Merewood
Arboricultural Consultancy Services

B.S. 5837 Arboricultural Report Implications Assessment at Wynchwood Windmill Hill Chipperfield WD4 9DA

Client: Mr. Sean McMorrow
Wynchwood
Windmill Hill
Chipperfield
WD4 9DA

Prepared by
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Date
20/12/2023



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1.0 Introduction

1.1 Instruction

1.1.1 I am instructed by Sean McMorrow to undertake an Arboricultural Survey at Wynchwood Windmill Hill Chipperfield. I am also instructed to assess the likely impact of development proposals and to prepare a tree protection plan detailing how trees shall be protected from the proposed construction activity.

1.2 The Site

1.2.1 Wynchwood Windmill Hill is a detached property served by a single entrance driveway leading off an unmade road that links this and a number of other private properties with Windmill Hill. The property has a parking area at the front of the house and a car port as well as a few outbuildings.

1.2.2 The house is situated at the south side of Chipperfield Common, to the south-east of Chipperfield village centre, south of Hemel Hempstead. The surrounding area is rural in character, typified by low density housing. The property is bordered by woodland to the north and by residential properties on all other sides.

1.2.3 The topography of the site slopes gently downwards from roughly north to south.

1.2.4 It has been established that the woods to the north of the property are situated within a Conservation Area. Under the provisions of the Town and Country Planning Act 1990 (Tree Regulations 2012) Section 211, any tree in excess of 75mm diameter (measured 1m from ground level) not already protected by the tree preservation order, is protected. Prior to working any such tree in a Conservation Area (including pruning or felling), it is necessary to give a six week notice of intent to carry out the work to the Local Planning Authority.

1.3 Survey date

1.3.1 The trees at Wynchwood Windmill Hill Chipperfield were surveyed on Monday, August 21st, 2023

1.4 Scope and Purpose of the report

1.4.1 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard B.S. 5837:2012 ‘Trees in relation to design, demolition and construction - Recommendations’ (hereafter referred to as B.S. 5837).

1.4.2 The purpose of this report therefore is therefore to firstly, present the results of an assessment of the existing trees’ arboricultural value, based on their

current condition and quality and to secondly, provide an assessment of impact arising from the development of the site.

1.4.3 The report is designed to accompany a planning application for the erection of a detached garage and car port.

1.5 Documents referred to

1.5.1 The tree survey and this report has been prepared with reference to the following documents:

The proposed site plan
The schedule of tree constraints (appendix 1)
The plan of tree constraints (appendix 2)
The tree protection plan (appendix 5)

2.0 Methodology

2.1 Tree Survey methodology

2.1.1 A ground level survey of the trees has been carried out in accordance with the criteria set out in Chapter 4 of B.S 5837. The survey has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence on the proposals.

2.1.2 Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise the risk and liability associated with the responsibility for trees. No climbed inspections or specialist decay detection were undertaken.

2.1.3 Evaluation of tree condition within the assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months in accordance with sound arboricultural practice.

2.1.4 Trees have been assessed as groups where it has been deemed appropriate. The term group has been applied where trees form cohesive arboricultural features, either aerodynamically, visually or culturally. An assessment of individual trees within groups has been made where there is a clear need to differentiate between them.

2.1.5 Trees have been divided into one of four categories based on Table 1 of B.S.5837, '*Cascade chart for tree quality assessment'*. For a tree to qualify under any given category it should fall within the scope of that category's definition.

Category U - Red	Trees 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.
Category A - Green	**Those trees of the highest quality and value**: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
Category B - Blue	**Trees of moderate to high quality and value**: in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).
Category C - Grey	**Trees of low quality and value**: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter of below 150mm
Subcategory 1 concerns mainly arboricultural values, how good a specimen is in terms of form and physiological condition; the value of a tree as a component in a group or in a formal or semi-formal arboricultural feature such as an avenue.	
Subcategory 2 concerns mainly landscape values and considers the importance of a tree or group of trees as an arboricultural or landscape feature. Trees present in larger numbers, such as woodlands for example may attract a higher rating than they would as individuals because of their collective value.	
Subcategory 3 concerns mainly cultural values including conservation, historical, commemorative, or other value such as veteran or wood pasture.	

