PRE-DEVELOPMENT TREE SURVE Y

and

CONSTRAINTS PLAN

SITE OF SURVEY	74 Murch Road Dinas Powys CF64 4RE
CLIENTS	Chris Dando
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DATES SURVEYED	19.06.2012

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1. INTRODUCTION

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1.1 TREES AND DEVELOPMENT SITES

The purpose of a Pre-development Tree Survey is to provide the proposed developers, architects landscape designers and planners with an independent, concise presentation of the position, dimensions, condition and future life expectancy of existing trees on the site. Based on the guidelines set out in British Standard 5837 2012 the report is intended to assist decision-making with regard to existing and proposed trees in the context of design, demolition and construction.

Any development proposal should avoid the root protection areas of the surveyed trees as far as possible and consider tree root systems, stems and canopies, with allowance for future movement and growth, for all trees in and adjacent to the site, including those that do not require planning permission. Construction work often exerts pressures on existing trees, as do changes in their immediate environment following the construction. A tree that has taken many decades to reach maturity can be damaged irreparably in a few minutes by actions that might be unwitting, negligent or wilful . Once a development scheme has been devised an impact assessment will be required to assess the implications of development and ensure the early provision of physical protection to avoid damage. Where tree retention or planting is proposed in conjunction with nearby construction, the objective should be to achieve a harmonious relationship between trees and structures that can be sustained in the long term. This report has been devised with due consideration for the good practice recommended in British Standard 5837 2012 and is intended to assist in achieving this objective.

1.2 ASSIGNMENT

I have been instructed by Chris Dando to:
Visually assess the significant trees at 74 Murch Road Dinas Powys CF64 4RE
Prepare a written report, tree schedule and categorisation

- Prepare a Survey Plan and a Tree Constraints Plan to BS 5837:2012 'Trees in relation to construction – Recommendations'

1.3 QUALIFICATIONS AND EXPERIENCE

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

1.4 DOCUMENTS AND INFORMATION PROVIDED

I was provided with a site plan (1:500 scale drawing No. JW2383-01) by Laurence Forse of Harmers consulting

1.5 LIMITATIONS AND USE OF COPYRIGHT

I have no connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

2. THE SITE

2.1 SITE VISIT

I carried out the site visit on 14th June 2013. All my observations were from ground level without detailed investigations and I calculated all dimensions unless otherwise indicated. The weather at the time of inspections was dry with light winds

2.2 SITE DESCRIPTION

The trees in question are positioned within the garden of the above property and in land adjacent to the property on or close to the boundaries. The site is partly overlooked by neighbouring houses on Murch Road although most of the trees are located in or just outside the extensive rear garden.

2.3 IDENTIFICATION AND LOCATION OF THE TREES

The locations of the surveyed trees their crown spread at cardinal points and root protection areas have been illustrated on the site topgraphical scale plan. All the relevant information on the trees is contained within this report and the provided documents.

