# **APPENDIX 8.5**

TREE SURVEY

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



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# **EBBERSTON WELL SITE**

# TREE SURVEY TO BS5837:2012 & PRELIMINARY CONSTRAINTS ADVICE





Prepared for:

Third Energy



FLAC Instruction ref:

CC33-1015



Issued:

May 2013

Dendron House Barford Road • Blunham Bedford • MK44 3ND



### EBBERSTON WELL SITE: 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 33-1015.01) 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 <u>must not</u> 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:

Common name	Botanical name	Provenance	Notes
Ash Elder	Fraxinus excelsior Sambucus nigra	Native Native	
Goat willow	Salix caprea	Native	
Holly	Ilex aquifolium	Native	
Norway spruce	Picea abies	Exotic	
Pedunculate oak	Quercus robur	Native	
Rowan	Sorbus aucuparia	Native	Present as cv. 'Fastigiata'
Scots pine	Pinus sylvestris	Native	
Silver birch	Betula pendula	Native	
Sitka spruce	Picea sitchensis	Exotic	

# **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>
Conversion of NEA radius to an area, given in in , capped to a Maximum of 707m

# **Specimen RPA Area**

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

### Note

Or:

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:

**G**OOD Generally in healthy condition

**F**AIR Condition satisfactory though below mean species performance

**POOR** Tree in decline/retrenching

**D**EAD 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):

Best QV grade
U
С
В
Α

# **QV** Grade

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

Grade	Summary meaning	Ident. colour spot on TSP
U A B C	Trees that are non-retainable in viable condition High quality & value and consequent high retention priority Moderate quality and value (moderate priority for retention) Low quality and value (generally considered to be sacrificial)	Dark red Light green Mid-blue 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
- Planning submission (Arboricultural Stage 3):
   The actual tree retention / removal balance as proposed

The following codes are used:

RET	<ol> <li>Trees preferably retained</li> </ol>
	2. Trees that would be retained

PRET For woodlands only – 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

Category and definition	Criteria (including subcategories where appropriate	e)		Identification on plan
Trees unsuitable for retention (see Not	e)			
Category U 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> <li>unviable after removal of other category U trees</li> <li>Trees that are dead or are showing signs of significance to to of better quality</li> </ul>	al defect, such that their early loss is expected due to coll (e.g. where, for whatever reason, the loss of companion ficant, immediate, and irreversible overall decline the health and/or safety of other trees nearby, or very low tial conservation value which it might be desirable to preservation.	shelter cannot be mitigated by pruning) w quality trees suppressing adjacent trees	
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality 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)	
Category B Trees of moderate quality 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	cultural value	
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem	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 r 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**

