



ARBORICULTURAL REPORT

& METHOD STATEMENT

Relating to trees at
Proposed Viaduct Car Park, Hatfield House.



Presented by Mr. Peter Harding

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CONTENTS

Page no.

3	Arboricultural Report
8	Arboricultural Method Statement
12	Qualifications
13	Tree Survey
16	Tree Constraints Plan & Tree Protection Plan
18	Photographs

Arboricultural Report

Client: Gascoyne Cecil Estates.

Site: Small area of woodland close to viaduct near main entrance.

Arboricultural Consultant: Peter Harding *Tech Cert Arbor A, Dip For.*

Date: 29/07/10

1.0 Introduction

In order to provide additional car parking facilities, it is proposed to clear some of the understorey and lower quality trees from the small woodland near the viaduct at Hatfield House. Parking will be under retained trees.

2.0 Instructions

I have received instructions from Miss Ann Maidment of Gascoyne Cecil Estates carry out an Arboricultural Assessment of the trees on, or close to, the site and to provide an Arboricultural Report and Method Statement.

3.0 Date of Visit

The site was visited on Thursday 29th July 2010 at approximately 08.00. I met Miss Maidment on site and carried out the survey unaccompanied.

4.0 Qualifications and Experience

This preliminary report is based on observations and conclusions derived from my experience and technical knowledge. Details of my qualifications and experience are listed in Appendix 1.

5.0 Scope of Survey

5.1 The survey is concerned with the arboricultural aspects of the site only.

5.2 The planning status of the trees was not investigated in detail.

5.3 A qualified Arboriculturist undertook the report and site visit and the contents of this report are based on this. Whilst

reference may be made to built structure or soils, these are only opinions and confirmation should be obtained from a qualified expert as required.

- 5.4 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer in 'The Body Language of Trees', Department for Transport, Local government and the Regions book Research for Amenity Trees No. 4, 1994).
- 5.5 The survey was undertaken in accordance with British Standard 5837: 2005 Trees in Relation to Construction – Recommendations [BS5837].
- 5.6 Pruning works will be required to be in accordance with British Standard 3998:1989 Tree Work [BS3998].
- 5.7 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

6.0 Survey Method

- 6.1 The survey was conducted from ground level with the aid of binoculars where necessary.
- 6.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.
- 6.3 No soil samples were taken.
- 6.4 The height of each subject tree was estimated using a clinometer.
- 6.5 The stem diameters [SD] were measured in millimetres at 1.5 metres above ground level for single stems, and just above the root flare for multi-stemmed trees. Where access was difficult the diameters were estimated and marked as such on the tree table.
- 6.6 The crown spreads were measured with a tape measure. Where the crown radius was notably different in any direction this has been noted in the tree table (Appendix 2).
- 6.7 All trees inspected during the site visit are detailed on the plan at [Appendix 3](#). Please note that the attached plan is for indicative purposes only. The trees on this plan are categorised and shown in the following format: COLOUR CODING AND RATING OF TREES:

Category A – Those of a high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested). Colour = light green crown outline on plan.

Category B – Those of a moderate quality and value: those in a condition as to be able to make a significant contribution (a minimum of 20 years is suggested). Colour = mid blue crown outline on plan.

Category C – Those 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 below 150mm. Colour = black crown outline on plan.

Category R – Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management. Colour = red crown outline on plan.

All crown outlines are indicative and more detailed information of the precise measurements can be seen in the tree table at [Appendix 2](#).

All references to tree rating are made in accordance with British Standard 5837 'Trees in relation to construction – Recommendations' 2005, Table 1 (section 4.3.1).

6.8 The Root Protection Area for each retained tree (as per table 2 of BS5837) has been included with the Tree Survey table for reference.

7.0 Site Description

The site comprises a small mixed woodland with a varied age range. It is located to the north of an area of residential properties and is bounded by a road to the east and a wall to the west. The ground to the west of the wall is at a lower level.

8.0 Constraints

I have not been informed of any constraints applying to the properties. There may be constraints applying to the site (e.g. Tree Preservation Orders or Conservation Area status). It is important to check with the Local Authority before carrying out any tree work.

