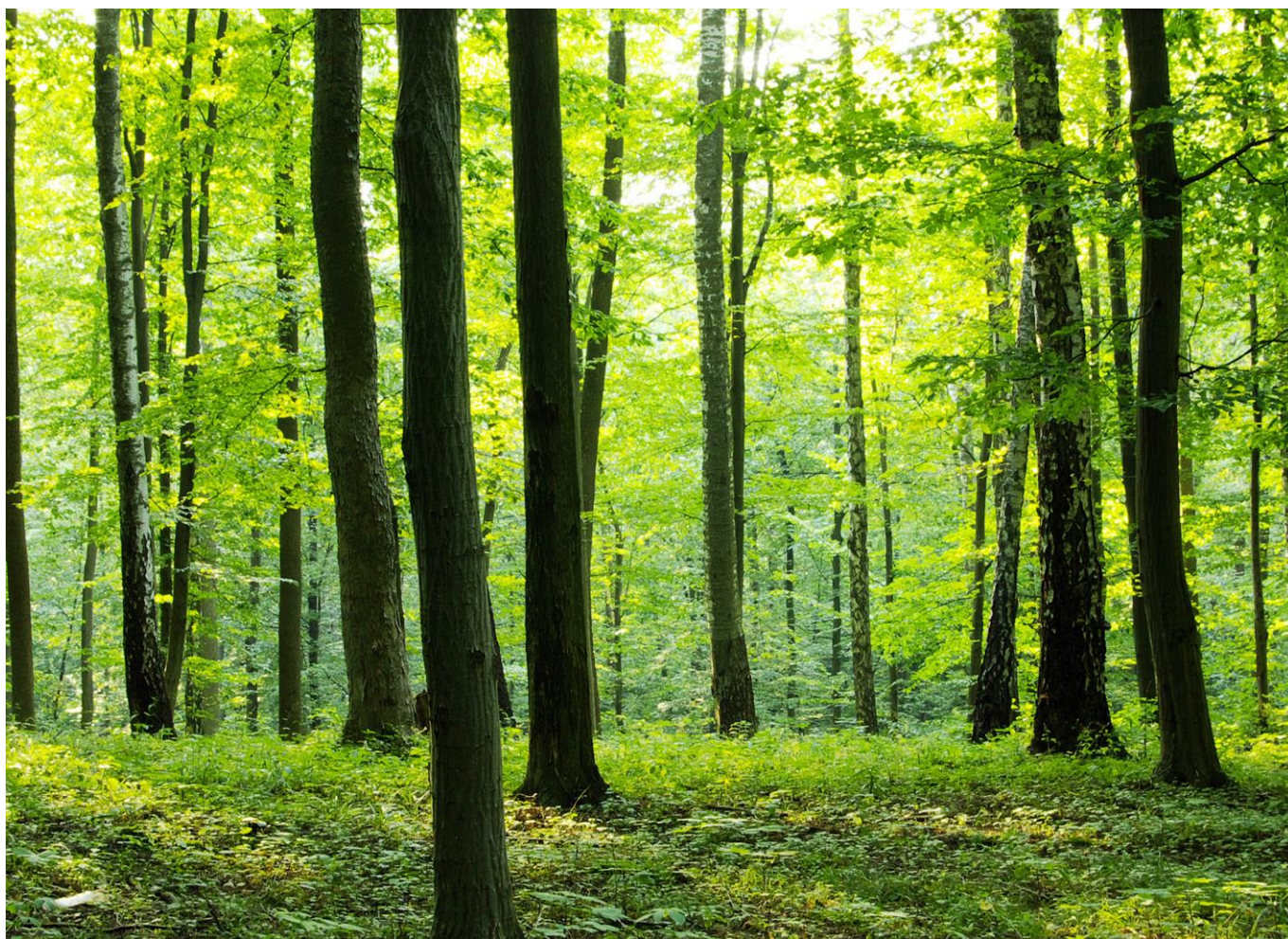




NHS Manchester University

Withington Hospital Stage 3 Arboricultural Method Statement

2485237

Status: Rev 0

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1.1 General

This report has been produced to inform a planning application for a new development. The work was commissioned by Manchester University NHS Foundation Trust ('MFT') and the report was prepared by Robert Fear, on behalf of RSK Biocensus, in January 2024 using tree data and plans completed by RSK Biocensus (report reference: *2485237_Withington Hospital_ S12_Arb_Report_Biocensus_REV02*).

1.2 Purpose of the Report

This arboricultural method statement has been prepared using the data and plans referenced above and seeks to describe the approach which will be taken towards protection of retained trees on site, including:

- timing of events;
- specifications of barriers and ground protection to protect retained features;
- precautions that will be taken when working near trees;
- details of site supervision; and
- details of an auditable system of compliance of tree protection measures and supervision.

