

- Planning
- TPO
- Safety Inspection
- Subsidence
- Litigation
- Design

# Forbes- Laird Arboricultural Consultancy



*Principal Consultant:*

**Julian Forbes-Laird**

BA(Hons), MICFor, MEWI, M.Arbor.A, Dip.Arb.(RFS)

## OSNEY MICRO-HYDRO-ELECTRIC SCHEME

### PLANNING SUBMISSION (ARBORICULTURE)

### TREE SURVEY TO BS5837:2012 & TREE RETENTION / REMOVAL



Prepared for:

West Oxford Community Renewables



FLAC Instruction ref:

CC32-1033



Issued:

September 2012

Dendron House  
Barford Road • Blunham  
Bedford • MK44 3ND  
T 44 (0)1767 641648  
F 44 (0)1767 660330  
E enquiries@flac.uk.com  
[www.flac.uk.com](http://www.flac.uk.com)

## OSNEY MICRO-HYDROELECTRIC SCHEME : KEY TO TREE SURVEY DATA SCHEDULE

### **Note on Methodology & tree safety**

This survey has been undertaken in compliance with BS5837:2012; it is not intended to be a tree safety survey. Trees have been assessed visually from ground level; no invasive inspections have been undertaken nor have any trees been climbed. Any notes offered on structural integrity of trees are incidental, though where hazard trees have been identified (e.g. by red font in the *Structural condition & Notes* column, see below), and recommendations given for immediate intervention, this should be put in hand by the owner / site manager as soon as can be arranged

### **FLAC Ref. No.**

Tree numbers as per Tree Survey Plan (FLAC dwg no. TSP 32-1033.01) and subsequent drawings

In line with the advice of BS5837:2012, where trees occur as a cohesive group feature (prefixed TG for tree group or WG for woodland group), they are assessed as such

Size data for TG or WG are given as mean figures for trees at roughly the 80 percentile of the population concerned. Trees in the 90-100 percentile range for the group are identified on the TSP

Trees within TG / WG boundaries that have more than one stem and which are sub-dominant within the TG / WG (i.e. <80 percentile) are subsumed within the TG / WG data; dominant multi-stemmed trees (i.e. >80 percentile) within TG / WG boundaries are listed as individual trees

TG / WG outlines follow the mapping base (typically either topographical survey or geo-rectified aerial imagery)

Hedges (domestic) are recorded prefixed H and are always excluded from the provisions of the Hedgerows Regulations 1997

Hedgerows (rural) are recorded prefixed HR and possibly fall within the provisions of the Hedgerows Regulations 1997

All numbering starts from x001 **for each type of vegetation**, where x identifies the surveyor (9000 series = JFL). Thus:

9000	Individual tree
TG9000	Tree group
WG9000	Woodland group
H9000	Domestic hedge
HR9000	Rural hedgerow

The addition of the FLAC instruction ref. ahead of the tree number provides a unique, non-repeated reference number for the particular tree in question

Any trees omitted from the topo survey are listed on the referenced plan, though their positions are only shown indicatively. Off-site trees are included where deemed relevant, though their positions are also shown indicatively if omitted from the topo base

### **TPO Ref.**

Statutory protection listing for individual trees, TG and WG

**ATTENTION: SEE NOTE IMMEDIATELY BELOW**

**Note**

This column is only completed in cases where FLAC has been instructed to undertake a TPO search and correlation to FLAC reference numbers. The absence of data in this column **must not** be taken to indicate that the trees concerned are not under TPO protection. Statutory protection may also arise from the trees' location within a Conservation Area. Further statutory control over tree removal may be conferred by the Forestry Act 1967

**Species**

Tree species as listed in the schedule by common name. Species present are:

