



ARBORICULTURAL REPORT

**Patsalls, Pudding Lane,
Chigwell,
Essex**

REV 1

30th July 2019

Prepared by

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Scope

The purpose of this report is to provide Arboricultural advice in relation to identifying the constraints of trees which are present on site, in relation to the proposal to demolish the existing garage building and construct a new dwelling and associated drive. Providing advice on how the trees could be impacted and protection measures to be implemented using the guidelines and principles of BS5837:2012 for those to be retained.

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1 INTRODUCTION

1.1 Brief:

This report has been prepared at the request of BB Architects the project architect on behalf of the site owners, to provide advice on the arboricultural constraints that the trees present to the scheme, and what protection measures will need to be implemented to safeguard them from construction pressures.

1.2 Qualifications and experience:

I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in **Appendix 1**.

1.3 Documents and information provided:

A plan showing the proposed layout of the site.

1.4 Relevant background information:

None.

1.5 Scope of this report:

This report is only concerned with trees located on site that could be impacted by construction works to implement the proposed layout, and the measures required to provide protection for those to be retained as best prescribed in the guidance of BS5837: 2012 'tree in relation to design, demolition and construction'. Any issues regarding construction methods etc. is outside the remit of an Arborist and remedy should be sought with suitably qualified persons, for example builder, engineer etc. For the purposes of this report an Arborist / Arboriculturalist is someone who through training and experience has the knowledge to assess tree and their condition in a competent manner.

2 APPRAISAL

2.1 Brief site description:

The site is a detached residential property with a large detached garage building. Access is via a private drive off of Pudding Lane, a secondary vehicular access is present onto site further up the lane but no hard surfaced drive is present. The focus of this report is the part of the site that is a field, which is left as a meadow adjacent to the main garden area of the property that look as if it is used for grazing horses.

2.2 Condition of trees:

The trees appear to be in a healthy condition with no signs of pests or diseases normally associated with the species.

A more detailed analysis of the trees can be found in **Appendix 3**.

2.3 Suitability of trees for location and management requirements at present:

At present the trees could be considered suitable for their location, I am not aware of any conflict with the property or usage of the site.

No works are required at present.

2.4 Potential effects of development on the tree:

To implement the construction of the proposed new dwelling G1 will need to be removed. This is set back in the meadow behind an established hedge and tree line. Its removal is unlikely to impact on amenity outside of the site.

The only other area where the RPA is compromised is for the new drive. There is already an existing cross over directly adjacent to the tree, so this would be used and a new drive constructed off of it. Its feasible because of the age of the age and species of the trees, along with the topography of the ground could have caused root growth to establish at a deeper depth than is needed to construct the new drive. An assessment trench can be opened along the edge of the drive closest to the trees to the depth needed for the subbase. If no roots are encountered or none that cannot be pruned clear, then a traditional build for this feature can be used. If, however, it is found significant roots are present that cannot be pruned, then a 'No Dig' construction method will be used. An example of such as system can be found in **Appendix 3**. It will need to be noted that because the system is 'no dig', meaning it sits on the current ground level, it will alter levels across the site in terms of the rest of the drive leading up to the building tying into it. This must be considered prior to construction. The council are unlikely to sympathise with arguments to say the levels do not work once planning has been granted permission. A generic method statement of installation for such a surface is provided in **Appendix 3**, but further details of how this will be incorporated in the layout design and installation will need to be provided by the project architect, engineer or builder. It is important to understand that prior to such a system being installed, ground protection will need be in place where access across the RPA will be required, as will ground protection be needed where access around the construction zone in the RPA will be required. Details of the type of ground protection in relation to the traffic crossing it can also be found in **Appendix 3**. It is important that the ground is suitably protected from being compacted, failure to do so could result in the build being stopped or legal action by the council taken.

Where post holes for the gate posts will be located in the RPA of T4, these will be dug by hand, ensuring any conflict with roots will be avoided. The position will be moved if roots are encountered.

The holes will be sheathed with a non-porous material to prevent concrete leaching into the surrounding soil, where roots could absorb toxins. Its highly likely that roots will not be affected by this given the space and the deep rooting nature of this species.