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3. TREE SCHEDULE KEY

1	**Tree Number**	Each tree is given a number for the purpose of location. This number is specified in the schedule and site plan.
2	**Tag Number**	Each tree has been marked by a numbered metal or plastic tag for on site identification.
3	**Species**	Trees have been identified and both common and botanical names are given.
4	**Height**	Tree height has been calculated by means of a clinometer and recorded in metres, unless otherwise stated
5	**Crown Spread**	As it is rare that a tree's crown is asymmetric the crown spread is measured at the points of the compass to give an estimated representation of the crown spread which is then recorded on the pre development tree survey plan.
6	**Diameter**	The stem diameter is measured in millimetres at a height of 1.5m from ground level. This is done by means of a rounding down girth tape or calipers. On sloping ground the tree is measured on the up slope side of the tree. Multiple stems are measured in accordance with annex C BS 5837 2012).
7	**Crown Height**	To the first significant branch and its direction (i.e 2.4m N).
8	**Life stage**	The trees present age is estimated and categorised as either young, middle aged, mature, over-mature or veteran.
9.	**Life Expectancy**	Safe useful life expectancy estimated in years and categorised as - 0 – 10 years 10 – 20 years 20 – 40 years More than 40 years
10	**Radius Root Protection Area**	For single stem trees, the RPA (see 3.7) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods below should be used In all cases, the stem diameter(s) should be measured in accordance with Annex C (BS 5837 2012), and the RPA should be determined from Annex D (BS 5837 2012) The calculated RPA for each tree should be capped to 707 m 2 a) For trees with two to five stems, the combined stem diameter should be calculated as follows: stem diameter1)2 +(stem diameter2)2 ...+(stem diameter 5)2 For trees with more than five stems (not illustrated in Annex C)(BS 5837 2012), the combined stem diameter should be calculated as follows: (mean stem diameter)2 × number of stems
11	**Estimated Mature Dimensions**	Anticipated mature dimensions for this species of tree under its present environmental conditions, taken from arboricultural literature.
12.	**Form**	Brief description of the trees overall shape and structure which is influenced by its environment and relationship with neighbouring trees or structures.
13	**Tree Category**	The trees overall value is categorised in accordance to the cascade chart (table 1) Cascade Chart for tree quality assessment BS 5837 2012, see Appendix II of this report. In brief, the purpose of the tree categorisation is to identify and quantify the value of the existing tree stock. This will allow informed decisions to be made concerning which trees should be removed or retained should the development occur. Sub categories for each group are also included details of which are listed in the cascade chart.
	Category A	Trees of high quality with an remaining life expectancy of 40 years or more. Marked in light green on the tree pre development survey plan.
	Category B	Trees of moderate quality and having a life expectancy of at least 20 years Marked in mid blue on the tree pre development survey plan.
	Category C	Trees of low quality with a life expectancy of less than 10 years or with a stem diameter of less than 150mm. Marked in grey on the tree pre development survey plan.
	CategoryU	Trees in such a condition that any existing value would be lost within ten years. This includes trees that should be removed for good arboricultural reasons. Marked in red on the tree pre development survey plan. NB Veteran trees identified on site will require special attention and the implications of their presence on the use of the surrounding land should be assessed at the earliest possible stage of the design process. Where such trees are to be retained, particular care should be taken in the design to accommodate them in a setting that aids their long-term retention. They are especially valuable if ancient, due to their scarcity and high habitat values for associated species of fungi, lichens and saproxylic invertebrates, including some which are rare or endangered and occur only where such trees have been continuously present for centuries. These trees will therefore almost always be included in the A3 category. Trees growing as groups or woodland will be identified and assessed where deemed appropriate. Assessment of individuals within any group will be undertaken if there is a need to

	Groups	differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).
14	**Condition**	Each tree has undergone a brief preliminary visual inspection from ground level. This information is only relevant at the time of inspection because circumstances influencing a tree's condition can change rapidly. This section is divided into two separate sections: Physiological Condition **Good** – fully foliaged/twigged canopy for the tree's situation with an indication of natural vigor from shoot extension growth and signs of good vitality throughout the tree's system. **Fair** – signs of adequate vigour and vitality up to 70% canopy coverage. May show signs of slight stress such as branch tip die back, slightly sparse foliage, yellow or small foliage. Stress may be alleviated by prescribed maintenance. **Poor** – obvious signs of advance stress including less than 70% canopy coverage, crown die back, significant deadwood. Sparse and discoloured foliage. **Dead** – moribund or dead trees Structural Condition Any structural defects are noted such as splits, cracks tight forks, rubbing branches, cavities, decay and the presence of pests of diseases. These may compromise the mechanical integrity of the tree's structure. (Veteran trees may pose many physiological and structural faults yet still be considered in good condition for their age.)
15	**Preliminary Recommendations**	Following visual inspection preliminary recommended action, further detailed inspection, or maintenance may be prescribed.
16	**Priority Code**	Recommended work has been categorised into three priorities: **Priority 1** - Work to be carried out as soon as possible for health and safety reasons. **Priority 2** - Recommended tree maintenance to be carried out after completion of Priority 1 work. **Priority 3** - Recommended future tree management.