9.0 The Tree Cover

The tree cover comprises of several large specimen trees, a number of lesser quality trees and an understorey of scrub.

10.0 Arboricultural Implications Assessment

10.1 General Comments.

All good quality specimen trees will be retained. The removal of low grade trees and scrubby understorey will enhance the visual amenity of retained trees. No trees outside the property will be affected.

10.2 Other issues.

This development does not involve the erection of built structures or installation of any underground services. As the area will only be used for car parking, there are no shading issues. There may be issues with honeydew from the lime and sycamore trees.

10.3 Above and below ground constraints.

As most of the car parking space will be within the Root Protection Areas (RPAs) of retained trees, the hard surface will need to be constructed using 'no dig' methods. It will also need to be porous. 'Cellweb' will be used to achieve this.

As almost the entire car park will come within the Root Protection Areas of retained trees, it is not possible to establish a Construction Exclusion Zone. The trunks and root flares will be protected by a 2m X 2m area of fencing. This area will also remain open after construction.

There is a small area to the central south of the site where land falls away steeply. It would not be acceptable to raise or lower soil levels within this area. It will be left as it is with some planting of grass or small shrubs to improve amenity value.

10.4 Trees outside the site

There are a number of trees located the other side of the road to the northeast. These were measured and it is concluded that the root systems will not be affected by the proposed development. The tree to the south (to the west of the outbuildings) is located at a much lower level and will not be affected by the proposed development.

10.5 New planting

No new tree planting is planned.

11.0 The Tree Survey

Results of the survey are attached in Appendix 2.

12.0 Tree Constraints Plan and Tree protection Plan

Plans of the site and proposed development showing Tree Constraints and Tree Protection are attached in Appendix 3.

13.0 Photographs

Photographs relating to the site is attached in Appendix 4.

14.0 Recommendations

A summary of the recommendations made in the Tree Survey is as follows:-

1. Remove T2, T3, G5, T6, T7, S8, T9, T13 & T15
2. Retain all trees outside site.
3. Protective fences located as detailed on the Tree Protection Plan (Appendix 3b) should be erected prior to construction and remain in place until construction is complete.
4. The hard surface will be installed using 'Cellweb' no dig materials with a porous finish. This should be installed as detailed in the Method Statement.
5. All access and storage should be well away from retained trees.

15.0 Conclusions

The installation of a hard surface under the retained trees is challenging. It is my opinion that this can be achieved without damaging these trees provided appropriate materials and methods are used. The removal of low quality trees will improve the visual amenity of the specimen trees and be in keeping with the parkland environment.

Arboricultural Method Statement for Tree Protection Throughout the Duration of Demolition and Construction Works

Arboricultural Method Statement (AMS) includes a Tree Protection Plan (TPP) to identify:

- Trees to be retained – identified with a continuous black line
- Trees to be removed – identified with a dotted black line
- Protective fence positions.

1.0 Construction Exclusion Zone

1.0 Due to the nature of the project, it is not possible to impose a normal Construction Exclusion Zone (CEZ)

2.0 Protective Fences

2.1 Protective fence will be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site. These will consist of a 2m x 2m square of Heras fencing around the trunk of each retained tree. The fence will have signs attached to it stating that this is a Construction Exclusion Zone and that **NO WORKS are Permitted** within the fence. The protected fence may only be removed following completion of all construction works.

2.2 The fences are required to be sited in accordance with the Tree Protection Plan enclosed with this method statement as appendix 3b.

2.3 There are no new areas of planting to be protected during the construction phase.

3.0 Precautions in respect of temporary works

3.1 No temporary access into fenced areas will be necessary.

4.0 Access Details

4.1 Access will be via existing estate roads.

5.0 Contractors car parking

5.1 Off site.

6.0 Site Huts and Toilets

6.1 Off site.

7.0 Storage Space

7.1 Off site.

8.0 Additional Precautions

8.1 The installation of services near any tree will be undertaken in accordance with the National Joint Utilities Group Guidance note 10 recommendations in relation to trees. There are no services planned to be installed within a CEZ.

8.2 No storage of materials, lighting of fires will take place within the CEZ. No mixing or storage of materials will take place up a slope where they may leak into a CEZ.

