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Tree survey and Categorisation to BS5837:2012 Arboricultural Impact Assessment

**Proposed Tree House and Log Cabin Development at Sidney Nolan
Trust, Presteigne, Herefordshire, LD8 2LL**

Client: Sidney Nolan Trust,



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20 June 2023

Proposed Tree House and Log Cabin Development at Sidney Nolan Trust, Presteigne, Herefordshire, LD8 2LL

Introduction

Heritage Environmental Contractors Ltd has been commissioned by Hannah Welsh of Crown and Canopy on behalf of applicants the Sidney Nolan Trust to carry out a Tree Survey and associated Arboricultural Impact Assessment at the above location.

The survey was carried out on 13 June 2023 and the identified trees were surveyed with the use of drawing SID-P02 Site Plan. Weather conditions were warm, bright with a very light wind and a temperature of 22°C.

The purpose of this report is to identify the trees on the subject site, the quality and value of the trees, the possible effect of the development and the significance of such impact in landscape terms. The survey has been carried out in accordance with BS5837:2012 *Trees in relation to construction recommendations*, consult BS for further information. The trees were surveyed at ground level and no climbing inspections were undertaken. No internal decay detection readings have been made. The report is intended for planning purposes only and not a H&S assessment, this remains the responsibility of the current landowner. No liability can be accepted for features obscured or where access was unavailable.

Site Description

The application has two distinctive elements and separate from each other.

Tree House Location

This proposed structure is located close to a large pair of mature *Fagus sylvatica* (Beech) within a section of garden of the larger property, the area is dominated by grassland with existing specific mowed grass paths that are used to move around the site.

Cabin location

This is a free standing structure located within a short improved grassland field, it is external of a small block of young woodland, this location is external of trees RPAs and its footpath access is proposed across the grassland and also does not affect any trees, this location requires minimal consideration

no soil samples were taken.

Tree Survey/Categorisation

The trees were surveyed from ground and the major trees are classified as category A with minor and fruit trees classified as category B, the general lack of management has reduced the value of these trees or competition from larger trees in close proximity. Formative pruning and a long term management regime will allow these trees to develop into Cat A trees over time and are unaffected by proposal.

Schedule of Arboricultural Works

All of the trees are to be retained, these should be assessed for health and safety prior to operations. A small amount of dead wood is present and this should be removed prior to any work being carried out on site. The Tree house location requires the removal of 4 small branches, these are minimal and do not represent significant limbs or structural form of the canopy/crown – see photograph identification in rear.

A qualified tree surgery company will undertake any recommended formative work to BS3998:2010. An ongoing culture of tree inspection should be initiated, this should be carried out at regular intervals and general observations should be made after heavy weather conditions. These should be recorded and carried out by a competent person.

Arboricultural Impact Assessment

As part of the development it is proposed that all of the trees are to be retained.

Tree House Location

The proposal is within the RPAs of the major trees and a different methodology of construction has been researched and adopted. A low impact system is to be initiated using "Rapid Root" concrete free foundation system or similar approved to ensure no damage to tree roots of T1 and T2. Existing pedestrian access to the site is to be utilised which is external of RPAs on site, the new link from this existing access will be a surface mounted, no dig solution using bark and to be retained with wooden boards minimising potential impact or compaction.

Cabin location

The proposed new structure is external of all RPAs and no tree canopies are affected, the proposed new footpath is also external and will be of a similar low impact bark/gravel solution.

Design Constraints

The existing features present have allowed the trees and root systems to develop fully into the grassland and field associated with both locations.

The design is sympathetic to the surrounding landscape and will have a minimal impact upon the trees and root systems.

Ground protection will be required during the construction phase of Tree House Location and should cover an area large enough to cover footprint of structure and any working zones, including access points.

Material storage can take place upon the existing hardstanding and carparking areas and moved onto site when required, further reducing the potential effects of compaction.

Temporary Ground Protection

Subject to the management plan the level of ground support will need to be confirmed and an adequate level of protection will be designed, it should allow for: -

- Pedestrian use - single layer of scaffold boards upon a non compressible layer of 100mm of wood bark retained upon terram membrane.
- Plant up to 2 tonnes gross - linked ground protection boards upon a non-compressible layer of 150mm of wood bark retained upon terram membrane.

Services

At the time of this report details on proposed services were not available.

Post Development Implications

Due to the dynamic nature of trees and their interaction with the environment their health and structural integrity is liable to change over time, because of this it is recommended that all trees on or adjacent to site be inspected regularly. The Tree House Location should have a formal recorded policy of inspection and carried out by a competent person.

No internal decay detection has been carried out.

Landscape Implications

All the trees are to be retained and so the proposal will have no impact upon the surrounding trees, woodland or landscape.

Preliminary Arboricultural Method Statement

All operatives should make themselves aware of this document.

Damage caused to trees is by numerous ways including above and below ground.