The efficacy of this report relies on it not being viewed purely as a document to achieve planning permission, but as guidance for construction near trees to be followed before and during the project. Because of this, it will be circulated to all relevant parties involved with site management and works, including construction contractors, construction managers, technical managers, landscape architects, drainage engineers, and any other disciplines that will be involved in groundworks near trees. The contents within will be checked with them, and they will be satisfied that the guidance is workable from a buildability point of view and accept that the guidance must be followed. No liability is accepted for recommendations that cannot be implemented unless they are highlighted prior to submission for planning.

1.3 Overview of Scheme

1.3.1 General

The proposal consists of the construction of a two-storey building comprising a Community Diagnostics Centre (use class E(e)), with associated external landscaping, patient and delivery drop off area and 6 no. accessible parking spaces.

1.4 Supplied Documents

This report was prepared using data provided by the client:

- WCHCDC-DAY-V1-00-DR-A-020002-Proposed Site Plan-P7

2 SUMMARY OF TREE REMOVALS AND IMPACTS

2.1 Tree Removals

The arboricultural impact assessment report, compiled by RSK Biocensus, highlights that the proposed development will require the removal of one individual tree (T017) and the removal of two tree groups (G002 and G004).

2.2 Tree Impacts

2.2.1 General

The retained trees around the proposed layout will require protective fencing and this should be to a sufficiently robust specification to ensure protection of its surrounding ground conditions. Site hoarding around the development footprint will provide suitable protection for other trees adjacent to the site.

Some further woodland management operations may be required to the retained sections of G002, in the form of thinning and pruning to soften the transition between new layout and retained group edges.

2.2.2 Root Protection Areas (RPA)

The proposed construction works area overlaps a small proportion of the RPA of T009 and T010. All work within their RPA's must be undertaken using hand tools and under arboricultural supervision, so that any roots found during excavation can be pruned neatly and cleanly.

New hard surfacing has been proposed partly within RPA's of T013-T016, and this must be undertaken using 'no dig' construction methods, utilising 3D cellular confinement products (Appendix 7) in order for retained tree roots to be left undamaged.

2.2.3 Facilitation Pruning

Some facilitation pruning of the boundary retained trees overhanging the construction areas will be required to give adequate clearance.

T013, T014, T015 and T016 will also likely require pruning to provide clearance over new hard surfacing, although only minor crown lifting, and minor lateral growth pruning is expected to be required.

The extent of pruning must be agreed on site with the appointed arboricultural consultant during the initial site meeting.

2.2.4 Services

Details of proposed drainage/services have not been provided, however there is ample space around the proposed building footprint (once G002 removals have been completed) and, providing all excavation is located outside of RPA's this will be acceptable.

3 PROTECTION OF RETAINED TREES

3.1 Tree Protection Measures

Fencing

Prior to the commencement of any construction, the tree protection fencing (TPF) is to be erected to protect the retained trees as identified on the tree protection plan (Appendix 2).

The position of the TPF has been calculated by taking into account recommendations set out in BS5837:2012, which aim to protect the RPAs of all retained trees.

The specification of the TPF will consist of the Heras 151 Steadfast System (Appendix 3), with a rear stabilising brace and secured to the ground with ground pins. The fencing should be maintained to ensure it remains rigid and fit for purpose.

The area inside the TPF is known as the construction exclusion zone (CEZ) and is to be regarded as sacrosanct. All-weather signs are to be attached to the fencing to highlight its designation as a CEZ. The signage to be used has been included in Appendix 6. This will be printed out, laminated and fixed at appropriate intervals, for example every third panel.

The importance of the CEZ and restrictions of working within it will be communicated to all staff through the induction and periodical tool box talks. The following prohibitions will apply within the CEZ:

- no storage of plant, equipment or materials;
- no vehicular or plant access;
- no fire lighting;
- no handling or spillage of any chemical substance;
- no action likely to cause localised water logging; and
- no changing of ground levels (unless agreed in writing with the local planning authority (LPA)).

Once the TPF has been installed, the arboricultural consultant (AAC) will conduct an onsite inspection before any construction works begin.

Under no circumstances will it be altered or dismantled without the permission of the AAC.

Any site offices, welfare units, and storage areas must respect the trees and their root protection areas, shown in pink on the supplied plans. These will be sited outside tree root protection areas.

3.2 Arboricultural Supervision

3.2.1 Appointment

A degree of arboricultural supervision will be required prior to commencement and during the course of construction due to the high likelihood of significant tree impacts from construction activity. An arboricultural consultant will be appointed by the principal

contractor well in advance of any site works so that adequate resource can be allocated to the project.