<i>Common name</i>	<i>Botanical name</i>	<i>Provenance</i>	<i>Notes</i>
Crab apple	Malus sylvestris	Native	
Deodar	Cedrus deodara	Exotic	
Lawson cypress	Chamaecyparis lawsoniana	Exotic	
Leyland cypress	x Cupressocyparis leylandii	Exotic	
Sycamore	Acer pseudoplatanus	Naturalised	

**Tree Count**

For trees assessed as groups (ident. prefix TG), number of trees present, according to:

2-10 trees	Accurate count
11-50 trees	Close estimate
51-100 trees	Estimate

**Area m<sup>2</sup>**

For trees assessed as woodland (ident. prefix WG), existing area in square metres derived from interrogation of the completed TSP

**Ht. (m)**

Tree height in metres

*Either:*

**Crown Spread**

For individual trees, measured radial crown spread in metres, listed for each of the four cardinal points

*Or:*

**MRCS**

For trees assessed as groups or woodland, an estimated mean radial crown spread for trees at the 80 percentile size

**Note**

For trees assessed as woodland, sample measurements for canopy overhang beyond woodland boundary (i.e. hedgerow, fence, ditch etc.) are given on the TSP

Or:

**Mean Width**

Mean width of hedge or hedgerow

**Length**

Approximate length of hedge or hedgerow

**Ht. 1<sup>st</sup> Br.**

For individual trees and trees assessed as groups or woodland, height above ground in metres of attachment point of first significant branch (cardinal point may be given indicating growing direction)

**Ht. Can.**

For individual trees and trees assessed as groups or woodland, mean height of lower extent of tree canopy above ground

**Stem Count**

For individual trees, number of stems present below 1.5m AGL. Stem count affects diameter entry as follows:

Where the stem count is 1 the diameter should be entered into the 1 column under Stem Dia.

Where the stem count is up to 5 each stem dia. should be listed

Where the stem count exceeds 5, the mean stem diameter should be entered in the 1 column

*Either:*

**Stem Dia. (mm)**

Stem diameter(s) at 1.5m above ground level (see measurement system in BS5837:2012 Annex C), given in millimetres

*Where entered 1:*

Single measured stem diameter

*Where entered 2-5:*

Multiple measured stem diameters, listed per stem

*Where entered >5:*

For trees with more than five stems, diameter is listed as an estimated mean

Where the diameter entry for trees with 1 or 2-5 stems appears in italics, this indicates that it was estimated by the surveyor (for example, due to the presence of ivy on the stem)

It is our practice to round up when estimating stem diameters

Or:

**Specimen Stem Dia.**

For trees assessed as groups or woodland, stem diameter at 1.5m above ground level for 80 percentile member of TG or WG. Trees with larger diameters are identified on the TSP

Or:

**Mean Stem Dia.**

Mean stem diameter above the basal flare of hedge or hedgerow component plants

Either:

**RPA Rad.**

Radius in metres of the notionally circular Root Protection Area

Or:

**Specimen RPA Rad.**

For trees assessed as groups or woodland, radius in metres of the notionally circular Root Protection Area based on specimen diameter for TG or WG 80 percentile tree

Either:

**RPA Area**

Conversion of RPA radius to an area, given in m<sup>2</sup>, capped to a maximum of 707m<sup>2</sup>

Or:

**Specimen RPA Area**

For trees assessed as groups or woodland, conversion of specimen RPA radius to an area, given in m<sup>2</sup>, capped to a maximum of 707m<sup>2</sup>

**Note**

RPA for hedges or hedgerows is to be taken as 3m from the centreline or half the height, whichever is the greater

**Life Stage**

Life stage assessment according into:

Y	Young
SM	Semi-mature
EM	Early mature
M	Mature
OM	Over-mature

### **Phys. Condition**

An assessment of the **physiological** condition (i.e. health/vitality) status of the tree summarised according to:

<b>GOOD</b>	Generally in healthy condition
<b>FAIR</b>	Condition satisfactory though below mean species performance
<b>POOR</b>	Tree in decline/retrenching
<b>DEAD</b>	Self explanatory