8.3 No fires will be lit within 20 metres of any tree stem and will take into account fire size and wind direction so that, no flames come within 5m of any foliage.

8.4 No high-sided vehicles or cranes have access to the site therefore their movement on the site is not an issue.

8.5 No notice boards, cables or other services will be attached to any tree.

8.6 Materials which may contaminate the soil will not be discharged within 10m of any tree stem. When undertaking the mixing of materials it is essential that, any slope of the ground does not allow contaminants to run towards a tree root area.

9.0 Site Gradients

9.1 No alterations of soil levels will take place within the CEZ of the protected trees.

11.0 Hard Surfaces

11.1 All hard surfaces will be constructed using 'Cellweb' no-dig methods. This will involve levelling small hollows with sand. A geotextile will then be laid. The 'Cellweb' (100mm deep) will be laid on top of this and filled with no fines aggregate. It is important to work from an existing hard surface towards the retained trees so that vehicles are driving on the 'Cellweb' and not on the tree roots. The final surface will be of a porous material.

Further installation details are appended to this report or can be obtained from www.geosyn.co.uk/products/cellweb-trees

12.0 Soft landscaping

12.1 No soft landscaping is scheduled.

13.0 Use of Herbicides

13.1 No herbicide use is planned.

14.0 On site Monitoring Regime

14.1 All operations will be monitored by the main contractor.

15.0 Use of subcontractors

15.1 The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

16.0 Contingency Plan

16.1 Water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will contact an arboriculturist for advice.

17.0 Remedial Tree Works

17.1 Any remedial tree work necessary after construction should be carried out in accordance with British Standard BS3998.

18.0 Responsibilities

18.1 It will be the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

18.2 The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.

18.3 If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 Recommendations for Tree Works 1989.

- 18.4 The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.
- 18.5 The fencing and signs must be maintained in position at all times and checked on a regular basis by an on site person designated that responsibility.

Appendix 1 – Qualifications

Qualifications and experience of Arboricultural Consultant

I have been practising forestry since 1974 and the related discipline of arboriculture since. I have worked on a number of private estates and carried out work for large companies and private individuals. I have been involved in practical tree work, project management, tree inspections & reports, Tree Preservation Orders and woodland management. I have prepared reports relating to development sites, health and safety and mortgage issues.

My clients include:-

- Gascoyne Cecil Estates
- Carington Estates
- Strutt & Parker
- The Portman Estate
- Buckingham Town Council
- Gorhambury Estate
- Canopy Land Use
- London Borough of Richmond upon Thames
- Babcock International
- Lafarge Aggregates

I am a member of The Consulting Arborist Society, The Royal Forestry Society and the Small Woods Association. I am a Technician Member of the Arboricultural Association I have attended a LANTRA 'Arboriculture and Bats' course.

My qualifications include:-

- Technicians Certificate (Arboricultural Association)
- Diploma in Forest Management
- ISA Certified Arborist
- City & Guilds Forestry Stages 1 & 2
- Lantra Professional Tree Inspection Award
- RHS Certificate in Horticulture

I am licensed to carry out AMUIG Mortgage Reports and a licensed user of the Quantified Tree Risk Assessment and CAVAT methods.