The role of the AAC will be to advise on tree-related matters, tree protection elements and supervision prior to and throughout the course of construction. They will be responsible for keeping an auditable record of all arboricultural related issues and circulating this record to all relevant parties. However, they will not be responsible for instructing external contractors or managing them in any way.

3.2.2 Initial site meet

A site meeting will take place between the AAC, construction contractor (CC) and LPA tree officer (when required) before any preparation works start on site. This report will inform the agenda of the meeting and all parties will agree that the methods provided, tree removals, pruning requirements, works, protection, dates for supervision and inspection intervals are feasible and reasonable.

3.2.3 Supervision

There are instances of construction near trees (T009, T010, T013-T016), and they will require supervision by the AAC, these are detailed in section 4. A record will be kept, detailing each element of supervision and this will need to be kept and circulated by the AAC. Elements of supervision include:

- a) supervision or agreement during site meet of extent of tree removal and pruning with tree works contractor;
- b) site checks to ensure tree protection fencing is in place and to correct specification;
- c) site supervision of construction activity near to T009, T010, T013-T016, including no dig construction; and
- d) post-construction site check to evaluate tree condition and specify any remedial works.

4 TIMING OF OPERATIONS AND WORKING METHODS AROUND TREES

The timing of operations is essential if trees are to be effectively protected. Site operations are planned in the following order to help ensure this:

4.1 Pre- Construction Phase

- 1) Principal contractor (PC) to appoint arboricultural consultant (AAC) and brief them on the extent of the scheme, timescales and details within this method statement.
- 2) The PC will also appoint an arboricultural contractor to undertake the physical removal of trees. All contractors appointed must hold the appropriate qualifications, accreditations, licences and insurance cover to undertake these works and the PC will assume all responsibility for ensuring compliance to this aspect.
- 3) An initial site meet will be held between the AAC, the construction contractor (CC) and LPA tree officer as required. Tree removals are to be marked up, pruning agreed, services and build lines set out, tree protection measures and methodology will all be agreed.
- 4) Tree removals as detailed below will then be instructed by the PC. Tree works and pruning will be signed off by the AAC once complete. Tree works include:

Tree id	Works
T017	Fell to ground level and grind stump below surface to depth required.
G002, G004	Fell to ground level and grind stump below surface to depth required.

- 5) Install tree protection fencing according to Appendix 2 *Tree Protection Plan* (TPP). If any sections of fencing are considered unnecessary due to existing or proposed site fencing, this will be checked during the site meeting and agreed with the AAC.
- 6) On no account will any construction commence until tree protection fencing is in place around the retained trees.

4.2 Main Construction Phase

- 7) All staff and subcontractors working on site will attend a site induction and an element regarding tree protection will be included within this induction.
- 8) This report and accompanying plans will be freely available to all on site and those responsible for site management must familiarise themselves with this document.
- 9) The induction will include the simple instruction that trees must not be damaged, and materials not discharged nearby them where they may flow towards their roots.

10) The following precautions will also be observed and relayed to all operatives working on site during the induction:

- Any damage to trees their protective elements will be reported to site foreman and re-instated immediately, to ensure that it remains effective in protecting the area around trees.
- No materials, fuel, large volumes of water or chemicals to be discharged or mixed where they are likely to flow toward trees in the event of spillage.
- Wheel wash stations will be self-contained units where they are sited near retained trees or resultant water will be directed well away from areas where they may flow toward tree root areas.
- Any concrete mixing stations will to have protective bunds constructed around them to ensure containment of resulting debris or contaminants.
- Any spillages of potential contaminants (e.g. cement, bitumen, chemicals) near trees must be reported immediately to the project manager or arboricultural consultant and action taken to either flush the soil with large volumes of water or create a bund to avoid contaminants flowing toward tree protection areas.
- No materials or spoil will be stored against fencing.
- No fires to be lit on site.

11) AAC to supervise the following construction activity near trees T009 and T010.

- a. Supervised hand-dig adjacent to T009 and T010 will be utilised where any excavation or level changes are required within RPA's.
 - i. Any roots found that are unavoidably required for removal, will be pruned by the AAC, using clean and sharp bypass secateurs or loppers. This will leave a clean and straight cut on the tree side of the cut face.
 - ii. On completion, the batter will be carefully back filled to compacity with good quality topsoil and suitable compost material ensuring no voids are left. If this takes more than one day and roots are left exposed, then excavation works must be completed in sections and back filled to avoid desiccation of tree roots. If conditions are dry and hot, then hessian sacking soaked in water must be laid over exposed roots to keep them moist until the batter is completed.
- b. T013-T016: No dig construction of new hard standing to be installed using a 3D cellular confinement system (CCS) under supervision by the AAC as follows:
 - i. A 200 mm depth CCS is recommended in this instance, although this will need to be confirmed by manufacturers based on the existing soil conditions and load requirements.