If the existing hard surface for the cross over is to be altered, then it will remain in place and used as a base for the new surface, this will to prevent excavation into soft ground where roots could be impacted. It is important that excavation into the soft ground under the existing hard surface does not occur. I am not aware of any plans to change this existing hard surface in the RPA, it is advisable to retain it to prevent potential conflict with the tree.

The main risk to the trees will be the construction of the drive, however as explained above I think it is feasibly that no roots, or at least no significant roots over 2.5cm in diameter will extend into the work area. It is feasible to work around this constraint.

If the existing cross over is to be removed and replaced, to ensure every care is taken to prevent unnecessary damage to roots that may be close to the surface under the existing hard surfacing, hand tools as well as arboricultural supervision will be used when breaking up the base. I appreciate that it is highly likely a mechanical digger with a pneumatic breaker may be required, as long as a competent operator is used and the arboricultural supervision is present, I do not see this being an issue.

Apart from the direct actions discussed previously which could impact on the tree, other risks of the development works impacting on the tree will be from careless storage / manoeuvring of plant or materials. Also, if toxins are allowed to leach into the soil once the hard surfacing is removed or allowed to come in direct contact with any roots pruned clear. This can be prevented from following the measures out lined in the tree protection method statement in **Appendix 3**. There is space on site where material storage / manoeuvring and plant parking could be confined to so as to reduce the risk of the trees being affected. In this case protective fencing and ground protection can be installed to protect the trees during the build. Other protection measures highlighted in the Tree Protection Method Statement in **Appendix 3** will also be adhered to prevent the trees being damaged.

In this case the potential impact of the proposal in relation to the trees to be retained is considered to be moderate to low with measures being able to be put in place to prevent unnecessary harm.

2.5 Potential effects of the tree on the development:

Leaf litter could become a problem if it causes drains or gutters to become blocked, that could impact in other ways on the building, or if left on the access surface where they could become a slip hazard. To address this gutter guards could be installed to prevent build-up of leaf litter that could become a problem, or regular cleaning of the gutters employed. Regular clearing of falling leaves, especially in times of wet weather will address any potential slip hazards caused by this seasonal occurrence. Shadow cast from the trees will not be an issue given their distance from the new dwelling.

The trees are unlikely to have any notable impact on the proposal, or none that scheduled maintenance cannot easily address.

2.6 Proposed solutions to safeguard the tree during construction works:

2.6.1 Protective fencing and ground protection

Protective fencing will be placed in the locations shown on the tree protection plan in **Appendix 5** prior to works commencing on site. The fencing will be retained at times and will be heras panels as shown in **Diagram 1**. This will prevent collision damage occurring and the temptation to place or manoeuvre materials in locations where the trees could be damaged.

Ground protection as outlined in the method statement will be in place on soft ground within the RPA where access is required across it, to ensure soil compaction does not occur.

2.6.2 Services

No details relating to service runs have been provided, I suspect that the existing services to the current building will be connected to and used to a certain extent. If service trenches are required to be opened in the RPA, they will be installed using hand digging / air spade works with an arborist on site to supervise proceedings. Alternatively, trenchless techniques to install the services will be used and approved by the local authority. It is unlikely this will be required in the protected area. The location of the services will be confirmed prior to installation and the required precautionary measures taken where needed. There is sufficient space outside of the RPA, so I do not envisage this being a problem.

2.6.3 Site facilities and material storage

Care will have to be taken to identify the type of materials required and the access of any machinery, vehicles or plant needed to move them, as these can cause collision damage to aerial parts of the tree as well as soil contamination. **The site manager will provide details** on this aspect of the project if felt necessary by the local authority. There is sufficient space on site for this element of the build, so the trees are unlikely to be detrimentally impacted.

2.6.4 Works within RPA

A 'No Dig' surface will be used within the confines of the RPA to construct the new drive in this location.

2.6.5 Site supervision

The site manager will provide a timetable of works on the site, listing all of the key stages of development, starting with the placing of protection fencing around the trees, establishing site facilities, through to completion of the site. Arboricultural supervision will take place prior to works commencing on site to ensure protection measures are understood and implemented with a pre-commencement meeting with the site manager and other relevant personnel. Site supervision will be undertaken by a suitably qualified arborist Once at the start of the project to make sure the protective fencing suitably protects the trees outside of the site and on it, once midway through and once towards the end. **If this is not to the council's satisfaction, supervision visits will be on a monthly basis and at key stages such as erection of protective fencing, excavation works in the RPA until the completion of the project.**

Supervision from an arborist will always be implemented when excavation works are undertaken in the RPA, whether on the scheduled visits or not.