4. THE SURVEY

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Tree No: 1	**Tag No:** na	**Species:** Oak (*Quercus robur)*			
Height: (m) 17m	**Crown Spread:** (m)	N 9.0	S 7.5	E 10.5	W 8.5
Stem Diameter: (mm) 880 single	**Crown Height** (m): 2.5 Orientation N		**Life stage:** Early mature		
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 10.5m			
Estimated Mature Tree Dimensions (m)	Height: 30m	Crown Radius: 20m			
Form: Open grown tree					
Tree Category: A1*					
Condition: Physiological Good Structural Crown appears to hold a normal amount of dead and crossing limbs for a tree of this age. The roots and stem were not inspected as this area of the tree was inaccessible at the time.					
Preliminary Recommendations: None.			**Priority:** 3		

Tree No: 2 (group	**Tag No:** n/a	**Species:** Hazel Privet Lawsons Cypress *Corylus av. Lig. Ovaliflm.,Cham. laws.*			
Height: (m) 4.0	**Crown Spread:** (m)	N 1.5	S 1.5	E	W
Stem Diameter: (mm) 100	**Crown Height** (m): 0		**Life stage:** Semi mature		
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 1.5m			
Estimated Mature Tree Dimensions (m)	Height: 6m	Crown Radius: 3m			
Form: Multiple stemmed group of hedging/screening trees and shrubs growing on boundary					
Tree Category: C2					
Condition: Physiological Good Structural No indication of any defects					
Preliminary Recommendations: None			**Priority:**		

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Tree No: 3	**Tag No:**	**Species:** Hawthorn (*Cretaegus monogyna*)			
Height: (m) 6m	**Crown Spread:** (m)	N 4.5	S 2.5	E 3.5	W 4
Stem Diameter: (mm) 280	**Crown Height** (m): 2.2 S		**Life stage:** Early Mature		
Life Expectancy: (years) 20-40yrs		**Radius Root Protection Area:** (m) 3.4			
Estimated Mature Tree Dimensions (m)	Height: 8m	Crown Radius: 8.0			
Form: Open grown tree					
Tree Category: B2					
Condition: Physiological Good Structural Tight forks at base of stem and within lower crown with ivy growth on stem					
Preliminary Recommendations: None	**Priority:**				

Tree No: 4	**Tag No:** n/a	**Species:** Oak (*Quercus robur)*			
Height: (m) 9m	**Crown Spread:** (m)	N 2.0	S 4.0	E 3.5	W 4.0
Stem Diameter: (mm) 500	**Crown Height** (m): 4.5 W		**Life stage:** Early mature		
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 6m			
Estimated Mature Tree Dimensions (m)	Height: 30	Crown Radius: 20			
Form: Group trees with restricted crown.					
Tree Category: C 2					
Condition: Physiological Good Structural Main stem appears sound crown has been raised to 4.5m.					
Preliminary Recommendations: None	**Priority:**				

Tree No: 5	**Tag No:**	**Species:** Apple *Malus sp*			
Height: (m) 5.0m	**Crown Spread:** (m)	N 3.5	S 2.0	E 4.0	W 4.5
Stem Diameter: (mm) 260	**Crown Height** (m) 0.5N **Orientation**		**Life stage:** Early mature		
Life Expectancy: (years) 10-20		**Radius Root Protection Area:** (m) 3.1m			
Estimated Mature Tree Dimensions (m)	Height: 8	Crown Radius: 8.0			
Form: Fruit tree					
Tree Category: U					
Condition: Physiological Fair Structural Healthy foliage some tightly forked stem and branch unions throughout typical to species					
Preliminary Recommendations: None	**Priority:**				

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Tree No: 6	**Tag No:** n/a	**Species:** Lawsons Cypress var (*Chamaecyparis lawsoniana (Gold)*				
Height: (m) 8.0m	**Crown Spread:** (m)	N 2.5	S 3.0	E 2.0	W 2.5	
Stem Diameter: (mm) 225	**Crown Height** (m) 0.5m S **Orientation**		**Life stage:** Early mature			
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 3.0m				
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:				
Form: Hedgerow / screen tree						
Tree Category: C 2						
Condition: Physiological Good Structural Healthy foliage some tightly forked branch unions throughout typical to species						
Preliminary Recommendations: None	**Priority:**					

Tree No: 7 Group	**Tag No:** n/a	**Species:** Leyland Cypress *x cupressocyparis leylandii)*				
Height: (m) 8.0m	**Crown Spread:** (m)	N na	S na	E 3.5	W 4.5	
Stem Diameter: (mm) 340	**Crown Height** (m) 0.5m S **Orientation**		**Life stage:** Early mature			
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 4.0m				
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:				
Form: Hedgerow / screen trees						
Tree Category: C 2						
Condition: Physiological Good Structural Healthy foliage some tightly forked branch unions throughout typical to species						
Preliminary Recommendations: None	**Priority:**					