- ii. A layer of geotextile be pegged out to receive the CCS in accordance with the manufacturers' installation instructions. A suitable kerb edging such as timber boarding, should be installed and fixed in place using steel rebars and soil or woodchip installed to create a shallow slope between the CCS and existing ground level. Details of installation and a specification is provided at Appendix 7.

4.3 Post Construction Check

- 12) A final post works inspection will take place, and recommendations given for any remedial tree works if required.
- 13) Tree protection fencing can be dismantled and removed from site.

5 APPENDICES

APPENDIX 1: TREE DATA TABLE

BS5837 Report

RSK Biocensus
CDC Withington



Ref.	Species	Measurements	General Observations	Comments	Retention Category	RPA	Measurements2
G001	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 16 Stem Diam(mm): 450 Spread (m): 3N, 3E, 3S, 3W Life Stage: Early Mature Rem. Contrib.: 10 - 20 Years	Group of sycamore along fencing boundary.	Unable to inspect stem due to undergrowth - data estimated Unable to inspect stem due to Ivy - data estimated Bat box in trees	C2	Area: 457 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
G002	Willow (<i>Salix sp.</i>) Common Holly (<i>Ilex aquifolium</i>) Blackthorn (<i>Prunus spinosa</i>)	Height (m): 10 Stem Diam(mm): 100 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Life Stage: Semi Mature Rem. Contrib.: 10 - 20 Years		Unable to inspect stem due to undergrowth - data estimated	C2	Area: 4460 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
G003	Sycamore (<i>Acer pseudoplatanus</i>) Prunus (<i>Prunus sp.</i>)	Height (m): 12 Stem Diam(mm): 400 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Life Stage: Semi Mature	Multiple stems at ground level Small group of multi-stemmed trees on fence line	Unable to inspect stem due to undergrowth - data estimated	C2	Area: 141 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
G004	Prunus (<i>Prunus sp.</i>)	Height (m): 8 Stem Diam(mm): 300 Spread (m): 3N, 3E, 3S, 3W Life Stage: Semi Mature Rem. Contrib.: 10 - 20 Years	Two prunus	Ivy on tree Unable to inspect stem due to Ivy - data estimated	C2	Area: 52 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
T001	European Lime (<i>Tilia x europaea</i>)	Height (m): 12 Stem Diam(mm): 600 Spread (m): 3N, 3E, 3S, 3W Life Stage: Mature Rem. Contrib.: 20 - 40 Years	Epicormics on stem	Unable to inspect stem due to epicormic growth - data estimated Not plotted on topo, position estimated	B2	Radius: 7.2m. Area: 163 sq m.	Other Reference: 0032 tag Physiological Cond: Fair Structural Cond: Fair

Ref.	Species	Measurements	General Observations	Comments	Retention Category	RPA	Measurements2
T002	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 10 Stem Diam(mm): 900 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20 - 40 Years	Epicormics on stem	Unable to inspect stem due to undergrowth - data estimated Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated	B2	Radius: 10.8m. Area: 366 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
T003	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 16 Stem Diam(mm): 800 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20 - 40 Years	Epicormics on stem	Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated Ivy on tree Bat box on tree	B2	Radius: 9.6m. Area: 290 sq m.	Other Reference: 0030 tag Physiological Cond: Fair Structural Cond: Fair
T004	Pedunculate Oak (<i>Quercus robur</i>)	Height (m): 10 Stem Diam(mm): 650 Spread (m): 1N, 1E, 4S, 4W Life Stage: Mature Rem. Contrib.: 20 - 40 Years	Crown distorted due to group pressure	Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated	B2	Radius: 7.8m. Area: 191 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
T005	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 16 Stem Diam(mm): 700 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20 - 40 Years		Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated Ivy on tree Unable to inspect stem due to Ivy - data estimated	B2	Radius: 8.4m. Area: 222 sq m.	Other Reference: 0027 tag Physiological Cond: Fair Structural Cond: Fair
T006	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 14 Stem Diam(mm): 500 Spread (m): 4N, 4E, 4S, 3W Life Stage: Early Mature Rem. Contrib.: 10 - 20 Years		Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated Ivy on tree Unable to inspect stem due to Ivy - data estimated	C2	Radius: 6.0m. Area: 113 sq m.	Other Reference: 0026 tag Physiological Cond: Fair Structural Cond: Fair
T007	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 14 Stem Diam(mm): 500 Spread (m): 4N, 4E, 4S, 4W Life Stage: Early Mature Rem. Contrib.: 10 - 20 Years		Unable to inspect stem due to fencing - data estimated Not plotted on topo, position estimated Ivy on tree Unable to inspect stem due to Ivy - data estimated	B2	Radius: 6.0m. Area: 113 sq m.	Other Reference: 0024 tag Physiological Cond: Fair Structural Cond: Fair