- Structural direct impact
- Run off
- Spillage
- Chemicals
- Excavation/trenching
- Soil compaction
- Stockpiling of materials

Sequenced Methods of Construction and Tree Protection

Phase 1 – Pre-Contract Meeting

An onsite meeting will be held if required, with all relevant parties; including the contractor, appointed Arboricultural advisor and local planning authority representative.

Phase 2 - Execute Agreed Tree Works

All dead wood to be removed and when tree climbers are within the canopy any structural defects observed should be dealt with at the same time. 4 small branches to be removed to allow tree house to be slotted into position. Arboricultural advisor is to be informed / supervise.

Phase 3 - Tree Protection Barriers and Temporary Ground Protection.

Fencing is generally not required as the operations are to take place within the RPAs of tree house location site, exclusion fencing can be used to exclude the general public from site to give an additional level of protection to RPAs. The log cabin location is fenced off from field and will also require minimal additional fencing on site. Temporary ground protection is to be installed within the tree house location plot allowing the ground anchor system to be installed off this working platform and protecting the soil structure in this area.

Phase 4 - Construction of Hard Standing

Existing hardstanding and parking areas are to be utilised for contractors parking and material storage and will not require additional construction, should this change, low impact system should be used and located external of all RPAs on site.

Phase 5 - Demolition of Existing Structures and Buildings

N/A.

Phase 6 - Ground works, Foundations, Drainage and Services

TBC with structural engineer using the "Rapid Root" system or similar approved system for tree house.
Log cabin location can adopt traditional methods for this type of structure as external of RPAs

Phase 7 - Supervision, Monitoring and Maintenance

It is the responsibility of the project manager to ensure that the arboricultural implications are taken into account and delivered via site inductions and site-specific toolbox talks. An arboricultural advisor shall be appointed to provide advice and monitor the tree protection during the construction phase. Ongoing monitoring of the site is essential. Due to the sensitivity of the site a working construction plan is to be adopted.

Should there be any changes these must be agreed in writing and delivered via an arboricultural method statement and the works are to be supervised by the arboriculturist.

General Precautions

No materials that are likely to have an adverse effect on tree health such as oil and petrol will be stored within the woodland. There should be a designated area for storage of petrochemicals and other materials external of the woodland.

No site clearance or building works shall commence until tree protection details, relating to all stages of development, for the protection of all trees to be retained on site, and those trees off site where root protection areas extend into the site, has been submitted to and approved in writing by the local Planning Authority.



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Legislation

Birds

The Wildlife and Countryside Protection act 1981 (amended) provides the legal protection of wild birds. All nesting birds and their nests, eggs and young are protected from killing, injury, taking or selling.

Bats

All species of bats and their breeding sites or resting places are protected under the Conservation of Habitats and Species Regulation 2010 and the Wildlife and Countryside Protection act 1981 (amended). The deliberate capture, disturbance, injury or killing of bats is prohibited as is damaging, destroying or obstructing access to any place used by bats for shelter or breeding, whether they are present or not. Reckless disturbance or obstruction of access to a roost are also a criminal offence.

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Survey Sheet Classification

Key

All tree numbers refer to attached site plans
Species given by botanical name followed by common name in brackets.

Age Class

Y- Young trees up to ten years of age.
SM – Semi-mature, trees less than 1/3 life expectancy.
EM – Early mature, trees 1/3 – 2/3 life expectancy.
M – Mature trees, over 2/3 life expectancy.
OM – Over mature, declining or moribund trees of low vigour.
V – Veteran, tree possessing certain attributes relating to veteran trees.

Overall Condition

G - Good: Trees with only a few minor defects and in good overall health needing little if any attention.
F – Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.
P – Poor: Trees with major structural and/or physiological defects that it is unlikely the tree will recover in the long term.
D – Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.

Codes of retention: BS5837:2012

U- Tree to be removed – in a condition that they cannot be realistically retained in current land use for longer than 10 years
A- Tree of high quality and value with an estimated remaining life of at least 40 years
B - Tree of moderate quality and value with an estimated remaining life of at least 20 years
C - Tree of low quality and value with an estimated remaining life of at least 10 years or young trees with diameter below 150mm

1 - Mainly of arboricultural value- a good example of species or component of group
2 - Mainly of landscape value –of particular visual importance as arboricultural and or landscape feature
3 - Mainly of cultural or conservation value –of significant conservation, historical or commemorative value

NB: Survey carried out in accordance with BS: 5837: 2012 Trees in relation to construction recommendations. Consult BS for further information.