Tree No: 8 Group	**Tag No:** n/a	**Species:** Apple 2 Plum Pear				
Height: (m) 3.5m	**Crown Spread:** (m)	N 2.5	S 3.0	E 2.0	W 2.5	
Stem Diameter: (mm) 225	**Crown Height** (m) 0.5m S **Orientation**		**Life stage:** Early mature			
Life Expectancy: (years) 20-40		**Radius Root Protection Area:** (m) 3.0m				
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:				
Form: Fruit trees						
Tree Category: C 2						
Condition: Physiological Fair Structural Healthy foliage some tightly forked branch unions throughout typical to species some dying limbs attributable to fungal and cankerous disorders.						
Preliminary Recommendations: None	**Priority:**					

Tree No: 9	**Tag No:** n/a	**Species:** Pear *Pyrus sp*			
Height: (m) 3.0m	**Crown Spread:** (m)	N 1.5	S 2.0	E 3.0	W 2.5
Stem Diameter: (mm) 100	**Crown Height** (m) **Orientation** 0.5m S	**Life stage:** Early mature			
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 1.5m			
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:			
Form: Fruit tree					
Tree Category: C 2					
Condition: Physiological Good Structural Healthy foliage some tightly forked branch unions throughout typical to species					
Preliminary Recommendations: None	**Priority:**				

Tree No: 10	**Tag No:** n/a	**Species:** Cherry *Prunus avium*			
Height: (m) 4.0m	**Crown Spread:** (m)	N 4.0	S 3.5	E 3.0	W 4.5
Stem Diameter: (mm) 160	**Crown Height** (m) **Orientation** 0.5m S	**Life stage:** Early mature			
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 2.0m			
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:			
Form: Fruit tree					
Tree Category: C 2					
Condition: Physiological Good Structural Healthy foliage stem and roots appear healthy					
Preliminary Recommendations: None	**Priority:**				

Tree No: 11	**Tag No:** n/a	**Species:** Cherry *Prunus avium*			
Height: (m) 4.0m	**Crown Spread:** (m)	N 2.5	S 2.0	E 2.0	W 2.5
Stem Diameter: (mm) 80	**Crown Height** (m) **Orientation** 0.5m S	**Life stage:** Early mature			
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 3.0m			
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:			
Form: Fruit tree					
Tree Category: C 2					
Condition: Physiological Good Structural Healthy foliage stem and roots appear healthy					
Preliminary Recommendations: None	**Priority:**				

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Tree No: 12	**Tag No:** n/a	**Species:** Norway Spruce *Picea abies*			
Height: (m) 9.0m	**Crown Spread:** (m)	N 3.5	S 3.0	E 3.0	W 3.5
Stem Diameter: (mm) 260	**Crown Height** (m) 0.5m S **Orientation**		**Life stage:** Early mature		
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 3.0m			
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:			
Form: Open grown tree					
Tree Category: C 2					
Condition: Physiological Good Structural Healthy foliage some cracking around root plate main stem appears sound with ivy present.					
Preliminary Recommendations: None	**Priority:**				

Tree No: 13 Group	**Tag No:** n/a	**Species:** Cherry *Prunus avium (3)* Holly *Ilex aquifolium (1)*			
Height: (m) 6.0m	**Crown Spread:** (m)	N 2.5	S 3.0	E 2.0	W 2.5
Stem Diameter: (mm) 230	**Crown Height** (m) 1.8m E **Orientation**		**Life stage:** Early mature		
Life Expectancy: (years) 40+		**Radius Root Protection Area:** (m) 3.0m			
Estimated Mature Tree Dimensions (m)	Height:	Crown Radius:			
Form: Group trees by side of driveway					
Tree Category: C 2					
Condition: Physiological Good Structural Healthy foliage some tightly forked branch unions throughout typical to species					
Preliminary Recommendations: None	**Priority:**				

5. GENERAL IMPLICATION OF DEVELOPMENT ON TREES

5.1 INTRODUCTION

The successful retention, protection and preservation of trees on construction sites is a continuous problem. It requires commitment from all parties:- arboriculturalists, planners, developers and contractors. The conflict between the need to maximise scarce building land and the social and environmental pressure to retain as many trees as possible often sets the construction industry at odds with planners and a realistic impact assessment msut take into account the benefits and drawbacks of retaining trees within a new developmen .