Ref.	Species	Measurements	General Observations	Comments	Retention Category	RPA	Measurements2
T008	Pedunculate Oak (<i>Quercus robur</i>)	Height (m): 14 Stem Diam(mm): 250 Spread (m): 3N, 3E, 3S, 3W Life Stage: Semi Mature Rem. Contrib.: 20 - 40 Years			B1	Radius: 3.0m. Area: 28 sq m.	Other Reference: Physiological Cond: Good Structural Cond: Good
T009	European Lime (<i>Tilia x europaea</i>)	Height (m): 15 Stem Diam(mm): 600 Spread (m): 4N, 3E, 4S, 4W Life Stage: Mature Rem. Contrib.: 10 - 20 Years	Included bark present in fork Stem divides above 1.5m Minor deadwood in crown	Unable to inspect stem due to Ivy - data estimated Ivy on tree	C2	Radius: 7.2m. Area: 163 sq m.	Other Reference: 0023 tag Physiological Cond: Fair Structural Cond: Fair
T010	European Lime (<i>Tilia x europaea</i>)	Height (m): 15 Stem Diam(mm): 800 Spread (m): 5N, 3.5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20 - 40 Years		Unable to inspect stem due to Ivy - data estimated Ivy on tree Unable to inspect stem due to epicormic growth - data estimated	A2	Radius: 9.6m. Area: 290 sq m.	Other Reference: 0022 tag Physiological Cond: Fair Structural Cond: Fair
T011	Horse Chestnut (<i>Aesculus hippocastanum</i>)	Height (m): 12 Stem Diam(mm): 600 Spread (m): 3N, 5E, 5S, 2W Life Stage: Early Mature Rem. Contrib.: 20 - 40 Years	Previous pruning wounds present	Unable to inspect stem due to Ivy - data estimated Ivy on tree	B2	Radius: 7.2m. Area: 163 sq m.	Other Reference: 0021 tag Physiological Cond: Fair Structural Cond: Fair
T012	Common Ash (<i>Fraxinus excelsior</i>)	Height (m): 8 Stem Diam(mm): 600 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Life Stage: Early Mature Rem. Contrib.: <10 years	Previous pruning wounds present Previously reduced in height major	Unable to inspect stem due to Ivy - data estimated Ivy on tree Bat box on tree	U	No RPA due to Retention Category of U.	Other Reference: 0020 tag Physiological Cond: Fair Structural Cond: Poor
T013	Horse Chestnut (<i>Aesculus hippocastanum</i>)	Height (m): 14 Stem Diam(mm): 700 Spread (m): 5N, 5E, 5S, 5W Life Stage: Early Mature Rem. Contrib.: 20 - 40 Years		Unable to inspect stem due to Ivy - data estimated Ivy on tree	B1,2	Radius: 8.4m. Area: 222 sq m.	Other Reference: 0020 tag Physiological Cond: Good Structural Cond: Fair
T014	Common Beech (<i>Fagus sylvatica</i>)	Height (m): 14 Stem Diam(mm): 300 Spread (m): 3N, 3E, 1.5S, 3W Life Stage: Semi Mature	Crown distorted due to group pressure	Not plotted on topo, position estimated	B2	Radius: 3.6m. Area: 41 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair

Ref.	Species	Measurements	General Observations	Comments	Retention Category	RPA	Measurements2
T015	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 12 Stem Diam(mm): 450 Spread (m): 3N, 3E, 3S, 3W Life Stage: Early Mature Rem. Contrib.: 10 - 20 Years			C2	Radius: 5.4m. Area: 92 sq m.	Other Reference: Physiological Cond: Poor Structural Cond: Fair
T016	Sycamore (<i>Acer pseudoplatanus</i>)	Height (m): 12 Stem Diam(mm): 350 Spread (m): 3N, 3E, 4S, 3W Life Stage: Semi Mature		Unable to inspect stem due to undergrowth - data estimated	C2	Radius: 4.2m. Area: 55 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
T017	River Birch (<i>Betula nigra</i>)	Height (m): 8 Stem Diam(mm): 150 Spread (m): 2N, 2E, 2S, 2W Life Stage: Young		Unable to inspect stem due to fencing - data estimated	B1	Radius: 1.8m. Area: 10 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair
T018	River Birch (<i>Betula nigra</i>)	Height (m): 6 Stem Diam(mm): 100 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Life Stage: Young			C1	Radius: 1.2m. Area: 5 sq m.	Other Reference: Physiological Cond: Fair Structural Cond: Fair