The site manager will provide the construction timetable and show the times when arboricultural supervision will be present, based on the monthly frequency and the works in or close to the RPA.

Prior to work, all key personnel connected with the site will be briefed by an arborist with regard to the importance of the tree protection and methods of ensuring that the tree is protected during the construction period. A record of all arboricultural related site meetings will be made, signed off and available for inspection by the local authority if required. Any personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintaining them and not breaching them in any way. Failure to do so could result in legal action taken against the person responsible and the site owner, including any financial remuneration involved.

2.6.6 Site completion

Once work has been completed, an arborist will inspect the trees and comment on their condition and prescribe any mitigation works required. The tree protection measures are expanded upon in **Appendix 3**. Any proposed landscaping scheme or works will be discussed with the supervising arborist to ensure that this will not conflict with the trees or the protective areas in any way.

2.6.7 Tree management works

G1 to be removed.

3 CONCLUSIONS

- The trees appear to be in good health with no signs of pests or diseases normally associated with the species.
- G1 will need to be removed to implement the proposal.
- Where the drive crosses the RPA of T4, this will be achieved using a 'No Dig' surface construction. Prior to this being put in, suitable ground protection will be laid down to address any soil compaction concerns. If investigations into root presence in this area show no incursion into the RPA, then a traditional drive construction could be used. Post holes will be hand dug and sheathed with a non-porous material, ensuring roots are not damaged.
- The trees can be retained and adequately protected from construction pressures by implementing and adhering to the protection measures provided in the method statement in **Appendix 3**.

4 OTHER CONSIDERATIONS

4.1 Tree subject to statutory controls:

I do not know if the trees are the subject of a tree preservation order or other restrictions. I suggest that the local authority is contacted to confirm this and kept updated with any proposed tree works to form a good working relationship and to prevent misunderstandings or contravention of protection measures. This is an advisory for readers of this report and not meant as a confirmation as to the protection status of the tree commented on.

*Andrew Day HND Arb
For Andrew Day Arboricultural Consultancy Ltd.*

Brief qualifications and experience of Andrew Day

I hold a Higher National Diploma in Arboriculture. I have been working in the field of arboriculture for approximately 10 years, spending time as a contracting arborist undertaking all aspects of practical arboriculture both in the UK and Europe. I have also worked within local government as a tree officer working for a variety of local authorities. I have a broad experience of both the practical and theoretical aspects of arboriculture having worked within the public and private sector. I am currently a consulting arborist for Andrew Day Arboricultural Consultancy.

1. Qualifications:

Higher National Diploma in Arboriculture (1996)

NPTC (National Proficiency Training Council) units 20, 21 and 22

Lantra professional tree inspection certificate

2. Practical experience:

Prior to establishing my company, I worked for a private Arboriculture company for three years undertaking many practical aspects of Arboriculture. I moved on from this to become a local authority tree officer for five years, my duties included consultation on planning matters about tree, advice to the public, managing the council's tree stock and liaising with other professionals on Arboricultural related issues. I was approached by an established tree contracting and consulting company in Essex to develop and run the consultancy department as their principle consultant which I did for three years.

SITE PHOTOGRAPHS



Showing T1 & T2



Showing T2 & T3



Showing T3 & T4



Showing T4 and the existing vehicular access to the site

SITE SPECIFIC INFORMATION

Explanatory Notes

Tree Survey

Tree Protection Method Statement and Protection Criteria

Hand Dig Method Statement

Example of a 'No Dig' surface construction

Informatives for protection fencing

Arboricultural Considerations notice for site hut and inducted personnel

Explanatory Notes

Measurements/estimates: All dimensions are estimates unless otherwise indicated. Measurements taken with a tape or clinometer are indicated with a '*'. Less reliable estimated dimensions are indicated with a '?'.

Species: The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.

Height: Height is estimate height to the nearest metre.

Spread: The maximum crown spread is visually estimated to the nearest metre of the total crown spread diameter. It should be noted that the crown of some tree can be one side, however this usually indicated within the report.