2.1.6 RPA's of single stemmed trees are calculated according to the following formula:

RPA radius = 12 x stem diameter (measured at 1.5m above ground level)

2.1.7 Where a tree has more than one stem, the equivalent single stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of the total. The radius of the RPA is then calculated by multiplying the equivalent stem diameter by 12.

2.1.8 Occasionally this method is not appropriate (e.g. for coppiced specimens where there are many stems). In such cases the diameter at ground level may be recorded to provide a suitable RPA calculation.

2.1.9 Where access is restricted an estimate of the stem diameter is provided and this is indicated in the appropriate column.

3.0 Results

3.1 Results summary

3.1.1 Appendix 1 presents details of the individual trees and groups found during the assessment including heights, stem diameters and rpa's, crown spread (normally measured to cardinal points unless otherwise indicated), an indication of physiological and structural condition, age class, any appropriate management recommendations, estimated life expectancy and a BS5837 category of quality.

3.1.2 The survey has revealed that that of the 4 trees surveyed, 0 are category 'A'; there are 2 category 'B' trees; there are 2 category 'C' trees; and there are 0 category 'U' trees.

4.0 Arboricultural Impact Assessment

4.1 A Description of the Proposed Development

4.1.1 The proposed development includes the erection of a detached garage and car port.

4.2 Proposed tree works

4.2.1 The development does not require the removal of any trees nor do any trees need to be pruned in order to implement the proposals.

4.3 Changes to soil levels

4.3.1 There are no changes to soil levels proposed within the RPA's of trees to be retained.

4.4 The Impact of Excavations

4.4.1 The proposed car port and garage will sit partly within the Root Protection Area of the field maple (T3). The garage also sits slightly within the RPA of the western red cedar (T4), but to such a small extent as to be of no importance.

4.4.2 The design of the structure has been created so as to keep excavations required for the foundations of the new garage outside the RPA's of the retained trees. This will have no discernible effect on these trees.

4.4.3 The carport is to be built onto mini piles positioned within the RPA of the field maple (T3).

4.4.4 British Standard 5837:2012 offers guidance in such cases. The Standard states at 7.5.1 that '*The use of traditional strip foundations can result in extensive root loss and should be avoided. The insertion of specially engineered structures within RPA's may be justified if this enables retention of a good quality tree that would otherwise be lost (usually categories A or B). Designs for foundations that would minimize adverse impact on trees should include particular attention to existing level, proposed finished levels and cross sectional details. In order to arrive at a suitable solution, site specific and specialist advice regarding foundation design should be sought from the project arboriculturist and an engineer.'*

4.4.5 The Standard goes on to state at 7.5.2 that '*Root damage may be minimised by using:*

- *piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600mm;*

- *beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.*

4.4.6 The design of the timber framework for the car ports takes this advice into consideration, ensuring that the main frame remains above ground level to minimise disturbance to the roots of the trees.

4.4.7 In order to avoid excavating the surface for parked cars within the car ports, a cellular confinement product will be installed to create a suitable floor for parked cars.

4.4.8 The cellular confinement product will extend outside the car ports and because of its thickness, the product will have to be feathered down to meet the existing ground levels outside on the driveway. This will require a limited amount of upper surface removal from the existing driveway of around 50 - 75mm.

4.5 The Impact of Accessing the Site

4.5.1 The movement of machinery (and pedestrians) in and out of and around a site has the potential to impact on the trees planted in the street. The tree protection plan (appendix 5) illustrates where protective fencing shall be erected prior to the commencement of the build to protect the street trees, whilst keeping the public highway open for pedestrians.

4.5.2 In order to provide further effective protection for the soil where access is needed at the side of the building (where it is not possible to fence off the area), ground protection is to be put in place to minimise the effects of pedestrians and any vehicles that may be used during the construction process (see method statement).

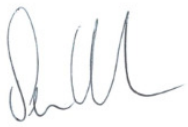
4.6 The Impact of Construction Site Activities

4.6.1 Deliveries will be made by means of the existing driveway. Materials are to be set down in the designated area at the front of the house on the driveway area where they can either remain in situ until needed, moved to a more appropriate area or be brought under cover if necessary.

4.6.2 The area to the front of the house is to be used for the mixing of concrete and the storage of hazardous chemicals and petrochemical products and will also provide a suitable area for mortar mixing in line with COSHH regulations to ensure there is no detrimental effect on trees.