diameter below 150 mm

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

# Data for individual trees

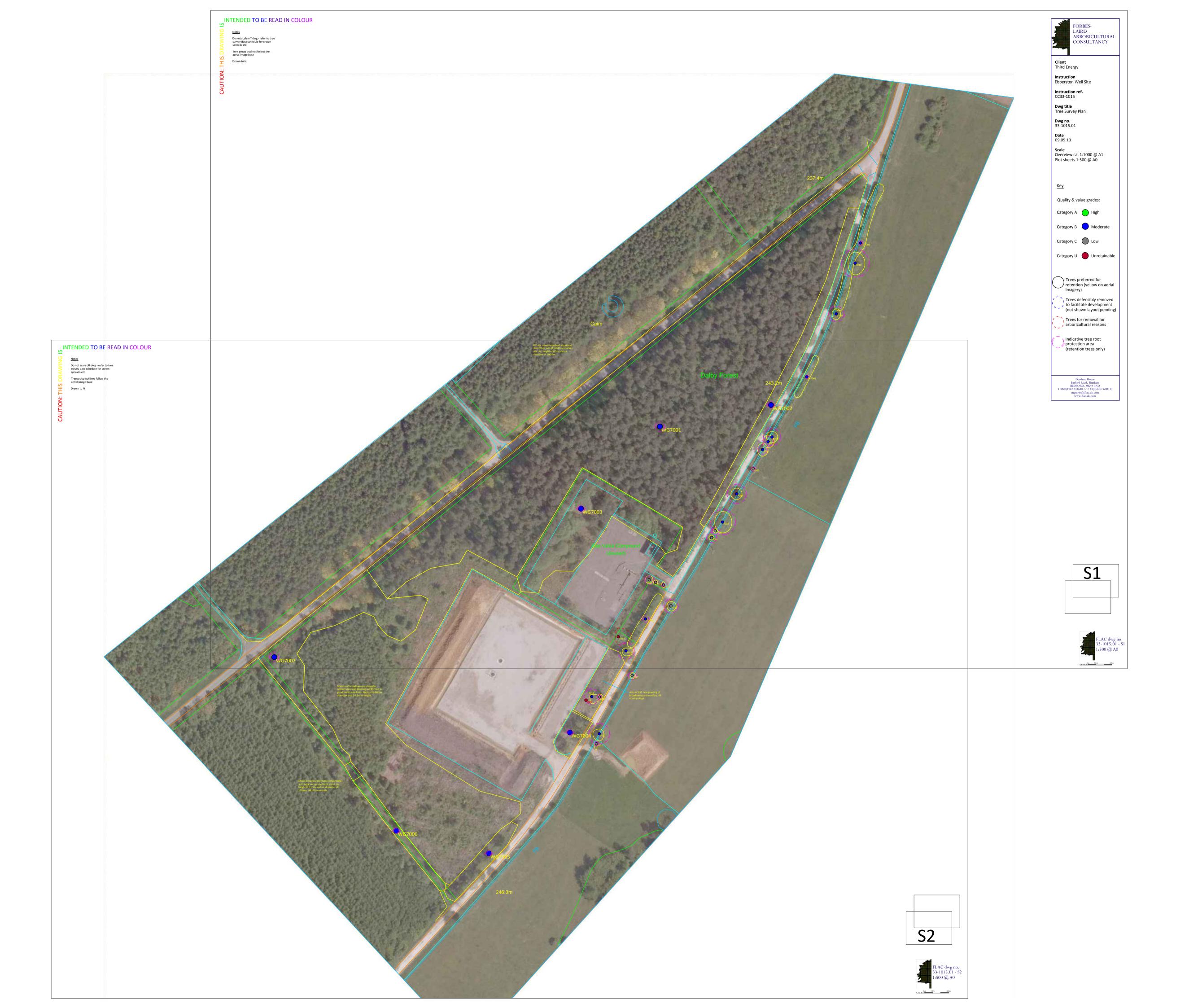
FLAC Ref. No.	TPO Ref	Species	Ht.	Crown Spread (m) Ht. 1		Crown Spread (m)		Crown Spread (m)		crown Spread (m)		wn Spread (m)		n Spread (m)		n Spread (m)		wn Spread (m)		wn Spread (m)		<b>n Spread</b> (m)		Spread (m)		Spread (m)		n Spread (m)		rown Spread (m)		own Spread (m)		wn Spread (m)		own Spread (m)		rown Spread (m)		Crown Spread (m)		Crown Spread (m)		Crown Spread (m)		wn Spread (m)		Spread (m)		n Spread (m)		Spread (m)		pread (m)		Ht. 1 <sup>s</sup> Br.	t Ht. Can.	Stem Count		Ster	<b>n Dia.</b> (mr	n)	ı	RPA Rad.	RPA Area	Life Stage	Phys. Condition	Structural condition & Notes	Management recommendations	Ret. Span	QV Grade																
			(m)	N	s	w	E	(m)	(m)		1/ mean	2	3	4	5	(m)	(m2)	Y-SM-EM-M- OM	G-F-P-D			<10, 10+ 20+, >40	U-A-B-C																																																																
7001		Rowan	7.4	1.6	1.5	1.7	1	.5 1 - S	1.	2 7	100					3.18	32	EM	F		No management required at time of survey	20+	C1																																																																
7002		Rowan	4.4	1.4	1	1.3	1	.2 0.3 - E	0.5	6	75					2.21	15	SM	F	Multi-stemmed from ground level. Included unions between all stems Low arboricultural value	No management required at time of survey	20+	C1																																																																
7003	ı	Goat willow	10.8	6.6	6.8	5	5	.8 0.8 - S	1.	8 4	440	340	280	220		7.93	197	М	F	amounts of minor dead wood retained throughout crown. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7004	,	Scots pine	12.4	3.6	3.5	3.6	3	.4 1.6 - V	V	1 1	500					6.00	113	М	F	Straight stemmed tree with historic storm damage evident in uppermost parts of crown.  Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7005		Rowan	4.1	1	0.9	1	. 0	.8 0.3 - S	1.	2 4	90	50	40			1.33	6	SM	F	Multi-stemmed from 0.4m with tight forks between all stems. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7006		Goat willow	7.1	4	4.1	3.2	3	.4 1.1 - S	1.	4 1	240					2.88	26	SM	F	Full crown with No apparent significant defects. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7007		Rowan	5.9	4.1	3.8	3.4	. 3	.8 0.3 - V	V 1.	4 12	80					3.33	35	EM	F	Multi-stemmed from 0.2m with included unions between all stems. Larger old hedgerow tree. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7008		Scots pine	10.1	3.5	3.6	3.4	3	.5 1.5 - N	1.	8 1	450					5.40	92	М	F	Tree become twin leader from 1.9m. Some retained moderate dead wood evident.  Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7009	,	Scots pine	8.2	3.2	3.6	2.6	2	.7 1 - S	1.	7 1	400					4.80	72	М	F		No management required at time of survey	20+	B1																																																																
7010		Silver birch	12.8	6.9	7.3	4.5	6	.1 1.7 - S	1.	5 3	490	480	250			8.77	242	М	F	Multi-stemmed from 0.2m with tight forks between S 2 most stems. Included union seen at 1.2m between 2 N most stems. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7011		Elder	5.1	2.7	2.5	2.6	2	.2 0.4 - V	V 0.	1 2	160	150				2.64	22	M	F	Twin stemmed from ground level with large included union where stems meet. Typical old elder with many leaders and rather decrepit appearance. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7012	I	Goat willow	2.8	1.5	1.2	1.3	1	.3 0.4 - V	V 0.	4 1	75					0.90	3	Υ	F	Small and somewhat unkempt looking. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7013		Goat willow	2.7	2.2	1.4	1.1		1 0.2 - E	0.	2 3	75	40	30			1.09	4	Υ	F	Small and somewhat unkempt looking. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7014	ı	Goat willow	5.5	5.4	5	1.8	8	.4 0. 1 - W		3	200	180	170			3.82	46	EM	Р	Tree is partially windblown towards NE, but still growing. Multiple included unions where stems meet. Low arboricultural value	Fell to ground level	<10	U																																																																
7015	,	Silver birch	12	1.8	3.1	2.4	5	.4 1 -E	1.	1 5	250	220	170	170	140	5.21	85	EM	F	Multi-stemmed from ground level. Some historic pruning/tear wounds to NE face along edge of road caused by flail. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7016	ı	Goat willow	5.3	2.8	3.2	2.5	3	.2 1.1 - V	V 1.	2 6	150					4.41	61	EM	F	Multi-stemmed from ground level with several included unions where stems meet. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7017		Silver birch	5.4	1.8	2	1	. 2	.2 0.4 - E		1 3	190	50	40			2.41	18	EM	F	Multi-stemmed from ground level with included unions between smaller stems and main stem. Flail mower damage to SW face of crown along road edge. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7018		Pedunculate oak	12.4	1.4	4.4	1.2	5	.3 0.2 -Е	0.	5 1	400					4.80	72	EM	F	Unbalanced crown due to historic presence of trees to N and W of tree. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7019		Silver birch	7.1	1.9	1.7	0.5	2	.2 0.2 - E	1.	1 2	90	80				1.45	7	Υ	F	Twin stemmed from ground level with included union between stems. Low arboricultural value	No management required at time of survey	20+	C1																																																																
7020		Rowan	8.2	1	0.8	0.9		1 2.2 - E	3.	2 3	140	90	40			2.06	13	Υ	D	Standing dead tree	Fell to ground level	<10	U																																																																
7021		Scots pine	10.5	3	4.4	4	2	.9 0.8 - N	١ 0.	5 1	540					6.48	132	М	F	Multi-stemmed from 1.2m. Some moderate retained dead wood evident in central crown. Moderate arboricultural value	No management required at time of survey	20+	B1																																																																
7022		Pedunculate oak	3.1	0.4	3.8	1.5	0	.5 0.2 - S	0.	6 1	110					1.32	5	Y	F	Tree is heavily supressed by 7021. Skewed crown is due to suppression. Low arboricultural value	No management required at time of survey	10+	C1																																																																