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Tree Survey & Categorisation - BS5837:2012



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Tree No	Species	Diameter (mm)			Tree Height (m)	Lowest Branch M/dir	Branch Spread (m)			Life Stage	General Observations/Justifications	Recommendations	Priority	Life Expect	BS5837 Cat
		D1	D4				N	E							
		D2	D5				S	W							
		D3	D Ave											RPA	
T1	Fagus syl	1080			22	1	11	10		M	good example of mature trees grown as pair	general monitoring		40+	A1
					5		8	10						12.9	
T2	Fagus syl	1000			21	1	12	11		M	good example of mature trees grown as pair	general monitoring		40+	A1
					5		9	10						12	
T3	Malus dom.	210			6	1				M	within canopy of T2	lift T2 canopy and formative prune		20+	B2
					2		5	4						2.5	
T4	Malus dom.	300			10	1	5	4		M	Overcrowded by T2	lift T2 canopy and formative prune		20+	B2
					1		1	1						3.6	
T5	Quercus r.	240			10	2	4	4		EM	poor crown, dominated by adjacent overgrown H1	Formative prune		40+	B2
					2		5	4						2.8	
T6	Ulmus g.	300			13	1	3	4		EM	within hedgeline	monitor		40+	B2
					3		6	4						3.6	
T7	Quercus r.	800			15	3	10	10		M	Part of mature hedgeline in external carpark	monitor		40+	A1
					4		11	10						9.6	



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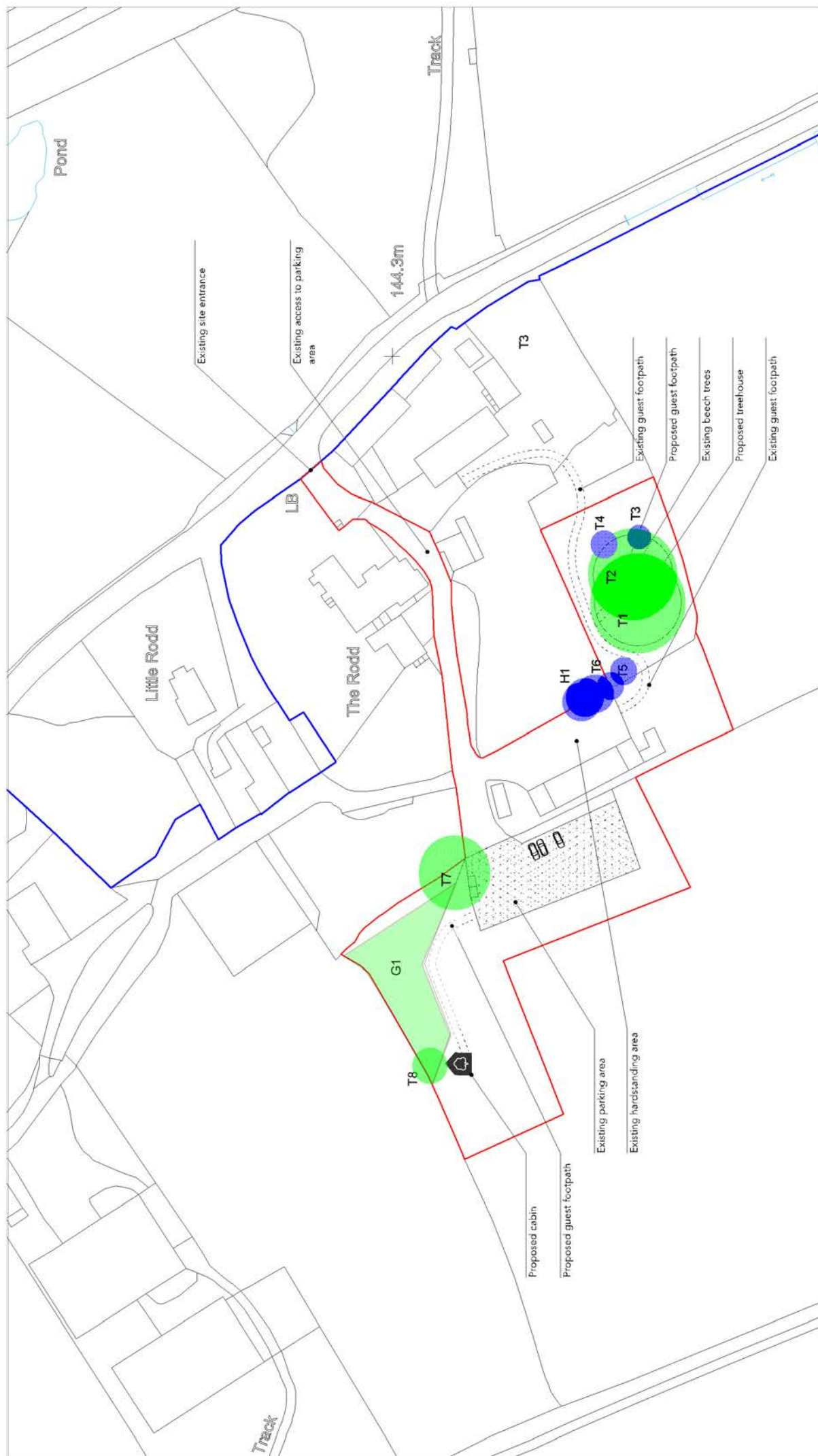
RPA & Categorisation Drawing.