### **Structural condition & Notes**

Notes on the apparent structural integrity of the tree based on visual tree assessment, including notes on form, taper, forking habit, storm damage, decay fungi, pests, etc. plus other pertinent observations

### **Management recommendations**

Preliminary recommendations for intervention (e.g. tree surgery, felling, etc) in relation to existing context

Trees assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practical. Where the recommendation is for further investigation, including removal of ivy and reinspection, the given retention span and quality/value grade (see below) should be treated as provisional

### **Notes**

This is **not** intended to comprise a specification for tree work: further advice is required prior to implementation

Change in land use (target value) requires further assessment

### **Ret. Span**

Estimated remaining retention span based on species, condition & context divided into the following bands (relates to quality and value grade achievable as stated):

*Years    Best QV grade*

<10	U
10+	C
20+	B
>40	A

## QV Grade

Quality & Value grade classification according to BS5837:2012 (see attached extract from BS5837:2012 'Table 1 - Cascade Chart for Tree Quality Assessment') –

<i>Grade</i>	<i>Summary meaning</i>	<i>Ident. colour spot on TSP</i>
<b>U</b>	Trees that are non-retainable in viable condition	Dark red
<b>A</b>	High quality & value and consequent high retention priority	Light green
<b>B</b>	Moderate quality and value (moderate priority for retention)	Mid-blue
<b>C</b>	Low quality and value (generally considered to be sacrificial)	Grey

## **Note**

Trees present which we consider to be **exceptional** specimens are identified by the suffix \* after the A grade, e.g. A1\*

## Proposal

This column identifies:

1. Pre-planning (Arboricultural Stages 1, Tree Survey, & 2, Design):  
JFL's initial view of a defensible tree retention / removal balance
2. Planning submission (Arboricultural Stage 3):  
The actual tree retention / removal balance as proposed

The following codes are used:

RET	1. Trees preferably retained 2. Trees that would be retained
PRET	<i>For woodlands only</i> – signifies partial retention (see below)
REM	1. Trees defensibly removed to facilitate development 2. Trees that would be removed
U	Trees identified to be unsuitable for retention

## Area retained m<sup>2</sup>

*For woodlands only*

Area, in square metres, of woodland (WG) proposed for retention. Outcomes are as follows:





Survey grade U	Area for retention defaults to 0 (can be amended by manual override)
Proposal code RET	Area for retention defaults to existing area
Proposal code PRET	Area for retention requires manual input following interrogation of relevant plans
Proposal code REM	Area for retention defaults to 0

## Area retained %

*For woodlands only*

Percentage of pre-existing WG area that would be retained, based on an auto-sum derived from inputs into the preceding column

**BS5837:2012 Table 1 – Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
<b>Trees unsuitable for retention</b> (see Note)				
<b>Category U</b> Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> <li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012] 4.5.7.</i></p>			
	<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values, including conservation</b>	
<b>Trees to be considered for retention</b>				
<b>Category A</b> <b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
<b>Category B</b> <b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	
<b>Category C</b> <b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	

**FLAC Note**

The original contents of the column *Identification on plan* have been replaced by FLAC in the version above; spot colours to RGB codes given in BS5837:2012 Table 2