5.2 CONSIDERATIONS FOR TREES RETAINED ON DEVELOPMENT SITES

1) **Shading of buildings**. Shading of buildings by trees can be a problem, particularly where there are rooms which require natural light.Proposed buildings should be designed to take account of existing trees, their ultimate size and density of foliage, and the effect that these will have on the availability of light.
2) **Shading of open spaces**. Open spaces such as gardens and sitting areas should be designed to meet the normal requirement for direct sunlight for at least a part of the day.
NOTE 1 Shading can be desirable to reduce glare or excessive solar heating, or to provide for comfort during hot weather. The combination of shading, wind speed/turbulence reduction and evapo-transpiration effects of trees can be utilized in conjunction with the design of buildings and spaces to provide local microclimatic benefits.
3. Privacy and screening. Trees may provide screening to a building, e.g. for internal privacy, to reduce overlooking by neighbours or to mitigate undesirable views, such as busy roads, railway lines or industrial premises. In order to achieve the desired outcome, account should be taken of the proposed orientation and aspect of the building, the type of building, its use and location relative to the tree, and the species attributes of the tree.
4. **Direct damage**. Below-ground damage to structures can occur as a result of incremental root and stem growth. Above-ground damage can occur to trees and structures by the continuous whipping of branches against the fabric of a building. Branch ends might have to be cut back periodically, possibly affecting the shape of the tree. Structures should therefore be designed and/or located with due consideration for a tree's ultimate growth, so as to reduce the need for frequent remedial pruning or other maintenance.
5. Future pressure for removal. The relationship of buildings to large trees can cause apprehension to occupiers or users of nearby buildings or spaces, resulting in pressure for the removal of the trees. Buildings and other structures should be sited allowing adequate space for a tree's natural development, with due consideration given to its predicted height and canopy spread. However, this does not mean that trees should not be retained within any particular distance of a structure (see Table A.1 (BS 5837 2012) for new planting).
e) **Seasonal nuisance**. Trees are naturally growing and shedding organisms.
Leaves of some species can cause problems, particularly in the autumn, by blocking gullies and gutters. Fruit can cause slippery patches, and accumulation of honeydew can be damaging to surfaces and vehicles.Buildings, footpaths and hard-standing areas should be designed with due consideration to the proximity of retained trees, especially in terms of their foliage, flowering and fruiting habits. Where conflicts might arise, detailed design should address these issues, e.g. use of non-slip paving; provision of leaf guards or grilles on gutters and gullies; provision of access and means of maintenance.

5.3 RISKS TO TREES

Trees that are growing satisfactorily are growing in equilibrium with their surroundings above and below ground. Anything that even slightly alters this balance will effect the trees' health, future growth and safety. Trees on development sites are particularly vulnerable to disruption during the construction process.

Damage can be caused by

a) Excavation within the root zone

b) Raising or lowering of the soil levels

c) Compaction of the soil by construction vehicles, machinery and by storing materials and debris