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Notes

Do not scale from this drawing. Check all dimensions and conditions on site prior to setting out or manufacturing. Report discrepancies between site drawing or specification to the Architect.

This drawing is to be read in conjunction with the relevant consultant's specifications and schedules.
All structural work is to be carried out in accordance with the Structural Engineers details and calculations.
Precise positions of all fixtures and fittings are subject to confirmation on site.

All works to be carried out in accordance with current Health & Safety, including CDM regulations. All works to comply with current British standards and regulations, codes of practice and Building Regulations, and appropriate European standards.

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Revision

Scale
1:1000 (1:500 at A1)

A3
Paper Size

Paper size	Grade	Planning
11 x 17	12	12
11 x 17	11	11
11 x 17	10	10
11 x 17	9	9
11 x 17	8	8
11 x 17	7	7
11 x 17	6	6
11 x 17	5	5
11 x 17	4	4
11 x 17	3	3
11 x 17	2	2
11 x 17	1	1

Stage
Site Address
**Sidney Nolan Trust,
Prestigne, Herefordshire,
LD8 2LL**







Site Plan

Sidney Nolan Trust

SID-P02

BS5837:2012 British Standards InstitutionTable 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	<ul style="list-style-type: none"> 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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012] 4.5.7.</i></p>																						
Trees to be considered for retention																							
<table border="1"> <thead> <tr> <th>1 Mainly arboricultural qualities</th><th>2 Mainly landscape qualities</th><th>3 Mainly cultural values, including conservation</th></tr> </thead> <tbody> <tr> <td colspan="3">Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years</td></tr> <tr> <td>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)</td><td>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</td><td>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</td></tr> <tr> <td colspan="3">Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</td></tr> <tr> <td>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</td><td>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</td><td>Trees with material conservation or other cultural value</td></tr> <tr> <td colspan="3">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</td></tr> <tr> <td>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</td><td>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</td><td>Trees with no material conservation or other cultural value</td></tr> </tbody> </table>			1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	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)	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	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
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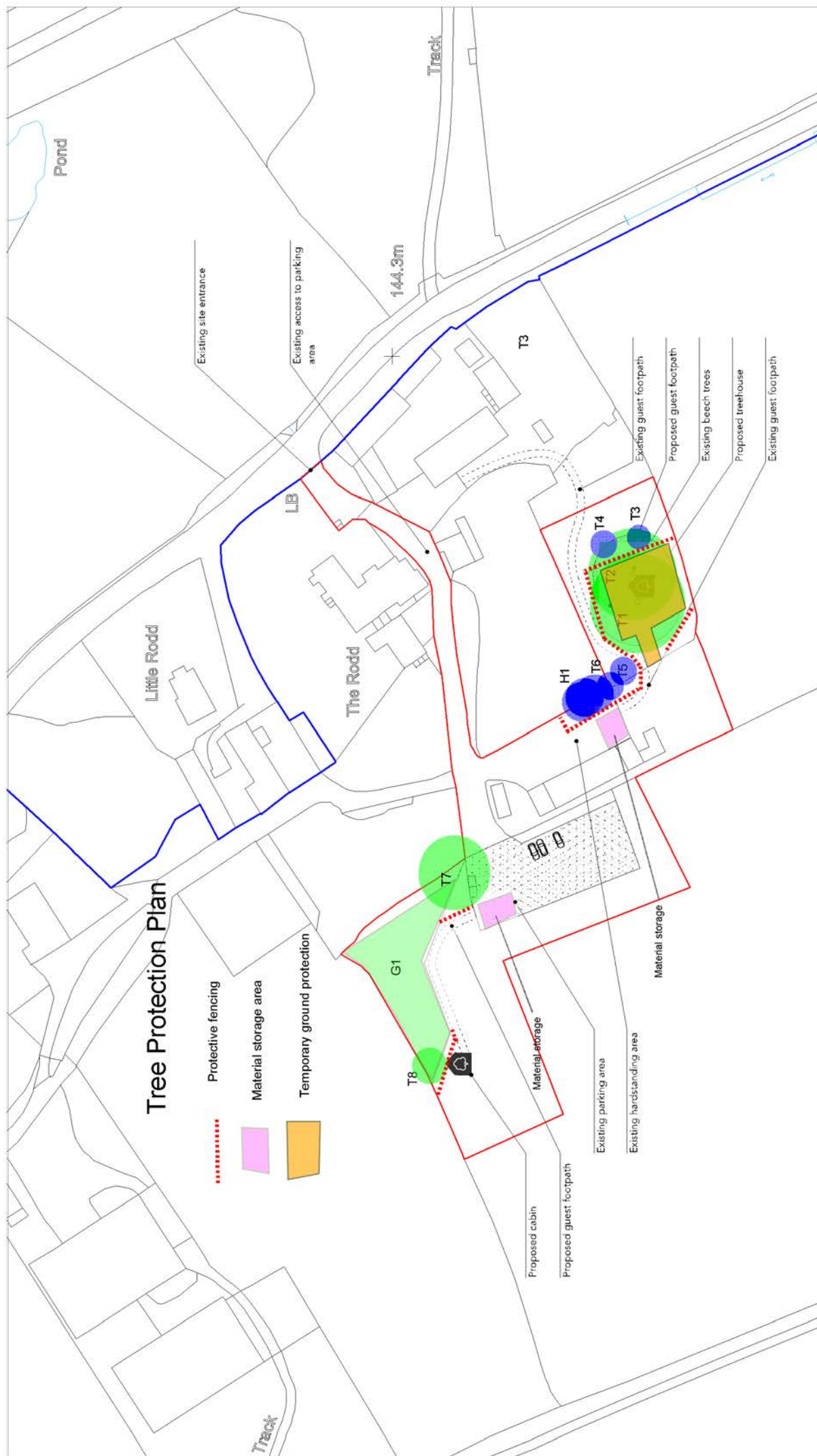
Tree Protection Plan.



