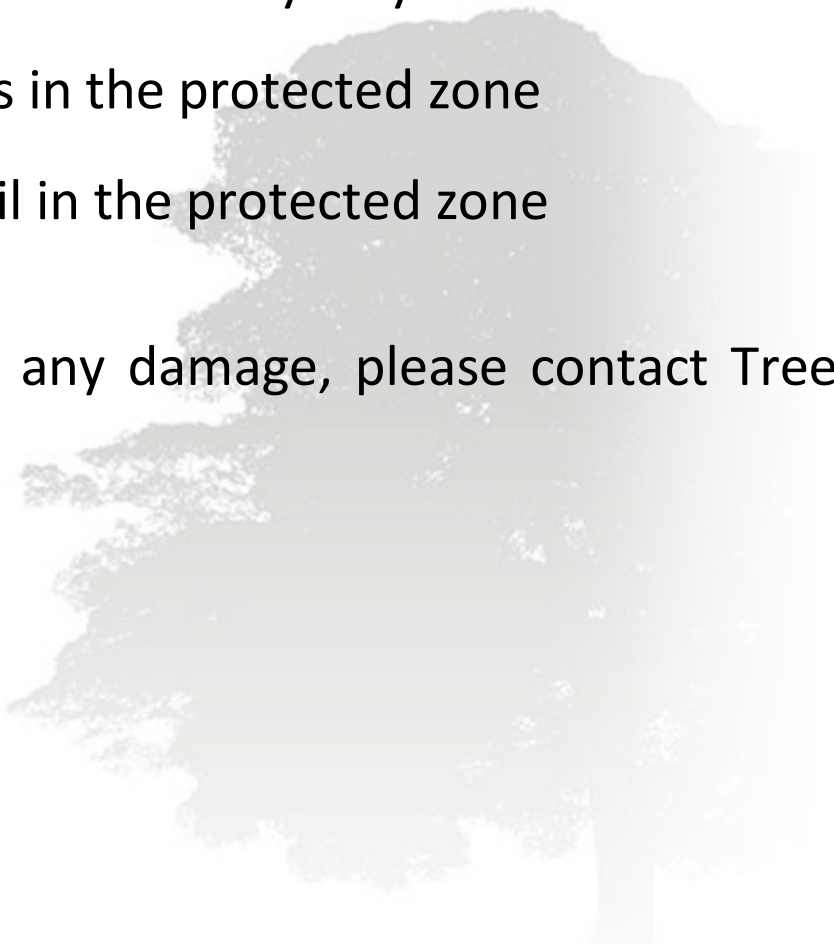
- Access the protected zone – no pedestrians, vehicles, machinery or plant to enter without approval
- Move or alter the barrier in any way
- Store any materials in the protected zone
- Excavate or pile soil in the protected zone

If in doubt, or to report any damage, please contact Tree Survey Solutions:

Tel: 07411 611 725

Email: info@treesurveysolutions.co.uk

Web: www.treesurveysolutions.co.uk



24 Appendix 5: No-dig construction information

Cellweb® TRP

The Contractors Guide



Complies with
BS:5837



No Dig
Solution



Adopted by
Councils



100%
Success Rate



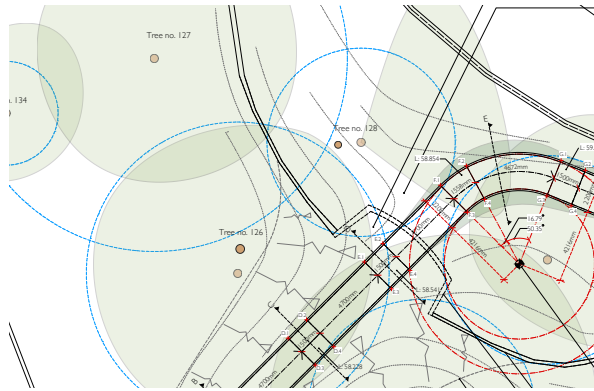
Cellweb®TRP
Guaranteed



Independently
Tested

What is Cellweb®TRP?

Cellweb®TRP is a cellular confinement system specifically designed for tree root protection. The system creates a stable load bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation. The Cellweb®TRP system comprises of three specific elements; Cellweb® TRP, Treetex pollution control geotextile and an infill of clean angular stone. The system has been designed to combine the best possible products to create an unparalleled solution for tree root protection applications.



What is a Root Protection Area (RPA)?