d) Spillage of toxic materials

e) Root asphyxiation by flooding

f) The laying of impermeable surfaces

g) Damage to trunk, branches and crown by direct physical impact

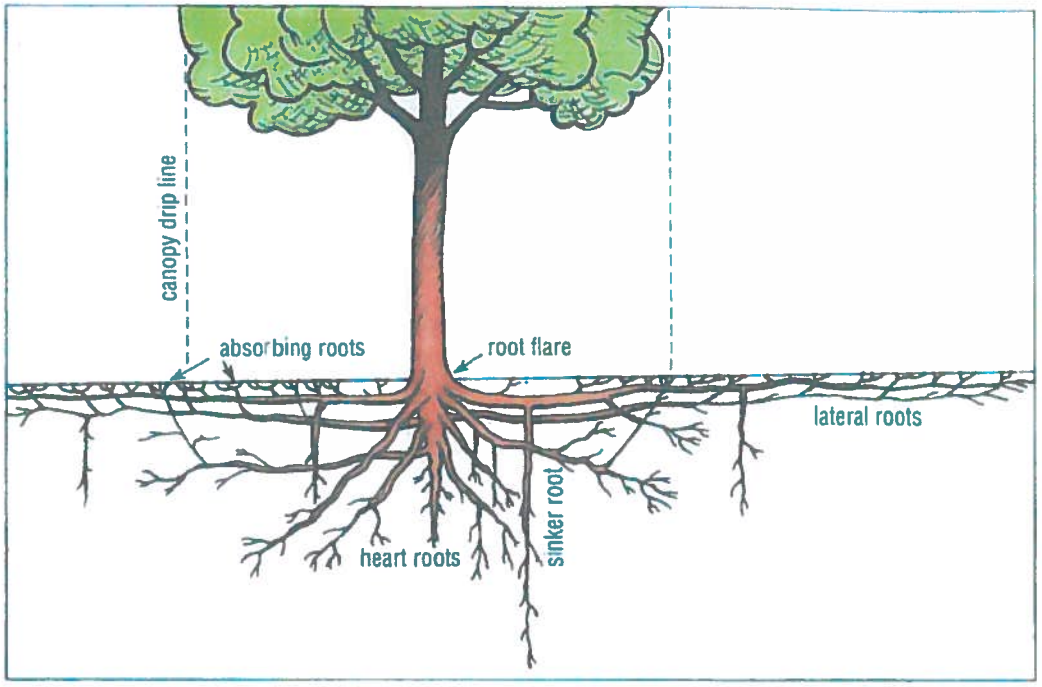
h) Fire or heat damage

i) Environmental changes - exposure to sunlight, cold, wind or shade

5.4 IMPACT ON TREE ROOTS

a) Important Facts About Tree Roots

- Tree roots are particularly susceptible to damage because they are not visible and frequently ignored. Damage or death of tree roots will effect the overall health and vigor of the tree, reduce potential life expectancy, and increase the risk of structural failure.
- The roots attached to a tree's main stem rapidly taper and subdivide resulting in a mass of fibrous roots, normally extending well beyond the edge of the outer most branches.
- Most tree roots are within the top 600mm of soil where optimum moisture, oxygen and nutrients are to be found
- Fine and fibrous roots are important for the trees structural stability. It is the mass of soil bound together by fibrous roots that counter balances the above ground portion of the tree.
- Tree roots often have an inter-relationship with beneficial fungi called mycorrhiza, relying on them for extra moisture, oxygen and nutrients and paying them back with converted energy.
- Soil compaction can drastically reduce the moisture, oxygen and nutrients available to tree roots and beneficial fungi; resulting in tree stress, decline and possibly death and structural failure.
- Tree root systems mechanically support the above ground portion of the tree on a structured root plate close to the stem of the tree. This is anchored in the soil by lateral tension roots which are in cohesion with the soil. The removal of just one main root particularly on the windward side can lead to failure unless the tree is reduced.



b) Root Severance

Trees can tolerate some minor root severance but it is important this work is undertaken by qualified arborists with specialised equipment (see section below).

Linear root severance can be detrimental in that:

- It reduces a tree's moisture and nutrient uptake leading to reduced vitality and stress
- Direct wounding of the root system makes an entrance point for pathogens which can lead to significant fungal decay.
- The stability of a tree may be affected in that roots that mechanically support the tree will be compromised. Root severance will reduce the cohesion surface area with the soil and affect the tension and compression properties of the root's system. This may lead to shearing of the root plate and structural failure.

5.5 Soil assessment

A soil assessment should be undertaken by a competent person to inform any decisions relating to:

- the root protection area (RPA);
- tree protection;
- new planting design; and
- foundation design to take account of retained, removed and new trees.

The assessment should determine whether the soil is shrinkable. If it is, trees and other vegetation have the potential to cause indirect damage to structures (see Annex A). In such cases, desiccation assessments should be carried out at a specialist laboratory to check the extent to which existing vegetation has dehydrated the soil.

Soil structure, composition and pH should be included in the assessment for the purpose of designing new planting and landscape proposals. Surface soils are often compacted on construction sites as a consequence of heavy equipment moving over the surface. Soil structure can be affected to some depth. Compaction reduces air and moisture content and increases the likelihood of erosion.

On shrinkable soils (known or suspected), if it is evident that trees or substantial stems have been removed from a hedgerow, this should be recorded, along with any apparent signs of past management, such as laying or significant height reduction. Such information can be of particular relevance to foundation design, where the current species composition and dimensions might not reflect the previous influence of a hedgerow on ground moisture levels.