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Notes

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Revision

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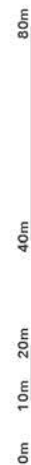
Scale

A3

Planning

Stage	Site Address
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Sidney Nolan Trust,
Presteigne, Herefordshire,
LD8 2L



Site Plan

Sidney Nolan Trust

SID-P02



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Appendix

Photographs

Protective fencing

Rapid Root System



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T1 and T2 with tree house location at rear



T5, T6 7H1



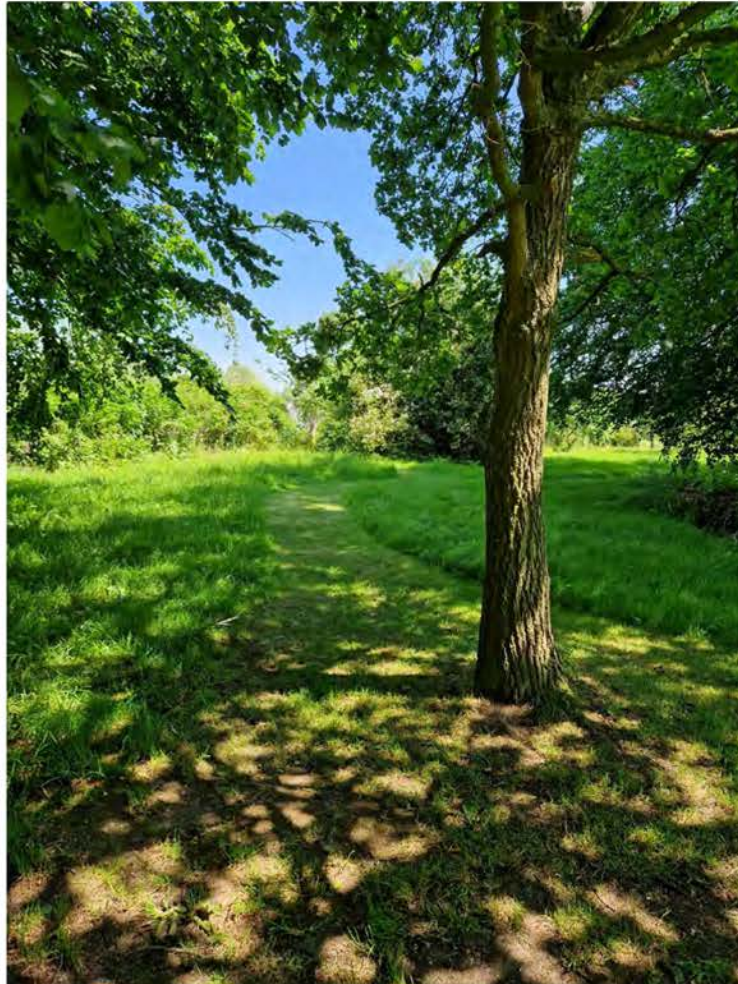
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T5 with existing
footpaths