APPENDIX 2: TREE PROTECTION PLAN



Legend

	Groups Retained
	Groups Removed
	Trees Retained
	Trees Removed
	Root Protection Area
	Tree or tree group number

 Arboricultural Supervision Required

 Tree Protection Fencing (TPF)

____	____	____	____	____	____
Rev.	Date	Amendment	Drawn	Chkd.	Appd.



Client

NHS Manchester University

Project Title	Withington Hospital
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Drawing Title	TREE RETENTION PLAN
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Drawn	Date	Checked	Date	Approved	Date
RF	020124	JB	020124	JB	020124

Scale 1:666	Orig Size A0	Dimensions METRES
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Project No.	Drawing File
2485237	

2403237	—
Drawing No. 1	Rev. 0

1	0

APPENDIX 3: TREE PROTECTION FENCING

heras® 151 and 151steadfast system

round top panel with anti-climb mesh
high visibility orange blocks
steadfast strut
anti-tamper coupler
fully tested and certificated
health and safety compliant (HSG 151)

Having invented the original concept of temporary fencing back in the 80's, Heras is proud of its reputation as a true innovator.

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

Our safest, most stable and most secure system ever offers you total peace of mind, and unrivalled performance.

You can be sure that by installing the Heras® 151 Steadfast System (patent pending), you are conforming fully to the latest HSE Guidelines on "Protecting the Public" from the dangers of construction sites.

Heras has campaigned widely over recent years against falling product standards, and has consulted closely with senior figures across the construction industry to ensure our products meet and exceed your expectations. This latest innovative system means you should never again need to compromise on:

- Value for money
- Quality
- Performance
- Design
- Ease of installation.

All backed up with unbeatable service from our nationwide branch network – deal direct with Heras – your safety first fencing supplier.

Fully Tested and Certificated

- Extensive independent testing by Sheffield Hallam University has proved the performance of the system, resisting wind speeds well in excess of gale force.
- The HSE has confirmed that the system meets all of the guidelines in the HSG 151 Publication "Protecting the Public - Your next move".
- In turn, therefore, we can offer customers a certificate of compliance when they purchase this system from Heras.
- It is your responsibility to ensure the system is correctly installed and fixed. For help and advice, contact your nearest branch.



151 system

The key components of the Heras 151 system are as listed.

Round Top Panel with Anti-Climb Mesh

- The strongest panel on the market, with 3 sides formed from a continuous length of tube, eliminating the top corner weld, often the weakest point in traditional panel design.

High Visibility Orange Block

- Permanently coloured with a durable UV stabilised "hi-viz" casing and filled with solid high density concrete.
- Effectively highlights any potential trip hazard.
- Beware of cheap imitations – painted coatings will chip and peel.

Heraslock® Anti-Tamper Coupler

- Providing additional security, these couplers can only be removed with the use of the specialist tool.

151 steadfast system

The Heras 151 steadfast system incorporates all the benefits of the 151 system, with the addition of the patented...

Heras® Steadfast Strut

- The unique design of this clever strut dramatically increases the stability of the fence.
- The strut fits neatly within the high visibility block allowing a neat and compact solution, and acts as an integrated anti-lift device.
- 3 additional fixing holes incorporated in the design allow for soil pins and thunderbolts, dependent on ground conditions.

Optional Extras

- Heras® Steadfast Safety Strips with reflective coating can be fitted in minutes to highlight site dangers.
- Front support brackets allow vastly improved performance on softer ground conditions and fit quickly and easily into the high visibility blocks.



ROUND TOP PANELS WITH ANTI-CLIMB MESH



1. Front stabiliser.
2. High visibility footblocks.
3. Round top panel.
4. Steadfast strut.
5. Anti-tamper coupler.
6. Optional steadfast safety strips.
7. Anti-climb round top panel with steadfast struts to increase stability.

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

APPENDIX 4: TREE SURVEY KEY

Reference

Each tree or group has been assigned a sequential number.

T- Tree

G - Group

Species

Represents the genus, species and, if appropriate, cultivar of the tree. The common name is provided first, with the scientific name in brackets.

Stems

Number of stems present.

Measurements

- DBH - Stem diameter in millimetres measured at 1.5 m above ground level. Where the stem is divided below 1.5 m, measurement is taken as directed by BS5837 Annex C.
- Height – Tree height measure in metres to the nearest half-metre,
- Lower crown height – Lower crown height above ground in metres of the first lowest significant branch.