The Root Protection Area is the minimum area around a tree which is deemed to contain sufficient roots and soil to maintain the trees viability. The RPA is calculated as 12 times the diameter of the tree trunk and 1.5m off the ground; for example a tree has a trunk that is 500mm in diameter and is measured 1.5m above the ground. This calculates that the RPA will have a radius of 6m ($500\text{mm} \times 12 = 6,000\text{mm}$). The RPA is a radius relative to the tree trunk, but the calculation is based on the trunk diameter. This is used to protect all of the retained trees within and around the development.

What is a Tree Preservation Order (TPO)?

Tree Preservation Orders are put in place by local planning authorities in England to protect specific trees and woodlands in the interest of amenity. Preservation orders prohibit; cutting down, topping, lopping, uprooting, wilful damage and wilful destruction of trees as per The Town And Country Planning (Tree Preservation, England) regulations 1990 and 2012. If found guilty of tree cutting offences in the UK, the court can fine up to £20,000. In serious circumstances, a person can face unlimited fines if found guilty by the Crown Court.

How Cellular Confinement Works?

By confining the infill material, 3D Cellular Confinement Systems work by altering the angle of load distribution, reducing the load on the soil and increasing its bearing capacity. This ultimately minimises soil compaction and maintains an open soil structure. This is crucial for continued water permeation and gas exchange in the rooting environment.

What makes Cellweb®TRP the best solution?

- Cellweb®TRP is the only established guaranteed tree root protection system on the market in the UK.
- It Complies with BS 5837: 2012, Trees in relation to design and demolition/construction recommendations.
- It is the only independently tested system, ensuring compliance with recommendations made in BS 5837: 2012.
- Cellweb®TRP has had a 100% success rate on thousands of projects.
- Our in house tree root protection team will provide technical support both over the phone and on site.
- Our in house qualified civil engineers will provide site specific technical recommendations.
- An extensive bank of case studies is available to download for free.
- We offer free educational tree root protection seminars across the UK.
- Cellweb®TRP has been adopted by a number of local authorities throughout the United Kingdom.

Web: www.geosyn.co.uk | Tel: 01455 617139
Fax: 01455 617140 | Email: Sales@geosyn.co.uk



Geosynthetic
Engineered Solutions

Cellweb® TRP

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Complies with
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No Dig
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100%
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What the Guarantee covers and how to get your project guaranteed?

The guarantee covers the replacement of the dead tree(s) up to the value of £10,000 per tree. In the unlikely event the Cellweb®TRP System fails, the guarantee will also cover the replacement of the system up to £50,000.

To obtain the guarantee you will need to provide a copy of the arb report. Geosynthetics Ltd will then send a complementary technical recommendation. A scoping agreement will then be signed to clarify what tree(s) are guaranteed.

For more information please contact the team on 01455 617 139.

Why is stone so important, how can I source it and how much will I need?

In conjunction with Cellweb®TRP we recommend using 4-20mm of clean angular stone. Having an angular stone allows the stone to bind together providing rigidity throughout the cells and also allows pore spaces for the diffusion of water and gasses. Having a clean stone will ensure that fines do not clog the Treetex layer.

If you would like more information on the stone specification, please contact the team on 01455 617 139 however this can be sourced from your local quarry.

What is Treetex and what does it do?

Treetex is a pollution control geotextile developed to work in harmony with the Cellweb®TRP System. The heavy duty needle punched geotextile fleece is manufactured from polypropylene. Treetex is ideal for use in a Tree Root Protection system as it is easily moulded to the shape of the aggregate and has been independently tested by Coventry University. The product has been proven to absorb 1.7 litres of oil per m² ensuring that the roots are not damaged by pollutants from the surface.

Do I need any specialist equipment for installation?

The system is very easy to install and simply requires a stapler, staples and pins to hold the panels down during installation. Please note on larger scale projects for speed of installation, a hydraulic stapler may be used.

What applications can Cellweb®TRP be used for?

Cellweb TRP is likely to be required in the following scenarios:

- For the construction of any new hard surface within the RPA of any retained tree on or bordering the site.
- For the construction of temporary ground protection where construction and foot traffic must pass through the RPA during construction. BS 5837 2012 – Trees in relation to design, demolition and construction recommendations states that: “New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.”
- Where the use of ‘No Dig’ construction has been specified by an arboricultural consultant within the tree protection plan.
- Where Cellweb TRP has been specified in the architects or engineers plans and drawings.