OSNEY MICRO-HYDROELECTRIC SCHEME : TREE SURVEY DATA TABLE

Data for individual trees

FLAC Ref. No.	TPO Ref	Species	Ht. (m)	Crown Spread (m)				Ht. 1 <sup>st</sup> Br. (m)	Ht. Can. (m)	Stem Count	Stem Dia. (mm)					RPA Rad. (m)	RPA Area (m <sup>2</sup> )	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Structural condition & Notes	Management recommendations	Ret. Span <10, 10+ 20+, >40	QV Grade U-A-B-C	Proposal
				N	S	W	E				1 / mean	2	3	4	5									
9001		Crab apple	6.5	4.5	4	3.5	4.5	1.6 S	1.7	1	360					4.32	59	M	F	Crown shape distorted by adjacent tree to give poor form. Minor though profuse deadwood throughout. Small cavity on lower stem, though not apparently structurally significant. Decay pocket noted at elbow on N scaffold: potential failure risk though low impact potential	No action required at time of survey. Does not merit significant efforts at retention & would be better replaced with new planting	20+	C1	REM
9002		Deodar	16	5	6.5	4	6.2	GL	GL	3	470	460	440		9.50	283	EM	G	Three stemmed from ground level; union not inspected due to obscuring ivy & other vegetation. Minor deadwood throughout crown. Tree shows poor form for species. Utilitarian pruning to lower crown to clear adjacent footpath to S further spoils aesthetic. Species has no riparian association and is highly alien in its context	Crown lift to 3m & cleaning out would improve aesthetic, but tree remains inherently misplaced in context. Noted for retention, however the feasibility of this would be subject to site investigation, with new planting provided as an alternative	>40	B1	RET	
9003		Sycamore	5.8	3	3	3	3	GL	1.2	16	80				3.84	46	SM	G	Multi-stemmed from ground level. No apparent significant defects, however growing hard up against eyot walling: high future growth potential renders structural damage to walling very likely	Remove for arboricultural reasons (i.e. damage prevention)	<10	U	U	

Data for trees assessed as groups (TG)

FLAC Ref. No.	TPO Ref.	Species	Tree Count	Ht. (m)	M RCS (m)	Ht. 1 <sup>st</sup> Br. (m)	Ht. Can. (m)	Specimen Stem Dia. (mm)	Specimen RPA Rad. (m)	Specimen RPA Area (m <sup>2</sup> )	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Structural condition & Notes	Management recommendations	Ret. Span <10, 10+ 20+, >40	QV Grade U-A-B-C	Proposal
TG9001		Lawson cypress	3	12	3		GL	300	3.60	41	EM	G	No apparent significant defects. As with tree 9002, no riparian association & highly alien in context.	No action required at time of survey. Located remote from proposed development and so very unlikely to be affected. However, given the unsuitability of these trees to their setting, a benefit would accrue from replacing them with new planting	>40	C2	RET

**Client**  
West Oxford Community Renewables

**Instruction**  
Osney Micro-hydroelectric scheme

**Instruction ref.**  
CC32-1033

**Dwg title**  
Tree Survey Plan  
(on proposals base)

**Dwg no.**  
32-1033.01

**Date**  
28.09.12

**Scale**  
1:200 @ A3

- Key**
- Category A ● High
  - Category B ● Moderate
  - Category C ● Low
  - Category U ● Unretainable

- Trees for retention
- Trees that can be retained though preferably replaced
- Trees for removal to facilitate development
- Trees for removal for arboricultural reasons
- Notional RPA if unimpeded (retention trees only)
- Actual tree root protection area (retention trees only)
- Tree 9002 RPA incursion: 37m<sup>2</sup> or 13% of RPA

**Note on tree 9002**

It is intended that tree 9002 will be retained, however this is subject to confirmation by means of site investigation