Diameter: These figures relate to 1.5m above ground level and are recorded in centimetres. Estimate measurements are banded 0-10cm, 11-20, 21-30 etc. If appropriate, diameter is measure with a diameter tape. 'M' indicates tree or shrubs with multiple stems. 'AV' indicates average and is the average of two stems when dealing with twin stem tree.

Estimated Age: Age is assessed as mature (last one third of life expectancy), semi-mature (one third to two thirds life expectancy) and young (less than one third life expectancy).

FSB: First significant branch from ground level (direction shown on tree protection / constraints plan)

SULE: This is the estimated Safe Useful Life Expectancy of the tree. Tree can live longer than this value but can pose a risk to persons or property.

RPR: Radius of root protection area around the tree /group

RPA: Root protection area for tree or group

BS 5837 2012 - On the basis of this assessment, tree can be divided into one of the following categories:

- A** - Tree whose retention is most desirable; High category
- B** - Tree where is desirable; Moderate category
- C** - Tree which could be retained; Low category
- U** - Tree that cannot realistically be retained; Fell category

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
T1	Taxus baccata (Yew)	EM	260	7(0)	0	0	2	2	2	2	20+	No works required at present	C2	3.12	30.59
T2	Fraxinus excelsior (Ash)	M	550	15(3)	3	6	5	4	6	4	20+	No works required at present	C1	6.6	136.87
T3	Quercus robur (Common Oak)	M	1250	18(3)	3	5	7	7	10	7	20+	No works required at present	B3	15	706.95
T4	Quercus robur (Common Oak)	M	800	20(4)	4	5	12	9	10	7	20+	dead wood over road.	B2	9.6	289.57
G1	Quercus robur (Common Oak),	M	1250	20(2)	2	6	12	10	11	4	20+	No works required at present.	B2	15	706.95

Method Statement for Tree Protection Measures

PROJECT: Patsalls, Pudding Lane, Chigwell, Essex

CLIENT: BB Architects

1.1 Brief

Provide protective measures specification for trees to be retained using the guidelines and principles prescribed in BS5837: 2012 'tree in relation to design, demolition and construction'.

1.2 Protective Fencing and Site Supervision

An important factor in providing protection for the tree during the construction works is the chronological order in which development tasks are undertaken. Before work continues on site, the following issues will be addressed and submitted to the council for approval.

- A suitably qualified arborist will be retained to oversee tree protection measures where required and liaise with the tree officer and contractors. The contact information of this arborist will be made available to the council tree officer prior to works starting on site.
- The foundation of the building will be suitable to address any potential influence the trees may have on it. Location of services and details of their installation will have been provided, with any arboricultural protection measures or methodologies of working programmed in the works schedule and approved by the council.
- A pre- commencement meeting with a suitably qualified arborist will take place with the site manager and other relevant site personnel, to debrief them on the importance of the protection measures and to assist in setting up of the protection fencing etc. before work commences on site.

The arboricultural site supervision schedule will be compiled at the pre-commencement meeting and will be the responsibility of the site manager to ensure that it is carried out and maintained for the duration of the works.

- **Ground protection and protective fencing will be in place before any works take place on site to protect the trees from damage via demolition and construction works.**
- **The construction method of the drive will be agreed, ensuring ground protection is in place if access over the RPA is required before it is implemented.**

1.2.1

Protective fencing will be as shown in **diagram 1** and placed in the locations as shown on the tree protection plan in **Appendix 5**, the fencing will be installed prior to construction activities starting on site.

Once erected the fencing will not be removed unless work has finished, or permission has been given by the tree officer. The informatives provided will be attached to the fencing to highlight its importance at a height of 1.5m and at 5m intervals along the line of fencing, or in locations that can demonstrate they are clearly visible to identify the purpose of the fencing in relation to the project.

1.2.2

A pre-commencement inspection by the supervising arborist will take place to ensure the protective measures are understood and a schedule of arboricultural site monitoring is formulated at the start of the project, these will consist of a visit by a suitably qualified arborist once at the start, once midway through the project and once towards the end. If this is not acceptable with the tree officer than visits shall be scheduled once a month for the duration of the project. A log of these visits and any actions required will be available to the council on request and kept on site.