Parking area to be
utilised for storage



SSIP

BALI

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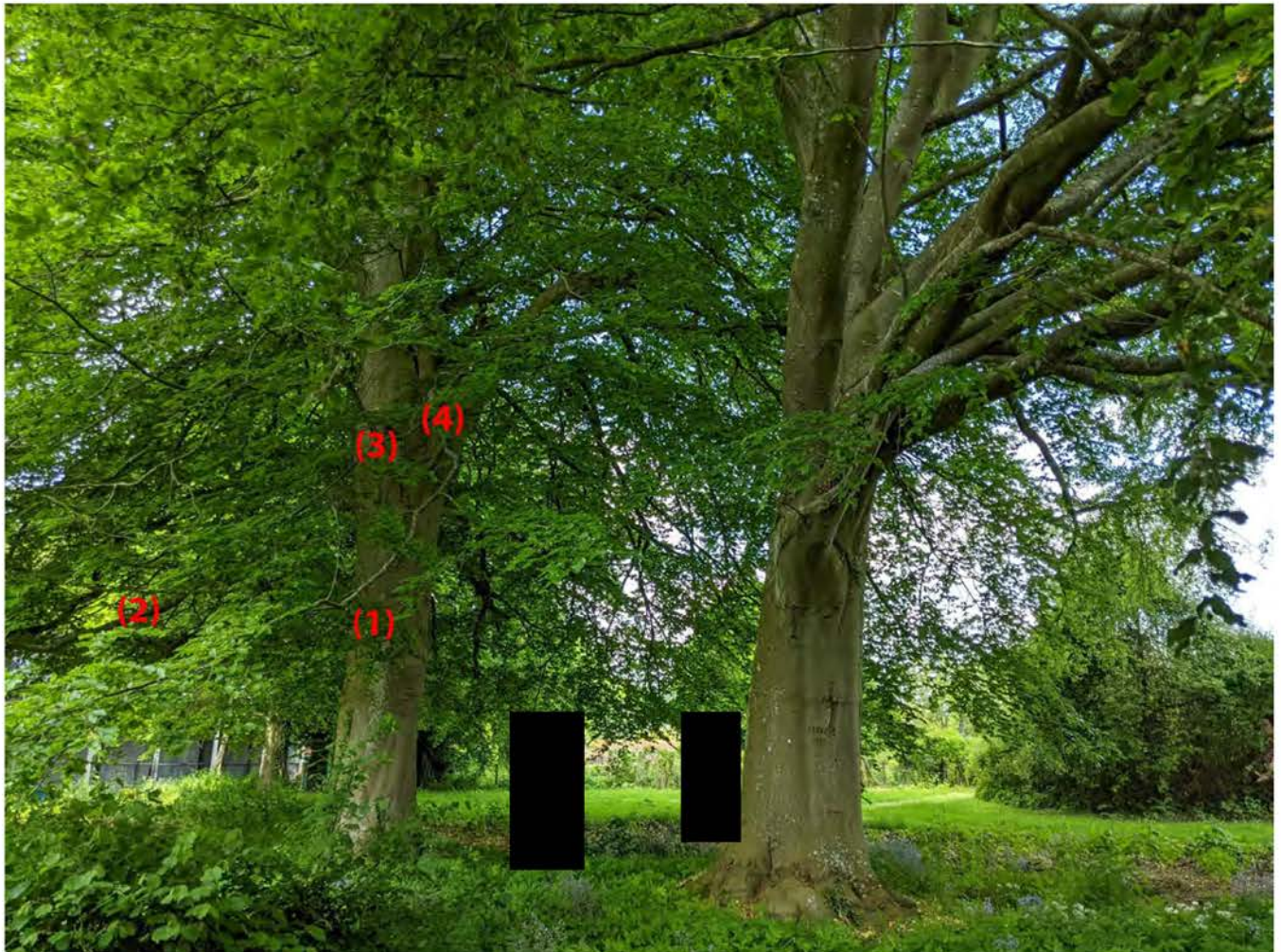
Constructionline

Part of Capita plc



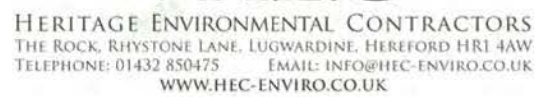
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Numbered branches required to be remove, with tree house location in foreground.



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A wide, open grassy field under a clear blue sky. In the background, there is a dense line of green trees and shrubs. A small wooden fence is visible in the distance. The field is covered in tall, dry grass with some green patches. The sky is a solid, clear blue. The overall scene is bright and sunny.

A photograph of a wooden gate in a lush green field. The gate is made of dark wood and has a sign attached to it that reads "RIVER MEADOW WALK" with an upward arrow. The gate is surrounded by dense green foliage and trees. In the background, there is a clear blue sky and distant hills.