4.7 Summary

4.7.1 The proposed detached garage and car port can be built without any discernible effect on the significant trees on and adjacent to the site, provided the fencing detailed by the tree protection plan is properly installed around the trees.

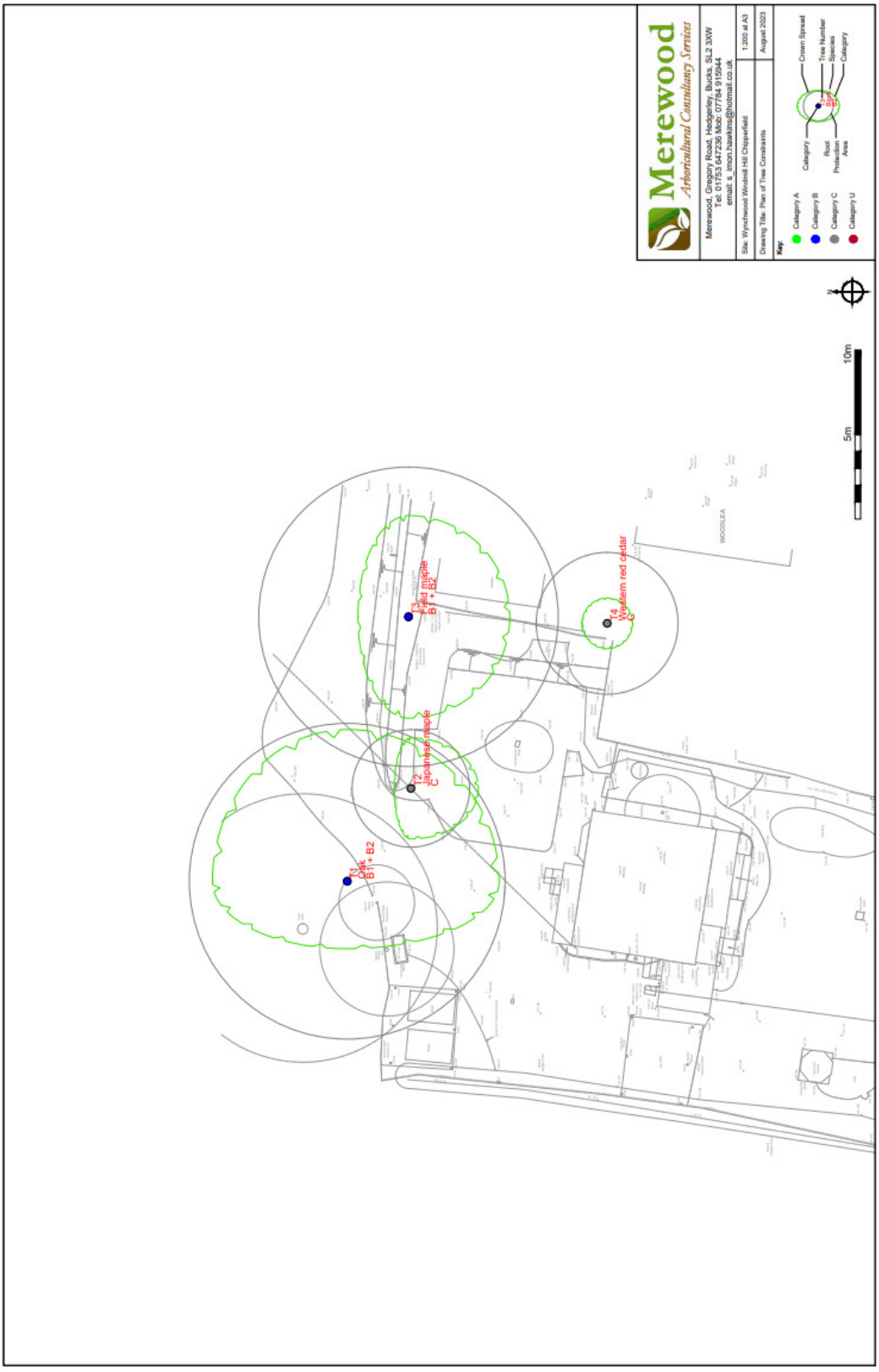


Simon Hawkins Dip Arb L6 (ABC), ND Arb, MArborA

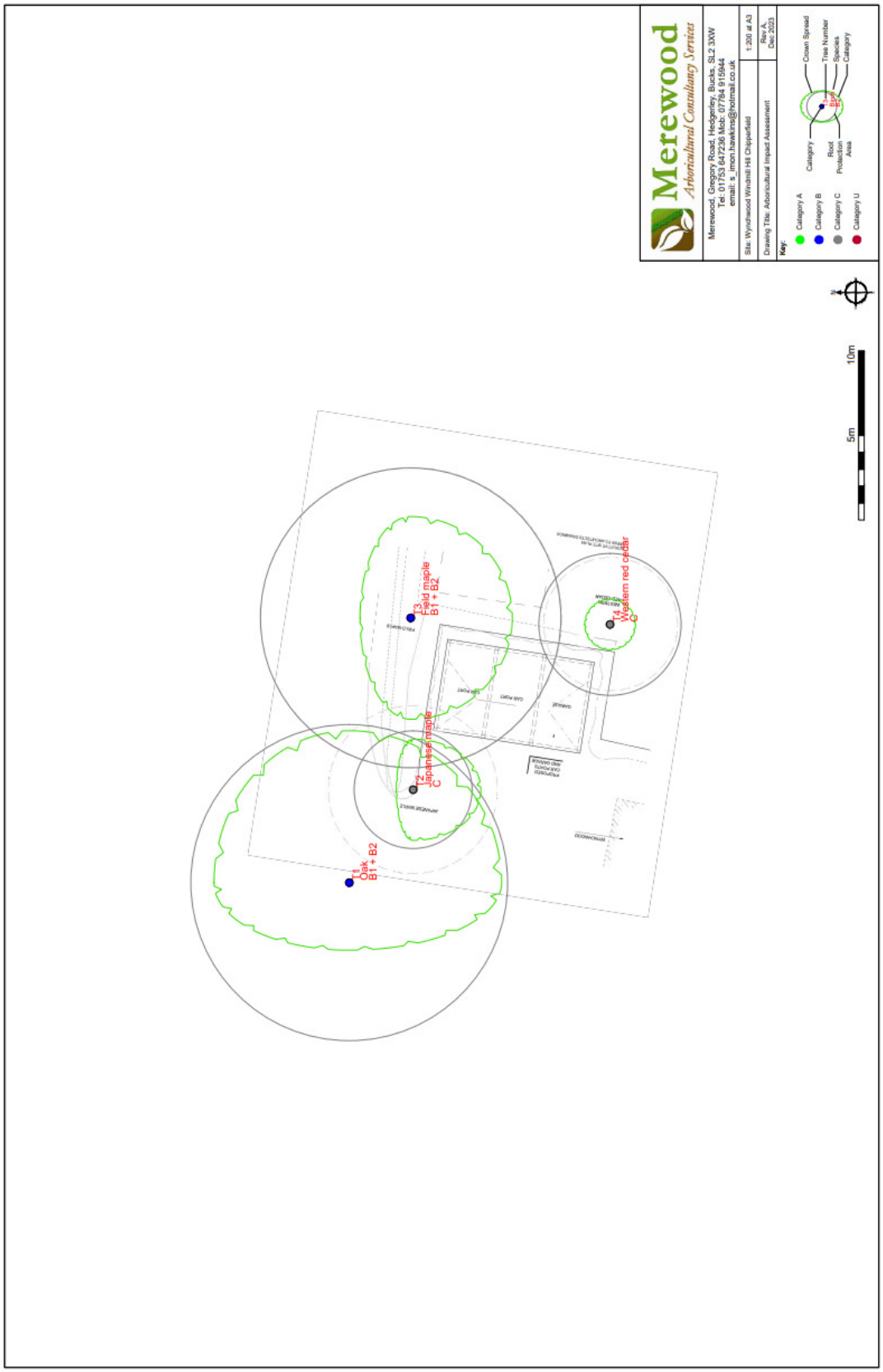
Appendix 1
Schedule of tree constraints

Tree no	Species	Height	Stem diameter	Crown spread				Physiological condition	Structural condition	Age	Observations/ Management recommendations	Life expectancy	Category
				North	South	East	West						
T1	Oak	19	780	8	9	9	4	G	G	M		40+	B1 + B2
T2	Japanese maple	5	290	1	4	3	3	G	G	M		40+	C
T3	Field maple	12	740	3	6	6	6	G	G	M		40+	B1 + B2
T4	Western red cedar	9	350	1.5	1.5	1.5	1.5	G	G	M		40+	C

Appendix 2
Plan of Tree Constraints



Appendix 3
Impact Assessment Plan



Appendix 4
Method Statement

1.1 **Preliminary works**

1.1.1 Prior to the commencement of works a set up meeting between the main contractor, any (relevant) sub-contractors and the arboricultural consultant will take place.