Appendix 2

TREE SURVEY: BS5837

Location:		Viaduct Area - Proposed New Car Park						Date:		29th July 2010			
Tree No.	Tree Species	Height (m)	Crown Spread (m)	Diameter at 1.5m (mm)	M/S	Age Class	C/C	Remaining Useful Life (Yrs)	Conditions	Recommendations	Category Grading	Root Protection Area - Radius (m)	Root Protection Area - Area (m ²)
T1	Horse Chestnut (<i>Aesculus hippocastanum</i>)	19.2	7.5	1130		M	4	40+	Large specimen tree of normal vigour. Major deadwood throughout crown, some large branches snapped out	Crown lift to 3m, crown clean	A1	13.56	577.73
T2	Common Lime (<i>Tilia x europaea</i>)	14	7	620		EM	4	40+	Forks @ 4m, dense ivy covering base, main stem & unions, basal growth	Remove to facilitate development	C2 (P)	7.44	173.92
T3	Sycamore (<i>Acer psuedoplatanus</i>)	17	5.3	450		MA	3	40+	Forks @ 3m, dense ivy covering base, main stem & unions	Remove to facilitate development	C2 (P)	5.40	91.62
T4	Common Lime (<i>Tilia x europaea</i>)	25.5	3	880		M	4	40+	Tall specimen tree, forks @ 2.2m, minor deadwood throughout crown	Pollard @ 12m to mitigate effects of exposure	A1	10.56	350.38
G5	Mixed Broadleaves	12	3	350	m	MA	2	40+	Group of 1 holly, 2 sycamore & 2 yew of average quality, some with ivy cover	Remove to facilitate development	C2	3.50	38.49
T6	Common Lime (<i>Tilia x europaea</i>)	23.7	2 (4SE)	550		MA	8	40+	Major fork @ 6m, dense ivy covering base, main stem & unions	Remove to facilitate development	C2 (P)	6.60	136.87

Tree No.	Tree Species	Height (m)	Crown Spread (m)	Diameter at 1.5m (mm)	M/S	Age Class	C/C	Remaining Useful Life(Yrs)	Conditions	Recommendations	Category Grading	Root Protection Area - Radius(m)	Root Protection Area - Area(m2)
T7	Sycamore (<i>Acer psuedoplatanus</i>)	21	5 (8 SW)	640		MA	4	<10	Tree of acceptable quality, minor deadwood throughout crown, ivy covering base, main stem & unions	Remove to facilitate development	C2 (P)	7.68	185.32
S8	Shrubs	3	0.5	100	m	Y	0	40+	Understorey of young holly & other shrubs	Remove to facilitate development	C2	1.00	3.14
T9	Sycamore	19	1.5	400		MA	6	40+	Slender tree with poor height/diameter ratio	Remove to facilitate development	C2	4.80	72.39
T10	Common Lime (<i>Tilia x europaea</i>)	21	5	620		MA	3	40+	Forks @ 2,5m, part of W bound limb removed, ivy covering main stem	Pollard @ 10m to mitigate effects of exposure, sever ivy at base	B2	7.44	173.92
T11	Sycamore (<i>Acer psuedoplatanus</i>)	24.5	7.9	980		M	4	40+	Impressive specimen tree. Forks @ 4m, ivy covering main stem & unions, minor deadwood throughout crown	Crown clean, sever ivy at base	A1	11.76	434.53
T12	Common Lime (<i>Tilia x europaea</i>)	23.8	3.1	730		M	8	40+	Forks @ 6m with ivy covering main stem & unions, minor deadwood throughout crown	Pollard @ 10m to mitigate effects of exposure, sever ivy at base	B2	8.76	241.11

Tree No.	Tree Species	Height (m)	Crown Spread (m)	Diameter at 1.5m (mm)	M/S	Age Class	C/C	Remaining Useful Life (Yrs)	Conditions	Recommendations	Category Grading	Root Protection Area - Radius (m)	Root Protection Area - Area (m2)
T13	Atlas Cedar (<i>Cedrus atlantica</i>)	26	1.5	510		M	10	40+	Slight swelling @ base of trunk indicating possible decay, slender tree with poor height/diameter ratio, minor deadwood throughout crown	Remove to facilitate development & mitigate effects of exposure	C2	6.12	117.68
T14	Sycamore (<i>Acer psuedoplatanus</i>)	21.8	4.5	690		M	4	20-40	Good quality specimen tree, forks @ 4m, minor deadwood throughout crown	Crown clean	B1	8.28	215.41
T15	Sycamore (<i>Acer psuedoplatanus</i>)	17.2	6 W, 4 S&N, 0S	580		M	3	40+	Significant basal decay, imbalanced crown, ivy covering main stem	Fell	C2	6.96	152.20
T16	Deodar Cedar (<i>Cedrus deodara</i>)	19.7	N 8.1, E 7.2, 8, W 9	910		M	4	40+	Ivy covering main stem, scar @ 8m S (possible branch loss), major deadwood throughout crown	Sever ivy at base, remove major deadwood	A1	10.92	374.67