Cellweb® TRP

The Contractors Guide



Complies with
BS:5837



No Dig
Solution



Adopted by
Councils



100%
Success Rate



Cellweb®TRP
Guaranteed



Independently
Tested

Free technical support from Geosynthetics Ltd is available

Our tree root protection team can offer support and advice in the following areas.

- Installation
- Overcoming changes in levels and other site specific challenges
- The Cellweb infill material – ‘What stone and how much’
- Surfacing options for the Cellweb®TRP system
- Edging the Cellweb system
- Quantifying and pricing

All of the above services are free of charge and have been developed to ensure that you are provided with the required levels of tree root protection for your site. The advice and services have been given to ensure that you are able to provide an excellent service to your clients and do not fall foul to the tree protection law or planning conditions.

What is the delivery turn around time as standard?

Delivery turn around for the Cellweb®TRP system is 24-48 hours* dependent on location and volume purchased.

Which depth of Cellweb®TRP do I need?

Depth of Cellweb®TRP	Unit	Gross Vehicle Weight (GVW)	Application
200 mm	Kg	< 60,000	HGV & Unusual - Crane / piling rig
200 mm	Kg	< 50,000	Heavy Construction Traffic
150-200 mm	Kg	< 30,000	Standard Construction Traffic & Refuse vehicle
150 mm	Kg	< 16,000	Emergency Access & Tractors
100-150 mm	Kg	< 9,000	Delivery Vans
100-150 mm	Kg	< 6,000	Car Park: Cars & Light van
100mm	Kg	< 3,000	Domestic Traffics: Cars
75mm	Kg	< 1,000	Pedestrians (with cyclist) path

Can I use an alternative system?

Cellweb® TRP has a number of unique attributes and once this has been specified by architects and designers, please be aware that no other system can comply. For guidance on ascertaining if another system is suitable, please contact our team for assistance. A system failure can ultimately bring about the demise of the protected tree(s) and could lead to prosecution and unlimited fines.

Please be aware that if Geosynthetics Ltd have completed site specific calculations and provided a full technical recommendation, use of another product will void our engineered solution and the guarantee will no longer be applicable.

For further information and assistance with Cellweb Tree Root Protection, please contact Geosynthetics Ltd on 01455 617 139.



Cellweb® TRP

Tree Root Protection

Cellweb® TRP is a 3D cellular confinement tree root protection system. The system provides a 'no dig' solution for the construction of new hard surfaces within root protection areas (RPAs). Cellweb® TRP has been designed and independently tested to comply with recommendations made in Arboricultural Practice Note 12 and BS 5837 2012 – Trees in relation to design, demolition and construction.



Cellweb® TRP Key Functions

Cellweb® is a 'no dig' solution which is constructed directly on the existing ground surface. This eliminates the requirement for excavation, preventing root severance.

Cellweb® is a completely porous system allowing continued water permeation and gas exchange between the rooting environment and atmosphere.

Cellweb® spreads point loads, minimising increases in soil compaction within the rooting environment. This maintains an open graded soil structure allowing continued root growth, water, gas and nutrient migration.

The Cellweb® TRP system comprises the following three components

Treetex™ Geotextile. Following minimal ground preparation the Treetex™ is laid onto the existing ground and top soil. This acts as a separation layer, separating the system above from the soil and rooting environment below. Treetex™ performs as a hydrocarbon pollution control measure in accordance with BS5837, holding 1.7lt of oil per square meter.

Cellweb® 3D Cellular Confinement. The Cellweb® is installed on top of the Treetex™ layer. This is fixed to the ground using ten steel J pins per panel. The panels can be cut to the required shape and adjoining panels can be connected using heavy duty staples or cell ties.

4-20mm Clean Angular Stone. The expanded Cellweb® is infilled with a 4-20mm clean angular stone. The confined angular stone locks together to produce a rigid stone mattress, while maintaining air pockets for continued water permeation and gas exchange. The low fines content of the stone prevents the Treetex™ layer from becoming blocked over time.

Which depth of Cellweb® TRP?

The Cellweb® System is provided in four different depths; 200mm, 150mm, 100mm and 75mm. The depth required is determined by the proposed traffic loadings and the site ground conditions. Geosynthetics in house engineering department can provide a free site specific technical recommendation. For free technical and engineering support please contact Geosynthetics Ltd 01455 617139 or the full installation guide can be found on our website www.geosyn.co.uk.

Indicative Cellweb with overfill