1.1.2 The meeting will establish a line of communication between the working parties and to understand the parameters of the site, underlining the importance of maintaining and respecting tree protection barriers.

1.2 **Protective fencing**

1.2.1 The tree protection plan (appendix 1) shows the line and position of the root protection fencing to be erected prior to any other works taking place on site.

1.2.2 The root protection fencing installation shall be approached from within the central working zone to avoid damage within the root protection area itself, in accordance with the recommendations of BS 5837/2012, illustrated by Fig. 1.

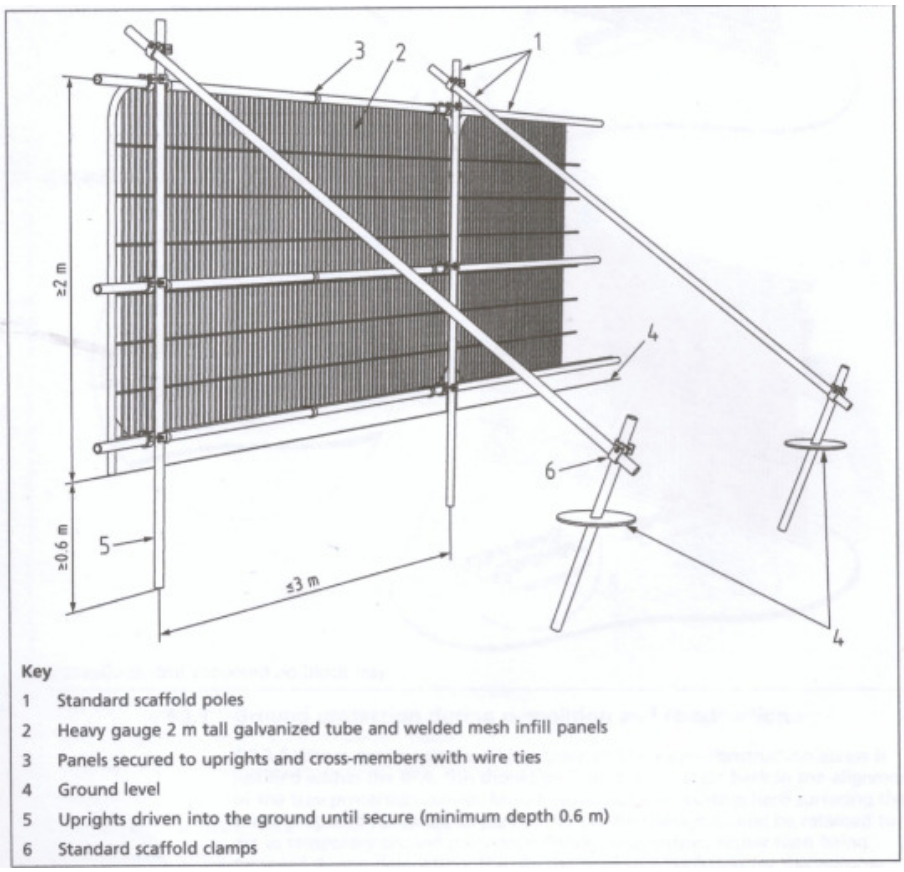


Fig. 1 Protective fencing in accordance with B.S. 5837

1.2.3 The fencing for the root protection zones shall be constructed of scaffold tube uprights (set at 3m intervals with diagonal braces driven securely into the ground). Thereafter 'Heras' type fencing shall be attached to the scaffold framework using either steel strapping or scaffold clamps. The fencing shall comply with the requirements of the British Standard B.S. 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

1.2.4 The fenced off areas are to be regarded as a Construction Exclusion Zone (CEZ). This area is to be considered sacrosanct and strictly off limits to any construction activity including any movement of machinery, storage of materials or parking of contractors' vehicles.