1.2.3

Arboricultural supervision will be present when excavation works initially takes place in the RPA, with the hand dig method statement being adhered to. If the hard surfacing in the RPA of T4 is to be removed, handheld power tools will be used if appropriate, with a mechanical digger and pneumatic drill head only used if the hand-held tools are not feasible. Extreme care will be taken not to cause unnecessary damage to roots. The supervising arborist will be present to oversee.

1.2.4

If roots are encountered, the supervising arborist will discuss with the tree officer about pruning them clear. Then a non-porous material will be used to cover them to prevent contamination from toxins. If roots are present that need to be retained for the drive construction, then a 'No Dig' construction method will be used. An example of this is shown below.

1.2.5

All personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintain these and ensuring that they do not cause any damage to the trees.

1.3 Forbidden activities within RPA

1.3.1 Within the root protection area, the following activities will be prohibited, unless the local authority in writing grants specific permission:

1.3.2 No storage of chemicals or other substances likely to leach and cause harm to the tree to be stored, unless precautions have been taken to prevent this such as sealed bunds etc.

No storage of heavy plant or materials likely to cause further soil compaction.

No ground disturbance works, apart from what has been approved by any planning permissions or specifically from the council.

No activities that could indirectly affect the tree such as bonfires etc.

1.3.2 No excavation works apart from those granted in a planning permission is to be undertaken within the confines of the RPA without the written permission of the local authority.

The protected area is not to be breached at any time, unless the local authority has granted permission and a qualified arborist has been consulted and supervises any work activities that need to take place.

1.4 Storage of chemicals / mixing of materials

1.4.1 Storage of chemicals will be placed in a sealed area, with no discharge allowed onto the ground or watercourses. The area containing these materials will have an impervious surface and stored **if possible** 10m away from the RPA. If accidental spillage of chemicals or other damage to the tree takes place the local authority is to be notified as soon as possible, an arborist is consulted as to the best actions to take to mitigate any damage that may have occurred as a result of the accident and these works to be undertaken to mitigate the situation as soon as possible.

1.5 Works within the RPA

1.5.1 No excavation works will take place within the RPA unless permission is granted by the local authority to do so. The hand dig method statement provided, will be adhered to as far as is practically possible given the ground conditions.

If roots are encountered in the excavations in the RPA, that are deemed by the supervising arborist and tree officer as acceptable to prune, the supervising arborist will undertake the root pruning. The roots will be suitably covered to prevent contamination or drying out. If roots are encountered in the drive area and are to be retained, the design will show how this is achievable to work around them and protect them such as using a 'No Dig' construction method. The supervising arborist will advise on this as the job progresses as part of the supervision schedule.

- 1.5.2 Where access across the RPA is required before the new drive is in place to facilitate construction, suitable ground protection will be laid down as detailed in section 1.7 below. The new hard surfacing within the RPA on soft ground will use a 'No Dig' construction method as highlighted below in **Diagram 2**, unless an agreement to use a traditional construction method has been agreed with the tree officer. The generic method statement will be used to install it or adapted as required by the project engineer to make it fit for purpose, but still ensuring the protection measures for the trees are maintained. It will be designed to tie in with levels across the site so there is no conflict.
- 1.5.3 The demolition / building contractor will discuss the works with the supervising arborist and formulate a suitable working method statement of how to proceed with works and protect the tree in accordance with this report.

1.6 Material storage / site parking

- 1.6.1 Particular attention will be made to the type of materials to be stored and the type of machinery needed to move them, ensuring that sufficient protection measures in accordance with this method statement and space are provided to prevent damage to the tree. The site manager will provide a plan or details of the locations of material storage, site facilities etc to demonstrate how this has been considered to prevent collision damage happening.

1.7 Ground Protection

- 1.7.1 Where access across the RPA on soft ground is needed or if extra protection is deemed to be needed on the existing hard surfacing, then the following ground protection will be installed.

For pedestrian traffic:

A single thickness of scaffold boards placed on top of a scaffold frame so as to form a suspended walkway (similar to diagram 2), or boards laid on to a geotextile membrane with a layer of wood chips 100mm in thickness.