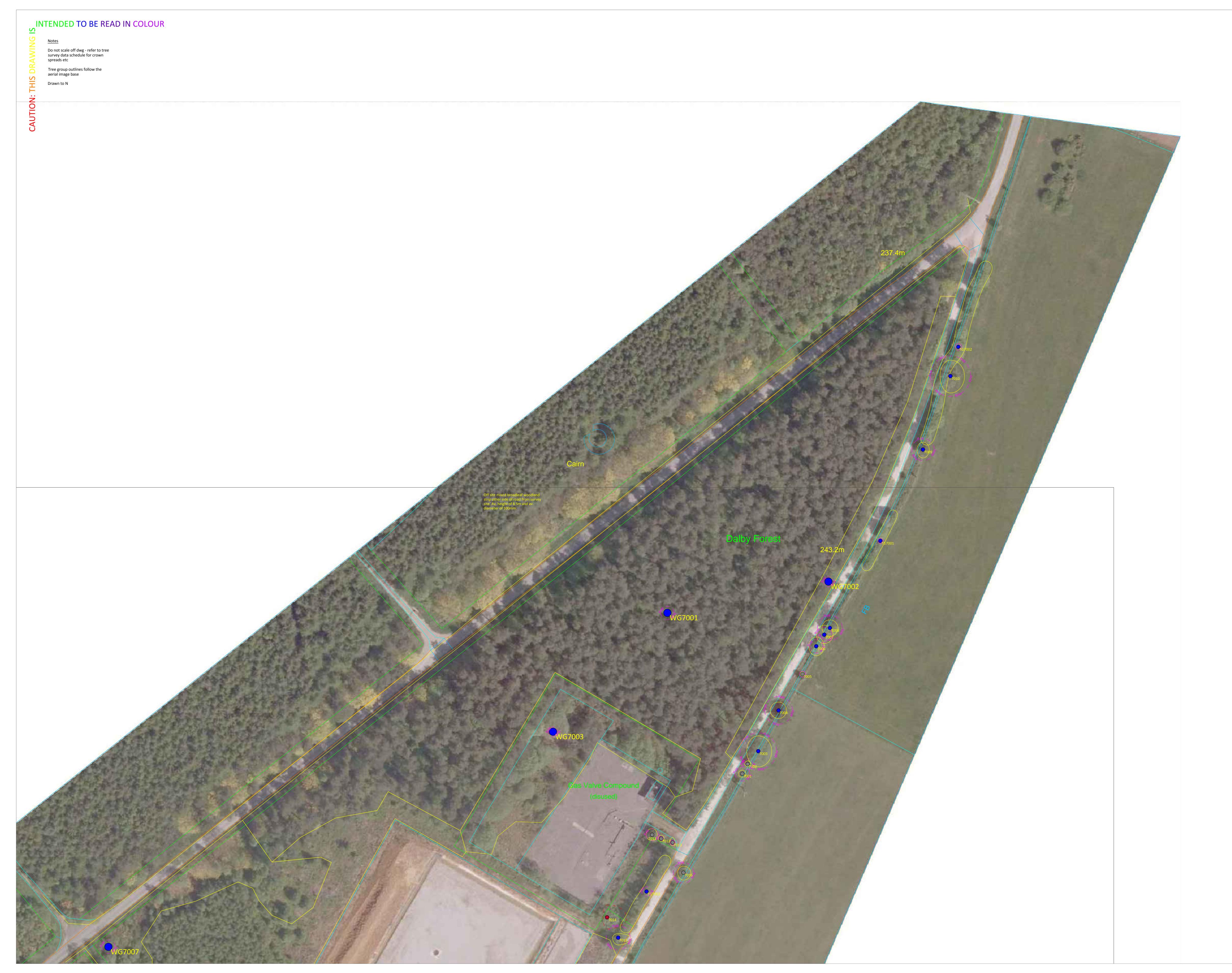
# Data for trees assessed as groups (TG)