1.2.5 The fencing protecting the RPA is not to be moved under any circumstances unless this has been specifically detailed in the AMS or agreed on site with the arboricultural consultant present.

1.2.6 Ignoring the fencing barriers may constitute a breach of the planning permission and may also be regarded as in contravention of any formal tree protection that applies (Tree Preservation Orders/ Conservation Areas).

1.2.7 There is to be no burning of any materials or substances within 10m of the root protection barriers.

1.2.8 There is to be no storage of cement bags, chemicals or any other toxic or potentially toxic substances within the CEZ.

1.3 Access

1.3.1 Access to the site will be made to the front of the house, by way of the existing track.

1.3.2 Materials required for the garage/carport will be transported from the delivery point either by hand or by wheelbarrow.

1.4 Ground protection

1.4.1 The tree protection plan shows the areas where ground protection is to be placed in order to protect the soil and the tree roots.

1.4.2 The areas illustrated will be covered by ground protection matting (such as Ground Guards – MultiMatts Euro Trak), suited to supporting the weight of construction traffic (recommended load bearing 5t – maximum 10t)

1.4.3 The separate mats are joined together using joiner kits to lock the panels together.

Fig. 2 Ground Guards – MultiMatts Euro Trak is ideal for the ground protection required here.

1.5 **Piling works**

1.5.1 A mini piling rig will access the site by way of the stipulated route (across the ground protection mats) and manoeuvred into position, sitting inside the footprint of the proposed car port.

1.5.2 The rig will work from back to front so that it can exit by way of the access route if there is any reason the movement of the rig would otherwise be impeded.

1.5.3 Excavated soil will be moved by dumper truck to the front of the site for disposal.

1.5.4 The individual piles will be the smallest practical pile diameter and will be sleeved to a depth of 3m using PVC pipes in accordance with the recommendations of BS 5837/2012, section 7.5.5.

1.5.5 Concrete for the pile foundations will be delivered by cement mixer. The mixer will be positioned on the driveway at the front of the site and the concrete will be channelled by chute to where it is needed.

1.6 **Mortar mixing**

1.6.1 Where required, concrete and mortar will be mixed to the front of the house in

a dedicated area on the driveway.

1.6.2 All mortar mixing and handling of any other hazardous materials shall take place outside the rpa's of trees. Water run-off from the cleaning of concrete mixers is to be directed away from rpa's and should take place as far from trees as possible.

1.7 **Post construction**

1.7.1 Following the conclusion of all construction operations, scaffolding and protective fencing will be removed.

1.7.2 At this stage the cellular confinement product is to be installed inside the car ports.

1.7.3 The materials for the no-dig driveway shall be delivered to an area adjacent to the car ports and stored there, ready for moving onto the working area. No machine or vehicle is to move onto the working area at any time prior to the laying of the cellular confinement system.

1.7.4 Prior to the laying of the cellular confinement system, the soil will be made level (by building up), removing any vegetation by hand and removing tree roots using a stump grinder if needed. Sharp sand shall be used to ramp up over any protruding roots.

1.7.5 Small voids will be filled with clean sharp sand (not builders sand).

1.7.6 A glyphosate based systemic herbicide will be carefully applied to any turf or other vegetation in advance of laying the cellular confinement system.

1.7.7 The use of heavy machinery to install the cellular confinement system shall be avoided to minimise the risk of causing soil compaction within the RPA. The product shall be installed using a wheelbarrow and a shovel.

1.7.8 The stone aggregate used to backfill the cells shall be stored within the materials storage area, adjacent of the cellular confinement system.

1.7.9 A base geotextile layer made of polypropylene or polyester (min 300g/m^2) with a CBR puncture resistance of 4000N shall be laid out covering the entire area to be surfaced. If more than one sheet is needed the sheets shall overlap by at least 30cm.

1.7.10 With the geotextile layer laid down, the panels of the cellular confinement system shall be stretched out to cover the area required. The panels shall be held in place using J-hooks (steel reinforcing bars bent into a ‘candy-cane’ shape) or similar (e.g. construction pins or wooden stakes).

1.7.11 Working from outside the no-dig area inwards, the backfill shall be added to create a surface on which workers can then step on in order to continue filling in the product. The backfill shall be made up of a free draining subbase

material using crushed 20/40 stone that has been screened and washed. If 20/40 is not available, 4/20 stone can be used provided it has been washed or graded to contain no fine particles (fines).