For pedestrian operated plant, up to 2 tonnes:

Interlinked ground protection boards of plywood or similar at least 2.5cm thick, laid onto a geotextile membrane on a bed of wood chip 150mm in depth.

For wheeled or tracked traffic exceeding 2 tonnes gross weight:

Metal tracking designed and fit for purpose, pre-cast concrete slabs or similar, laid to an engineering specification on a compression resistant layer e.g. wood chips that will likely spread the weight of the load and prevent compression of the soil underneath.

- 1.7.2 **AT NO POINT WILL THE GROUND WITHIN THE RPA BE LEFT UNPROTECTED IF ACCESS IS REQUIRED IN THIS AREA.**

1.8 Completion

- 1.8.1 Once all of the construction activities on the site have been completed and a suitably qualified arborist will assess the condition of the trees and liaise with the local authority accordingly if any works are considered necessary. Any proposed landscaping works will be discussed with the supervising arborist to ensure there could be no detrimental impact on the trees.

2 HAND DIG METHOD STATEMENT

PROJECT: Patsalls, Pudding Lane, Chigwell, Essex

- 2.1** The area to be excavated will be inspected by a professional arborist to assess the likely proximity of root activity and concentration prior to the commencement of any works. All relevant authorized personnel to be informed and required permissions gained before work commences.
- 2.2** If hand digging is not possible/practicable a method of excavation will be agreed and undertaken by a suitably qualified person for example air spading or a competent digger operator etc., in the presence of a qualified arborist.
- 2.3** During excavation great care will be taken to minimize damage to retained roots, including the bark around the roots.
- 2.4** All roots greater than 25mm diameter should be retained and worked around. Where clumps of smaller roots (including fibrous roots) are found these are to be retained.
- 2.5** Roots with a diameter in excess of 25mm must not be severed without permission from an Arborist.
- 2.6** If roots are encountered, the Arborist must conduct the root pruning and inform the relevant person to suggest mitigation works to the tree(s) if required. If severance is unavoidable roots must be cut back using a sharp tool, leaving the smallest wound possible.
- 2.7** If there is a possibility of infection being passed from one specimen to another, tools will be sterilized in an appropriate method to reduce the risk of cross contamination.
- 3.8** When backfilling an inert granular material mixed with topsoil or sharp sand (not builder's sand) is to be used around the retained roots. Unless an alternative backfill substrate has been agreed with in writing by the appropriate authorized personnel.
- 2.9** If roots are to be left exposed for a period of longer than 1 hour (dependent on weather conditions), then a covering of dampened Hessian or similar material is to be used to cover the exposed roots. Any changes to this practice are to be authorized by a qualified arborist.
- 2.10** All levels are to be returned to the original plane after any excavation, unless specific design and relevant permission has been authorized.
- 2.11** A qualified Arborist is to be on site to supervise during any operations within the protection zone.

BODCELL™ Cellular Confinement

Bodcell™ Cellular Confinement System

Bodcell™ is a cellular confinement system for slope protection and stabilisation applications.

Manufactured from dark grey PE/PP, the material is permeable and allows water to flow between cells encouraging drainage and vegetation growth. The cell structure confines soil or aggregate material, greatly improving resistance to erosive forces such as rainwater run-off on steep or unstable slopes, or slopes exposed to severe hydraulic or mechanical stresses.

A variety of infills can be used depending on the application, providing a means of fully vegetating slope surfaces where this would not otherwise be possible. Seeded topsoil provides protection for less exposed areas, small shrubs offer improved protection, whilst granular infill offers the highest protection. The cellular system is normally suitable for slopes up to 45 deg (1:1 Slope).

Bodcell™ is supplied in flat panel form and expanded on site to the desired dimensions and shapes. The panels are flexible enough to go round trees and other obstacles. The cellular structure should be fixed on every single cell on the perimeter and at 1m centres throughout using fixing U-pins. Bodcell™ is also suitable for ground stabilisation and can be used as a tree root protection system.

U-Pins

Fixing U-pins can be used to fix the perimeter of cell and 1m centres throughout.