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Woodland group 1



Existing carpark

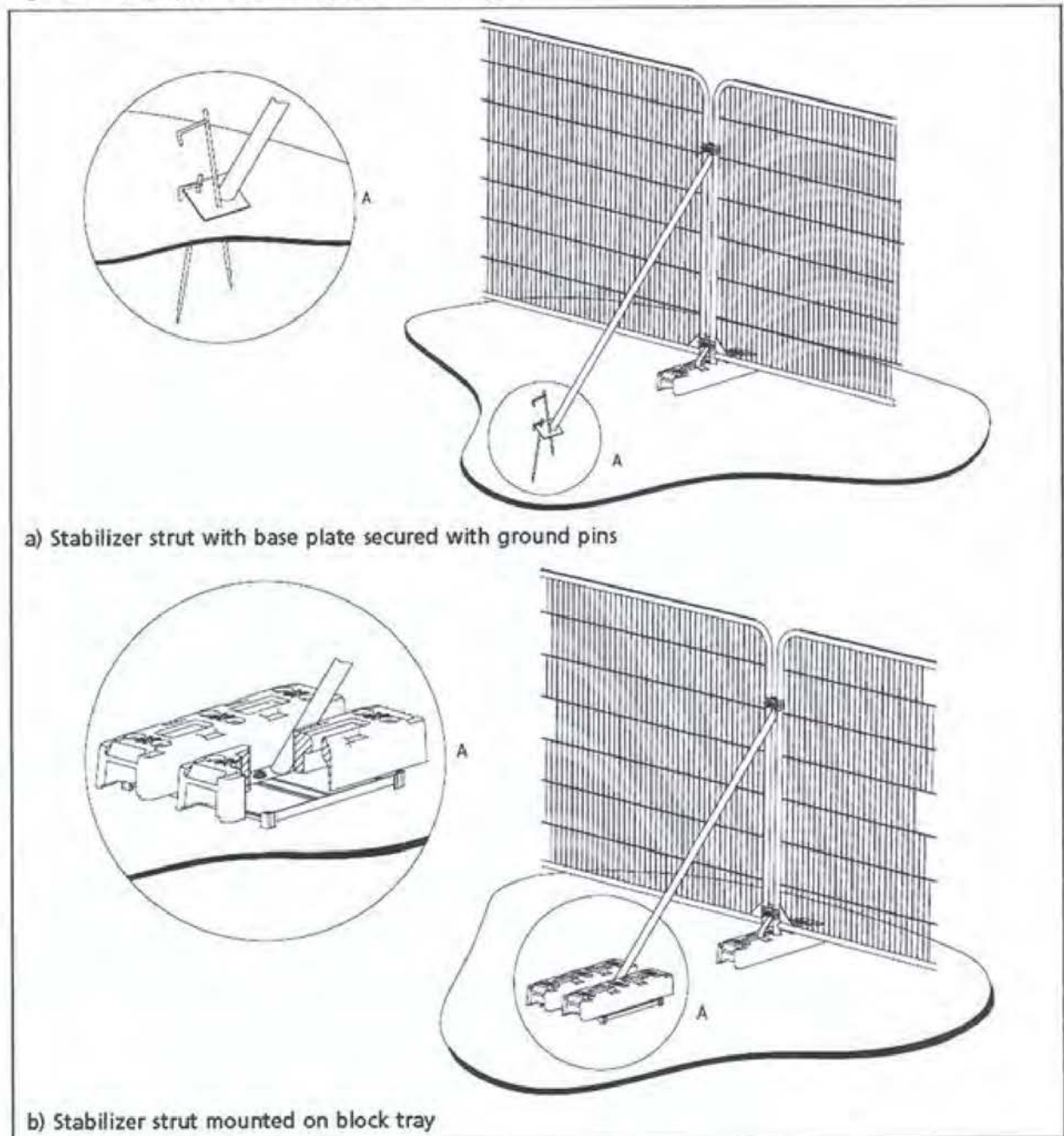


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Appendix 2: Tree Protection Barrier construction

Figure 3 Examples of above-ground stabilizing systems



Concrete free Foundation Systems



Solutions brochure 2019



www.rapidrootpile.com



Instant concrete free foundations

Contents

- 03 Introduction
- 05 Sectors
- 06 System range
- 07 Standard solutions
- 08 Solar units
- 08 Moment applications
- 11 Custom solutions
- 12 Modern construction
- 14 Case study
- 16 Bridges
- 17 Non-profit
- 18 Contact





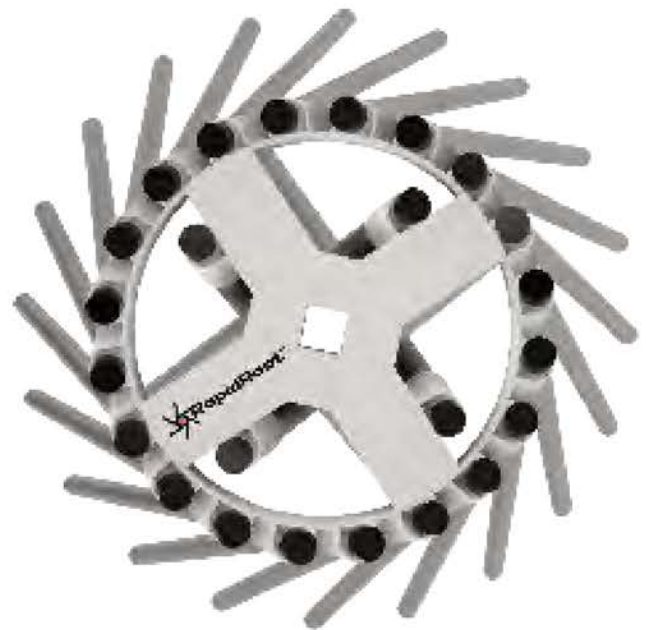
**No mess
no concrete
no delays**

Modularize your groundworks

Introduction

RapidRoot Concrete free Foundations can revolutionise the way you build. Our lightweight root pile /micro pile system can be installed in the most remotest of locations. From the depths of the Jungle to the furthest desert location, our systems can be transported by the smallest vehicles, carried by hand to site and installed with simple portable tooling.