1.7.12 The aggregate shall be overfilled by a minimum 25mm to help to protect the geocells. Where possible vehicle use shall be restricted to outside the RPA but where the use of tracked vehicles across the RPA is unavoidable, vehicles shall continue to work progressively beyond the RPA in order to avoid manoeuvring which could result in distortion of the cellular confinement product.

1.7.13 The settlement of the infill material shall be achieved by a minimum of four passes of a smooth roller (max. weight 1000kg/m width without vibration) or alternatively by several passes with a tracked excavator.

1.7.14 The cellular confinement system shall be held in place at the edges using a peg and board edging, using thick tanalised boards, spacing the pegs at 1m intervals to prevent bowing.

1.7.15 The upper layer shall then be completely covered by a geo-textile fabric with an overlap of at least 20mm at the edges to prevent any particles migrating from the upper surface into the cells. If more than one sheet is needed they shall overlap by at least 30cm. The geotextile layer shall be made of polypropylene or polyester (min 300g/m^2) with a CBR puncture resistance of 4000N.

1.7.16 The final surface layer of the car port floors is yet to be determined, but will be constructed using a permeable material, for example washed gravel held in place by plastic stabilisation grids, such as a Core TRP Gravel Grid (Fig.4).

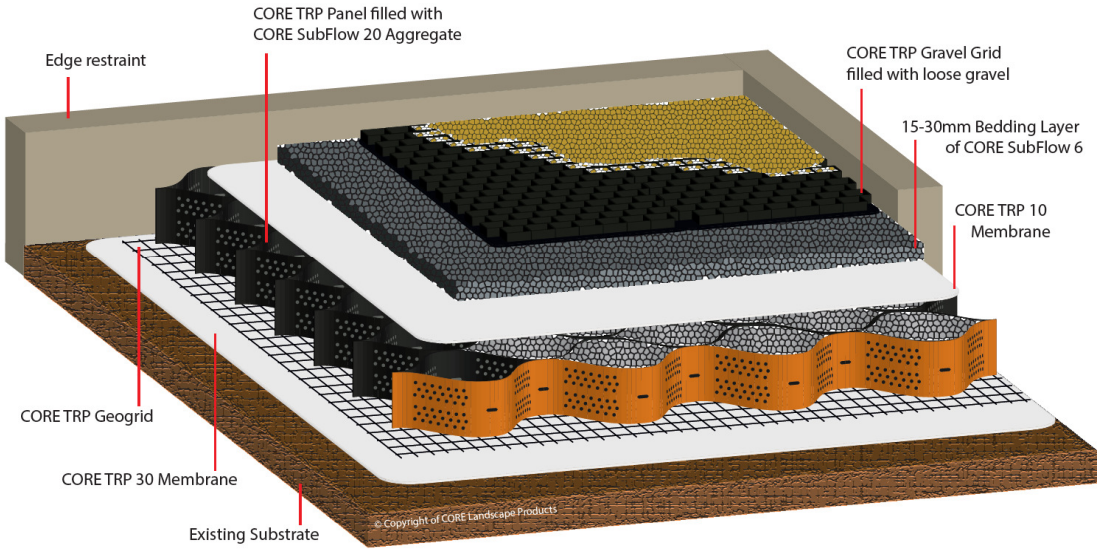
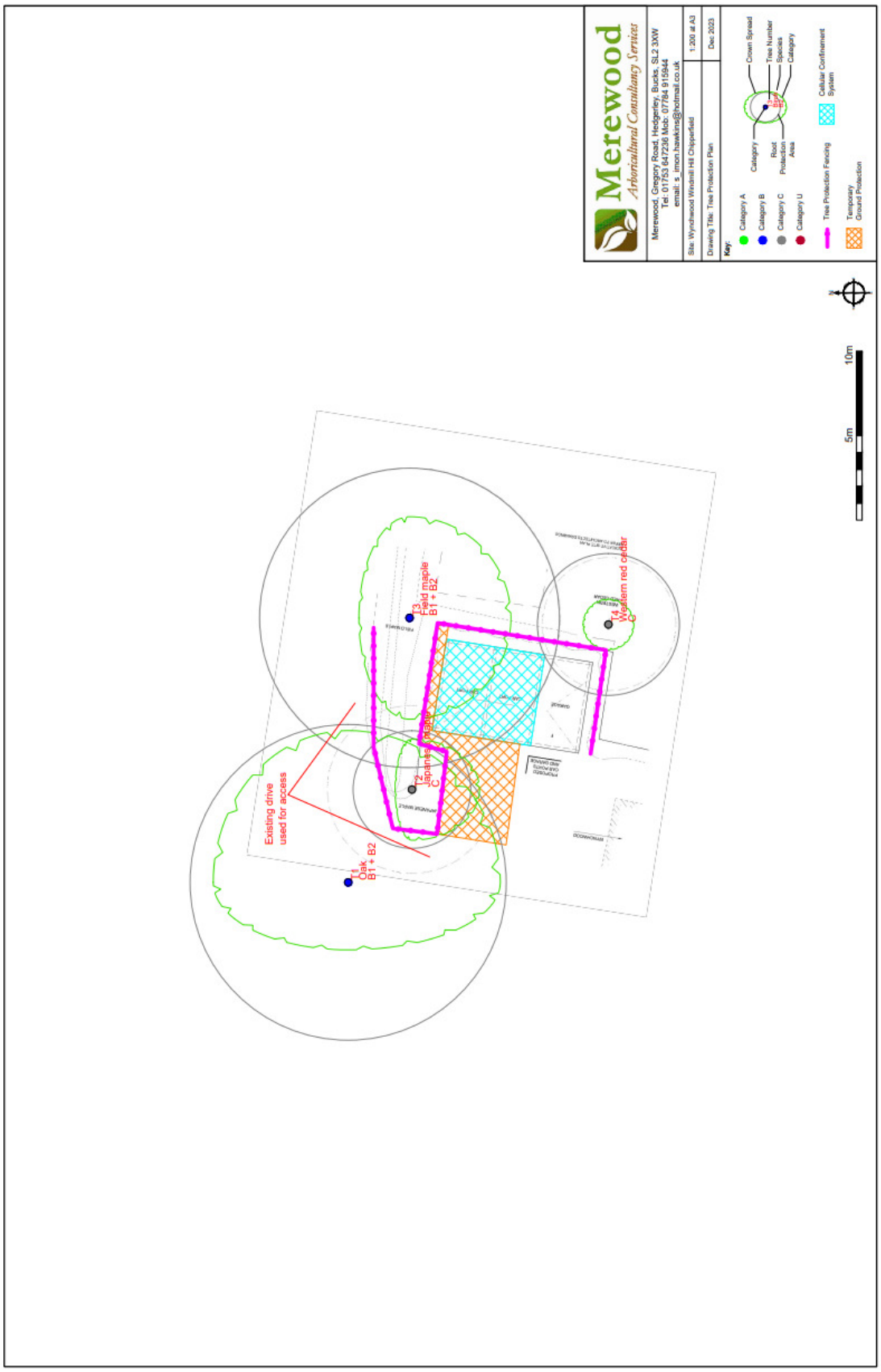