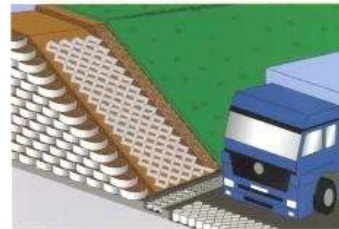
Technical Specifications

LENGTH	WIDTH	DIAMETER	MATERIAL	PACK SIZE	PART NO	LIST PRICE per pack £
550mm	100mm	8mm	Steel Rod	100	051038	80.00

Technical Specifications

PRODUCT REFERENCE	PANEL SIZE	CELL DIAMETER	CELL DEPTH	SLOPE APPLICATION MAXIMUM SLOPE ANGLE	GROUND REINFORCEMENT APPLICATION - LOAD CAPACITY	MATERIAL	PART NO	LIST PRICE per panel £
Bodcell 250/100	5m x 7m	250mm	100mm	1:1 Slope (45°)	Pedestrian Loads	PP/PE	051397	250.00
Bodcell 250/150	5m x 7m	250mm	150mm	1:1 Slope (45°)	Light Vehicles	PP/PE	051403	345.00
Bodcell 350/100	5m x 7m	350mm	100mm	1:2 Slope	N/A	PP/PE	051311	155.00
Bodcell 350/150	5m x 7m	350mm	150mm	1:2 Slope	N/A	PP/PE	051410	225.00
Bodcell 220/200	6m x 3m	220mm	200mm	N/A	Heavy Vehicles	PP/PE	051380	275.00

- Cell wall tensile strength: 20.7kN/m
- Cell wall permeability: 45 l/m.sec
- Material: 70% Polypropylene, 30% Polyethylene



Applications include slope protection and ground reinforcement.



EROSION CONTROL

METHOD STATEMENT FOR 'NO DIG' CONSTRUCTION

Incorporating the principles set out in Arboricultural Practice Note 12 for Hard Surfaces Within the Root Protection Area of Trees.

Prior to commencing any construction on site, erect protective fencing around trees to form an exclusion zone (see attached tree constraints plan). This will ensure that roots will not be severed during the construction work and the soil in the area of the exclusion zone will not be compacted, enabling oxygen to continue to diffuse into the soil beneath.

Construction of the surface should be undertaken in dry weather between May and October when the ground is driest and least prone to compaction.

- 3.1** Kill ground vegetation where hard surface is to be placed using a translocated herbicide such as glyphosate, ensuring that the selected herbicide does not damage the root of the tree/s below the new surface.
- 3.2** Remove the dead or organic material from the site and ensure that large stones and shrub stumps are removed from the proposed route.
- 3.3** Any stumps should be ground rather than excavated to minimise soil disturbance.
- 3.4** The resulting hollows and any other holes in the path should be filled with sharp sand.
- 3.5** Lay geotextile matting across the full width of the access. This will prevent the intrusion of roots into the sub-base whilst still allowing nutrients and gaseous exchange.
- 3.6** Lay a cellular confinement system suitable to support the loads needed by the surface. This can be cut on site to the length, width and profile of the surface required.
- 3.7** The surface is to be supported against the geo web matting by 150 x 20 mm tannalised softwood boarding and 200mm long tannalised soft wood pegs, driven into the ground at 1500 mm centres
- 3.8** Using hand shovels; carefully push 100 mm gravel chippings (no fines) into the Geo matting to form an aggregate sub-base.

- 3.9** The type 1 chippings should be placed at one end of the matting and pushed/spread across the matt to prevent compacting the soil, working on either side of the surface.
- 3.10** Carefully compact the subbase by hand to ensure binding with the geogrid and to minimise future rutting.
- 3.11** Lay second layer of a geotextile matting across the full width of the path. This will prevent the intrusion of fines (small pieces of gravel which can be compacted and restrict or close air pores) into the gravel chippings.
- 3.12** Add layer of 'no fines, sharp sand' and compact if using pavers as surface treatment. Again, care is to be taken when compacting takes place and by hand.
- 3.13** Place proposed surface treatment on top of the compacted sub-base to form the finished surface to the path and bank up the edging with topsoil, which is to be grass seeded in spring/autumn. This will form a gentle slope from the edging back onto the existing ground level.