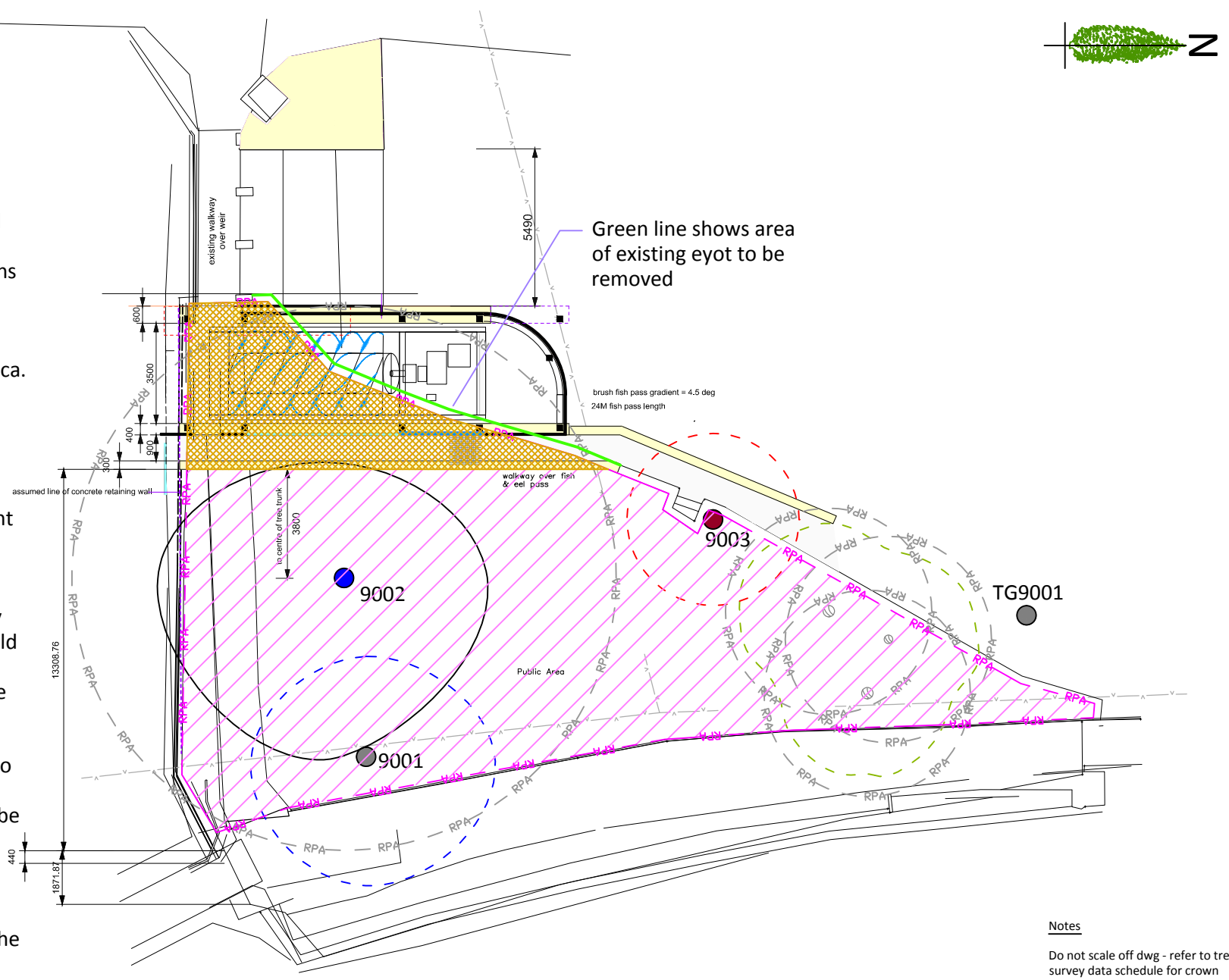
The site investigation shall comprise formation of a trench ca. 200mm wide & 1000mm deep along the near line of proposed excavation relative to the tree

The trench shall be formed by compressed air soil displacement under on-site arboricultural supervision and roots retained

The arboriculturist shall identify the extent of root loss that would result from the proposals by assessing the roots spanning the trench

If the quantum of loss appears to exceed an amount likely to be tolerated by the tree, this shall be notified to the LPA in writing

In this event, the tree shall be replaced with new planting according to details agreed by the LPA pursuant to planning conditions



**Notes**

- Do not scale off dwg - refer to tree survey data schedule for crown spreads etc
- Tree group outlines follow the topo survey
- Drawn to N unless otherwise indicated