Age Classification

The following classification is employed:

- Y - Young: saplings and young trees under 10 years of age
- SM – Semi Mature: trees older than 10 years but less than one-third of the life expectancy of their species, normally making substantial extension growth.
- EM – Early Mature: trees between one-third and two-thirds of the life expectancy of their species. More or less full height and large girth, increasing only slowly.
- M – Mature: trees beyond two-thirds of the life expectancy of their species. No significant extension growth.
- OM – Over Mature - a tree having reached its maximum life span and is declining in health and size due to old age.
- V – Veteran: trees that shows features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species.

Structure Condition

An assessment of the structural/safe condition of the tree categorised into:

- GOOD - a tree in a safe condition with no significant defects,
- FAIR - a tree in a safe condition at present but with defects or with significant defects that can be remediated,

- POOR - a tree with significant defects that cannot be remediated.

Physiological Condition

An assessment of the physiological condition (i.e., health/vitality) of the tree categorised into:

- GOOD - a tree in a healthy condition with no significant problems
- FAIR - a tree generally in good health with some problems that can be remediated
- POOR - a tree in poor health with significant problems that cannot be remediated
- DEAD - a tree without sufficient live material to sustain life

General Observations

Observations made by the assessor relating to the category classification and arboricultural merits or concerns.

Estimated Remaining Contribution in Years

The estimated remaining contribution in years is an estimate based on currently known factors of the possible remaining life of the tree as an asset. Clearly, it is impossible to predict changes in condition which may occur in the future, and this reflects what is considered reasonable under existing circumstances; the classification that has been used is in accordance with BS5837.

The estimated remaining contribution in years will be dependent on the interaction of the typical longevity of the species, its current age and condition with prevailing environmental factors. The estimated remaining contribution in years also dependent on future tree management that can extend useful life in some instances.

Tree Categorisation Using BS 5837 Methodology

The trees surveyed were categorised using the method explained in BS5837. This method categorises individual trees, groups and woodlands in a systematic way.

Groups are identified as those trees forming a single arboricultural feature with trees that provide companion shelter, are avenues or screens or cultural.

Initially the surveyor will determine if the tree should be regarded as a U category tree. U category trees are those that are of low value that have little future due to physiological and structural condition.

Other trees are graded A, B or C. The initial category should reflect the tree's value in making an important contribution to the amenity of the site over a period of time. The higher the tree category, the longer the perceived time-period.

A subcategory is included 1, 2 or 3. This subcategory reflects the type of value the surveyor feels the tree presents in regard to its value to 1 – arboricultural, 2 – landscape, 3 – cultural or conservation context.

The cascade chart used is included as Appendix 5 of this report.

APPENDIX 5: BS5837:2012 CASCADE CHART

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 <i>NOTE</i> 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: SIGNAGE



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

APPENDIX 7: 3D CELLULAR CONFINEMENT EXAMPLE

THE GEOWEB® SOLUTION

TREE ROOT PROTECTION (TRP) SYSTEM

Used extensively in civil engineering construction for over 30 years, the GEOWEB® system is a three-dimensional structure that:

- provides strength to confined soils
- distributes loads laterally, not vertically
- reduces point loads
- reduces compaction of the subsoil

Manufactured from high quality, high-strength polyethylene with a textured surface and perforated walls, GEOWEB® cells with selected infill control shearing, lateral and vertical movement, and reduce subbase depth requirements.

The GEOWEB® system is a low impact development (LID) solution with exceptional load-bearing capabilities and environmental benefits. The system has a long history of solving heavy load support problems for roadways, road base support, parking lots, road shoulders, ports, trucking/intermodal terminals and railroads.

COST BENEFITS

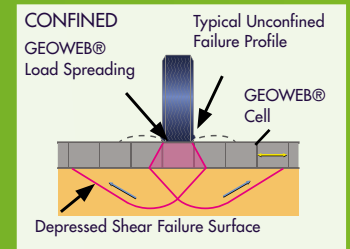
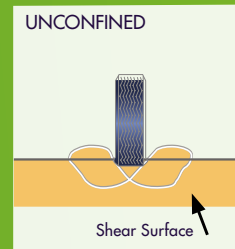
The GEOWEB® TRP system is an economical solution for reducing construction vehicle impact to the tree root zone compared with other methods. Once installed, the system has minimal-to-no visibility.

ENVIRONMENTAL BENEFITS

With permeable infill (topsoil/vegetation, aggregate, sand), perforated GEOWEB® cell walls offer environmental benefits:

- water infiltration
- lateral movement of air and water
- water and nutrient migration
- promotes root development

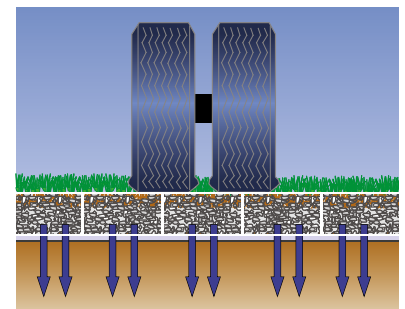
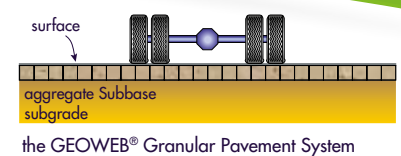
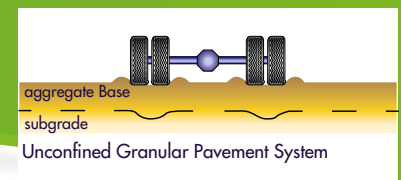
The tree root protection system can be a temporary or permanent solution.