Fig. 4 The Core Drive product (cross section) using plastic grids and loose gravel as a final finish (image couretsey CORE LP).

Appendix 5
Tree Protection Plan



Appendix 6
Qualifications and experience

- I am Simon Hawkins, proprietor of Merewood Arboricultural Consultancy Services.

- I hold the Level 6 Professional Diploma in Arboriculture. This is the highest level of award in the industry.

- I hold the National Diploma in Arboriculture which I attained in 1987. I have studied and practised Arboriculture for over 30 years, during which time I have been involved with both the private and public sector.

- I hold the LANTRA award for professional tree inspections

- I hold professional member status of the Arboricultural Association (M. Arbor A.), recognised as a higher vocational level within the industry.

- I have undertaken an intensive course in the principles and application of VTA Visual Tree Assessment. I have been assessed and found to have attained the advanced level of technical competence of a VTA Practitioner with Elite Training.

- I have over 18 years' experience working in the public sector, during which time I have dealt with all aspects of trees and development in the town planning context, within the inner city; in a greater London Borough; and in the Green Belt. Typically, I have worked with planners, developers, architects and other professionals in the construction industry in which I provide advice and assistance in dealing with arboricultural matters.

- I have appeared at numerous appeals, informal hearings and public enquiries to make formal representations. I have also appeared as an expert witness in court with regard to breaches of a Tree Preservations Order.