Key:

Crown Spread: If not measured NSEW, measurement refers either to average measurement or measurement which will most affect development
Age Class: Y = Young; MA = Early Middle Aged, M = Mature, OM = Over Mature
Retention Category: A,B, C or R as per BS5837 (2005) Table 1
Root Protection Area: Radius according to BS5837 (2005)
(P) Provisional
M/S Is the tree multi-stemmed?
C/C Height of crown clearance in metres

Appendix 3a – Tree Constraints Plan



Client: **Gascoyne Cecil Estates**

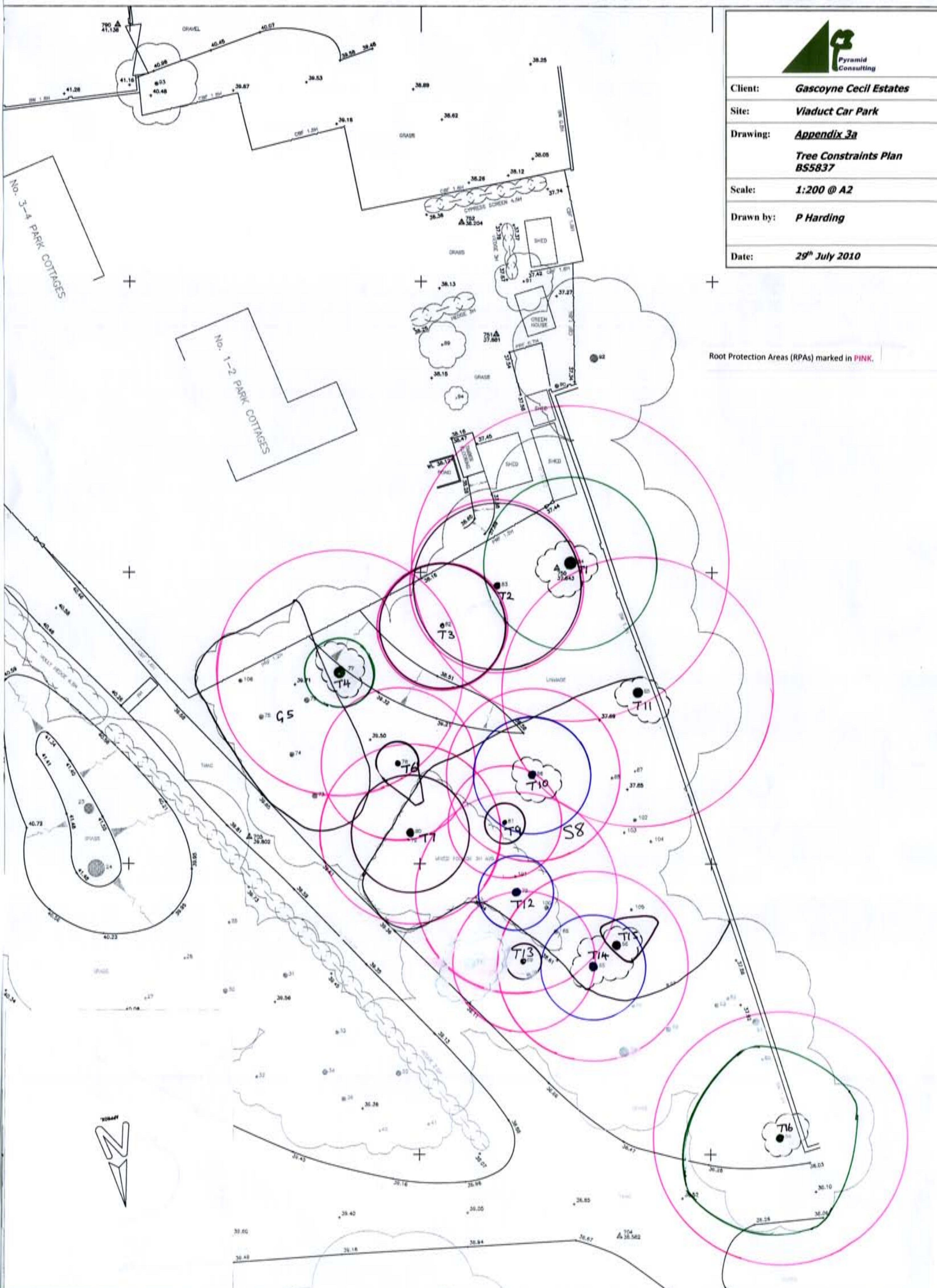
Site: **Viaduct Car Park**

Drawing: **Appendix 3a**
Tree Constraints Plan
BS5837

Scale: **1:200 @ A2**

Drawn by: **P Harding**

Date: **29th July 2010**

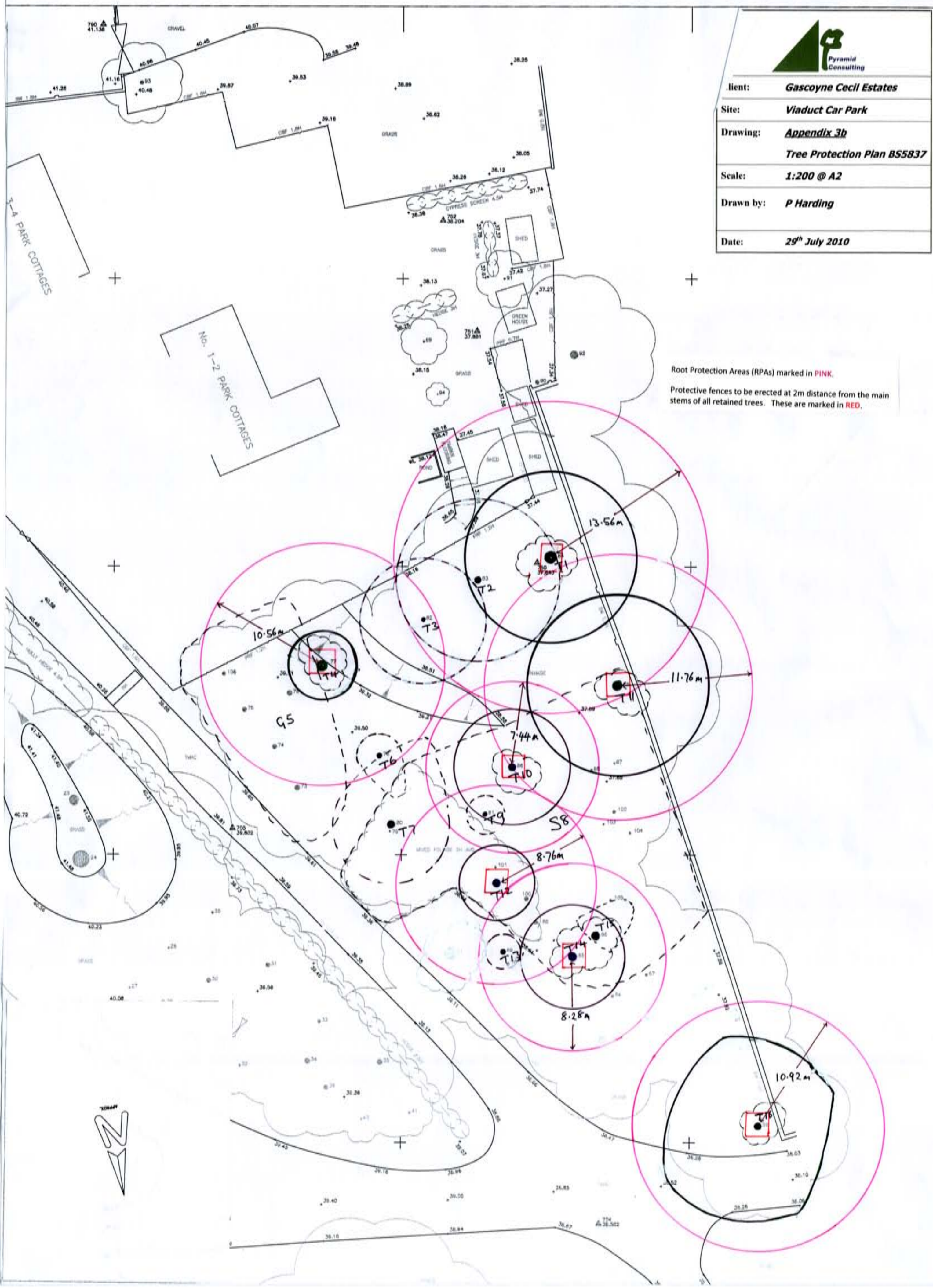


Root Protection Areas (RPAs) marked in **PINK**.