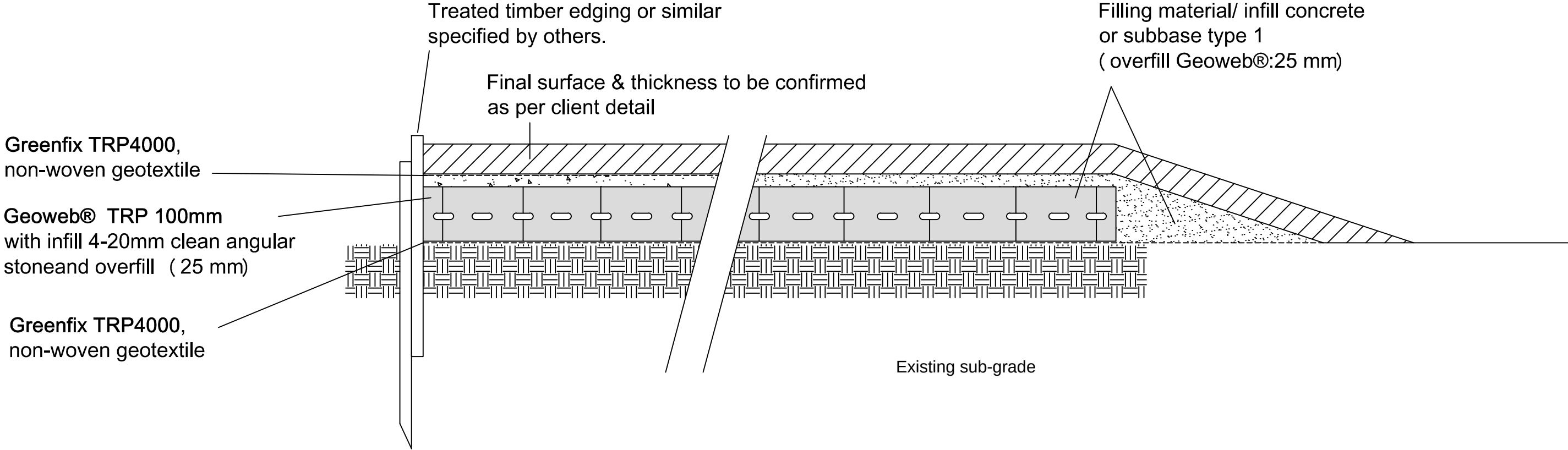
LOAD DISTRIBUTION

By distributing and bridging applied loads, the GEOWEB® TRP system reduces vertical stresses that are typically applied to the underlying soil and root zone.

The GEOWEB® system is ideally suited for tree root protection applications where weak subsoil or no-dig restrictions exist.



Standard/ Generic detail
transition ramp from existing levels



Note: 3 or 4 cells filled with concrete or subbase type 1

Adjacent Geoweb units to be joined with Atra-keys.

Project: Geoweb® transition ramp
Distributor: Greenfix soil stabilisation and erosion control
Date: 12.11.2015

Not to scale



LIMITATIONS OF USE
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Greenfix Soil Stabilisation and Erosion Control Ltd
Tel 01608 666027 | EMail info@greenfix.co.uk | www.greenfix.co.uk

APPENDIX 8: ARBORICULTURAL MONITORING RECORD



RSK Biocensus is owned by RSK Environment Ltd
Registered office
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Registered in England No. 04364279
www.rsk.co.uk

Arboricultural Site Monitoring Record

Site Address:
Planning Permission ref. and relevant conditions:
Appointed arb consultant details:
Owner/agent details:
Site foreman details:
Council tree officer details:
Relevant Plan References:
Summary of arb supervision required:

Relevant Plan Clips:

Arboricultural Site Monitoring Record

Date of visit	Details of supervision, fence checks or any other tree issues	Issues to rectify	site foreman informed (Y/N)	Date rectified	Pictures or Pic ref.

Arboricultural Site Monitoring Record

Date of visit	Details of supervision, fence checks or any other tree issues	Issues to rectify	site foreman informed (Y/N)	Date rectified	Pictures or Pic ref.