Used as either temporary (removable) or permanent foundations, RapidRoot can design and supply solutions that provide in excess of 100years design life. Our solution range is simple and modular, pile caps can be joined and combined to provide foundation solutions to unique problems. From bridges to telecom towers, solar parks to multi-story modular accommodation, RapidRoot has the solution.



Non-invasive, low impact ecological solutions

A UNIQUE FOUNDATION SOLUTION

RapidRoot enables structures and buildings to be built almost anywhere and opens up new creative avenues to building design professionals.



PREFABRICATED BUILDINGS

Don't dig up the ground!

For panellised construction systems, manufactured off-site, precision is everything. Our solutions allow rapid erection of your building system without relying on the inaccuracies of typical concrete contractors.



MODULAR BUILDINGS

Modularised foundations

The last piece of the puzzle in fully modularised construction. A complete modular foundation system. Your entire solution can now be delivered to site on the back of a truck.



ENERGY

Difficult sites and poor soil

Remote solar PV? Poor soils? We have specific solar installation foundations for both fixed frame and tracker systems. For high moment and uplift monopole designs our systems are unbeatable.



CIVIL WORKS

Fast high capacity solutions

Maintain schedules and limit budget overruns with robust instant foundations systems. Don't rely on concrete quality or contractor skill, our solutions are precise, long lasting permanent foundations.



80%

Up to 80% faster than conventional foundations, no weather delays, no curing time, no mistakes. Just accurate instant foundations.



60%

Up to 60% cheaper than equivalent concrete foundation solutions in similar soils and conditions.

RapidRoot system range

START

48MM PILE SYSTEM

Our starter system and most economical way to get rid of concrete in your builds. Ideal for low cost and social housing, rapid response buildings, light infrastructure and basically eco-building on a budget in remote locations.

MAG

60MM PILE SYSTEM

Our main high capacity system for single and multi story modular, civil works, bridge foundations and high bending moment applications. The **MAG** range is our go-to solution for the majority of foundation problems in residential and civil construction.

ULTRA

76MM PILE SYSTEM

For larger civil works and more demanding load scenarios, our top-end high capacity pile system is the solution. Combining **ULTRA** range pile caps in groupings and grillages, RapidRoot can compete with conventional heavy duty piling applications.

Standard **pile cap models**



RR4

4 Pile model with capacities up to 80kN in typical soils.



RR6

6 Pile model with capacities up to 120kN in typical soils.



*Not all models available in all territories

Infinite connection options...

Connection systems made to order. With an infinite array of construction problems standard connectors are almost never optimal.

We provide a custom design service that revolves around a central adapter plate that permits 360 degree rotations and any axis adjustment.

This allows perfect alignment of the bracket or other connector to the super structure.



RR8

8 Pile model with capacities up to 160kN in typical soils.



RR12

12 Pile model with capacities up to 200kN in typical soils.

RapidRoot standard solutions



MagnaPile is our proprietary magnesium–alu–zinc alloy coated pile and is at the heart of our systems. These are high tensile steel piles with ultra high corrosion resistance far superior to standard hot dip galvanisation. MagnaPile meets the design requirements of residential and civil works in even the most corrosive soil types.

This isn't just a coating, there is a manufacturing method behind this and years of research and development that guarantees the integrity of the protection during the life of the project. Nothing else on the market that compares.



RapidRoot pile load guide

COMPRESSION - PILES L=2m [60,3 mm]



TRACTION - PILES L=2m [60,3 mm]



APPROXIMATE LOADING GUIDE

Approximate loading guide in both compression and traction based on given kN load and a given soil SPT bore hole value. This example is fixed for fixed length 2m piles and serves only a rough example of capacities. Actual pile cap specification and pile depths must be calculated by a qualified engineer.





High capacity, low impact foundations

Innovative solutions same old problems

Whatever your construction project, Rapidroot can help you build more efficiently. Quick, clean and long lasting foundations without excavation, heavy machinery or weather delays.

Although RapidRoot can be adapted to existing projects and retrofitted to existing structures, optimum solutions are found when RapidRoot is considered as early as possible in the design process. Designing around its advantages can create cost savings through the entire project.

Rapidroot can work with you from the early stages, advising from our experience on that best ways to reduce costs as your design.





The solution for modern construction



RapidRoot is a modular foundation system, a series of components and accessories that permit the complete prefabrication of your housing or construction system.

By modularizing your groundworks, the puzzle is complete, wet trades are eliminated and the entire prefabrication process is taken in-house.

RapidRoot can provide OEM solutions and bespoke connection and bracket systems to established modular construction companies, permitting the complete integration of a concrete free foundation into your proprietary building system.

Contact us to see how we can make your product even better!