5.6 CHANGES IN GROUND LEVEL

The raising of the soil level over a tree's root system and around the stem base can be very damaging to some species. The fill soil can hold moisture around the trunk and over the roots and alter normal gas exchange. Some trees develop adventitious roots in the fill soil and keep the tree alive. Over time decay and disease may develop in the lower original root system and root buttresses. The tree can then become structurally unsound and prone to failure. These impacts may not take effect until many years after the construction has been completed.

5.7 IMPLEMENTATION OF WORK

I advise that any tree work be carried out by Arboricultural Approved Contractors. The contractor should carry out all tree works to BS 3998 *Recommendations for Tree Work (2010)* and as modified by research that is more recent.

6. CONCLUSION

The tree survey and constraints plan has been completed and indicates the root protection area. It is recommended in BS 5837:2012 'Trees in relation to construction – Recommendations' that this information is used as a tool for design of the proposed building.

The drawing supplied to us does not indicate the footprint of the proposed development. No details on service or drainage runs have been supplied.

The most significant trees on site are outside of the site boundary (Tree 1 Oak and Tree 4 Oak) . The remaining trees are considered to be of low amenity value and could easily be replaced.

7. COMMENTS

7.1 NEXT STAGE

The above document is intended to be used as an aid for the site design and layout by the Planning Team.

Following the finalising of the planning stage and any further arboricultural consultation that this may require, the next stage is the drawing up of an Arboricultural Implications Assessment followed by an Arboricultural Method Statement

7.2 ARBORICULTURAL IMPLICATIONS ASSESSMENT

This is a study undertaken by an arboricultural consultant to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

The **Arboricultural Implications Assessment** should take into consideration the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil.

7.3 ARBORICULTURAL METHOD STATEMENT

Once the Arboricultural Implications Assessment has been completed and final layout proposals agreed, the Arboricultural Method Statement and a Tree Protection Plan should be prepared.

The function of an Arboricultural Method Statement and Tree Protection Plan is to translate all necessary aspects of arboricultural work of the entire development into a document which is readily understood and appreciated by construction workers. This will comprise of:

a) Statement of any planning conditions relevant to the trees.

b) Table showing a concise chronology of events.

c) List of relevant contacts.

d) Tree Protection Plan. This is a scale drawing showing the finalised layout proposals, tree protection and tree and landscape protection measures detailed within the Arboricultural Method Statement, which can be shown graphically.

e) Schedule of works for any tree removal and any preliminary tree works required.

f) Specifications for any site specific engineering required or soil amelioration in relation to the retained trees.

g) Design for re-planting and specifications (if required).

h) Schedule for site monitoring by an Arboricultural Consultant during the construction period.

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7.4 TREE PROTECTION PLAN

The tree protection plan should be superimposed on a layout plan, based on the topographical survey and show all hard surfacing and other existing structures within the RPA.
The precise location of protective barriers extent and type of ground protection, and any additional physical measures, such as tree protection boxes, that will need to be installed to safeguard vulnerable sections of trees and their where construction is to be allowed within RPAs must also be shown. . The position of barriers and any ground protection will be shown as a polygon representing the actual alignment of the protection.
Also agreed temporary access within construction exclusion zones, will require an illustration of the extent of the set-back of the permanent and the positioning of temporary ground protection measures to be adopted for the duration of the works within the RPA (
All foreseeable construction operations that are likely to be undertaken in the vicinity of trees should be considered including:
a) site construction access;
b) the intensity and nature of the construction activity;
c) contractors' car parking;
d) phasing of construction works;
e) the space needed for foundation excavations and construction works;
f) the availability of special construction techniques;
g) the location and space needed for all temporary and permanent apparatus and service runs, including foul and surface water drains, land drains, soakaways, gas, oil, water, electricity, telephone, television or other communication cables;

h) all changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls andbackfillings; working space for cranes, plant, scaffolding and access during works;
j) space for site huts, temporary toilet facilities (including their drainage) and other temporary structures;
k) the type and extent of landscape works which will be needed within the protected areas, and the effects these will have on the root system;
l) space for storing (whether temporary or long-term) materials, spoil and fuel and the mixing of cement and concrete;
m) the effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.

14 0 0 8 3 7 FUL

TREE SURVEY 74 MURCH ROAD DINAS POWYS

19th June 2013

Dear Chris

Pre-development Tree Survey

Please find enclosed our completed report.

We also enclose our invoice for payment.

Yours sincerely

14/0837/FUL