ANDREW DAY
ARBORICULTURAL CONSULTANCY LTD

REDUCING COSTS BY DELIVERING PRACTICAL SOLUTIONS

TREE PROTECTION ZONE

**DO NOT CROSS WITHOUT
PERMISSION**

**BREACHING THIS BARRIER CAN
RESULT IN THE FOLLOWING:**

- **SHUT DOWN OF THE JOB**
- **FINANCIAL IMPLICATIONS**
- **CRIMINAL PROCEEDINGS**

ARBORICULTURAL SITE CONSIDERATIONS

THIS NOTICE IS TO BE DISPLAYED IN THE SITE OFFICE OR A SUITABLE LOCATION WHERE IT IS CLEARLY VISIBLE AND ISSUED TO ALL PERSONNEL INDUCTED ONTO SITE

The following site considerations must be observed at all times during the development process, from site preparations through to completion.

- ❖ The protected area of the RPA must be regarded as sacrosanct and not breached except where to implement the planning permission granted, without prior consultation with either the local planning authority or the supervising arborist.
- ❖ Ground protection must not be lifted or removed without prior consultation with either the local planning authority or the supervising arborist.
- ❖ Damage caused to ground protection must be reported to the site manager to ensure suitable repair or actions are taken.
- ❖ No materials, chemicals, machinery or vehicles to be stored within the RPA (root protection area) as defined on the tree protection plan and on site by fencing and ground protection.
- ❖ No materials etc. must be rested against or machinery chained to tree.
- ❖ No pruning of tree may be undertaken by anyone other than a qualified arborist and approved by the supervising arborist and local authority tree officer.
- ❖ Any physical damage caused to a tree to be retained must be reported to the site manager immediately so that suitable remedial works can be commissioned without delay.
- ❖ Builder's sand (which contains high levels of salt) must not be used to back fill excavations within or in close proximity to tree roots, as it has a toxic effect and can cause root desiccation. Sharp sand must be used under such circumstances.
- ❖ Soil contaminants such as concrete mixings, diesel oil and vehicle washings must be kept suitably contained, preferably within bunded areas. Any spillages within 2m of a fenced area must be reported to the site manager and supervising arborist immediately so that suitable mitigation works can be commissioned.
- ❖ Fires must not be lit in positions where their flames can extend to within 5m of foliage, branches or trunks. Wind direction and size of fires will impact on this.
- ❖ Notice boards, telephone cables or other services etc. must not be attached to any part of a tree.

Remember the tree officer can turn up at any time or neighbours may report any poor practice or threats to the tree.

Site Personnel Contact Information

As far as I am aware the only personnel associated with this site at the time of writing this report is the site owner and project architect. Table 1 shows the contact details of the project architect who is to be contacted if any enquires relating to this project need answering.

Table 1

Name	Relation to Site	Contact Details
BB Architects	Project Architect	020 7336 8555

LIMITATIONS AND QUALIFICATIONS

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Unless specifically mentioned the report will only be concerned with ground inspections. No below ground inspections will be carried out without prior confirmation from the client that such works should be undertaken. This report is for the purposes of identifying the constraints of tree in relation to development and not a health and safety assessment of the tree. A cursory assessment of the tree health and condition will be recorded, but this is not to be taken as a detailed assessment of its structural condition, health and management recommendations in relation to this. A separate tree inspection regime focusing on these aspects will need to be undertaken if this is required.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available during the inspection process. No checking of independent data will be undertaken, Andrew Day Arboricultural Consultancy will not be responsible for the recommendations within this report where essential data are not made available or are inaccurate.

This report will remain valid for one year from the date of inspection but will become invalid if any tree works not recommended within the report are undertaken, soil levels around the tree are altered in any way and if any building works which were not disclosed during the inspection are undertaken. If extreme weather changes occur such as heavy winds, snow etc., the tree will need to be re-inspected to ensure their condition has not been affected or has altered from the initial inspection details obtained.

If any of the above occurs, then it is strongly recommended that a new tree inspection is carried out.

It will be appreciated, and deemed to be accepted by the client that the formulation of the recommendations for the management of the tree will be guided by the following:

1. The need to avoid reasonable foreseeable damage
2. The arboricultural considerations – Tree safety, good Arboricultural practise and aesthetics.

The client is deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where time constraints or the client limits sources, this may lead to an incomplete quantification of the risk.

TREE PROTECTION PLAN

(For reference only. Please refer to the separate A3 plan for scaling if required)