Appendix 3b – Tree Protection Plan



Client:	Gascoyne Cecil Estates
Site:	Viaduct Car Park
Drawing:	Appendix 3b Tree Protection Plan BS5837
Scale:	1:200 @ A2
Drawn by:	P Harding
Date:	29th July 2010



Root Protection Areas (RPAs) marked in **PINK**.
Protective fences to be erected at 2m distance from the main stems of all retained trees. These are marked in **RED**.

Appendix 4 – Photographs



Location of proposed car park



A view into the woodland with T1 in the background



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Hinckley, Leicestershire
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sales@geosyn.co.uk
www.geosyn.co.uk

Method Statement

For The Installation of Cellweb Tree Root Protection System.



When considering damage to tree roots, in applications of vehicular access and parking, the risk of oxygen depletion caused by compaction of subsoil's, site clearance damaging the root source and type of reinforcement are areas which need to be given due consideration.

Other risk factors are:

- Creating an impermeable surface
- Causing a rise in the water table due to construction
- Increasing ground level
- Contamination of subsoil's

1. Compaction

When looking at site conditions and use, the following information should be considered to enable a load bearing structure capable of supporting traffic to be proposed:

- Californian Bearing ratio (CBR) – Standard test method for measuring soil strength
- Soil types
- Water table
- Maximum load (vehicles)
- Acceptable rut depth
- Reinforcement type Cellweb Cellular Confinement
- Type and Depth of engineered infill material Clean, angular. Usually 40mm to 20mm.

2. Dig (site strip)

Site stripping does damage some root structure prior to construction; however, the use of no-dig construction elevates the access road requiring edge protection.

3. No dig

- 3.1. Remove surface vegetation Use a suitable herbicide suitable for the specific vegetation and not harmful to the tree root system
- 3.2. Place geotextile separation filtration layer Use a Fibretex F4M non woven Geotextile over the prepared sub-grade. Overlap dry joints by 300mm.
- 3.3. Cellular Confinement System The three dimensional cell structure, is formed by ultrasonically welding polyethylene (perforated) strips / panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and the cell wall, increasing the stiffness of the system
- 3.4. Edge restraint A treated timber edging is usually acceptable.

4. Cellular Confinement and Backfill Material.



Expand the Cellweb 2.56m wide panels to the full 8.1 metre length. Pin the Cellweb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress. Infill the Cellweb with a no fines angular granular fill (typically 40-20mm) within each open cell. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and geogrid-reinforced structures demonstrate a 50%

reduction in construction thickness of the granular material.

5. Surfacing Options

Block Paving:

- 5.1. Lay second layer of Fibretex F4M Geotextile separation fabric over the infilled Cellweb sections
- 5.2. Lay sharp sand bedding layer compacted with a vibro compaction plate to recommended depth.
- 5.3. Place block paviors as per manufacturers instructions.

Tarmac:

Place 25mm surcharge of the granular material above the Cellweb system and lay the bitumen base and wearing courses.

Loose Gravel:

- 5.4. Place second layer of Fibretex F4M Geotextile separation fabric over the infilled Cellweb sections
 - 5.5. Place decorative aggregate to required depth
- NOTE: A treated timber edge should be provided to restrict gravel movement.

Grass Blocks:

- 5.6. Place second layer of Fibretex F4M Geotextile separation fabric over the infilled Cellweb sections
 - 5.7. Place 50/50 rootzone bedding layer to the required depth
 - 5.8. Lay recycled Duo Block 500 Grass Protection System infilled with 50/50 rootzone mix.
 - 5.9. Seed as per architects instructions.
- (Alternatively the Grass Blocks may be infilled with gravel.)

Below are illustrations of the correct stapling procedure for joining both edges and ends of panels together;