FLAC Ref. No.	TPO Ref		Species	Tree Count	Ht.	MRCS	1 <sup>st</sup> F r. Ca			-	Specimen RPA Area	l lite Stage	Phys. Condition	Structural condition & Notes	Management recommendations	Ret. Span	QV Grade
					(m)	(m) (r	n) (ı	m)	(mm)	(m)	(m2)	Y-SM-EM-M- OM	G-F-P-D			<10, 10+ 20+, >40	U-A-B-C
TG7001		Rowan		14	6.5	2 0 .1	- N	1	90	1.08	4	EM	. ⊢	Multi-stemmed former hedgerow trees along road edge. Included unions/tight forks found throughout. Moderate arboricultural value	No management required at time of survey	20+	B2
TG7002		Rowan		20	7.6	2.8 0.1	- S	1.2	120	1.44	7	EM	I F	Multi-stemmed former hedgerow trees along road edge. Included unions/tight forks found throughout. Moderate arboricultural value	No management required at time of survey	20+	B2
TG7003		Rowan		18	10	2.5 0.2	- E	1.1	170	2.04	13	EM	. ⊢	Multi-stemmed trees in group running parallel to road. All have multiple included unions or tight forks where stems meet. Moderate arboricultural value	No management required at time of survey	20+	B2

# Data for trees assessed as woodland (WG)

FLAC Ref. No.	TPO Ref	Species	Area	Ht.	MRCS	Ht. 1 <sup>st</sup> Br.	Ht. Can.	Specimen Stem Dia.	Specimen RPA Rad.	-	Life Stage	Phys. Condition	Structural condition & Notes Management recommendations	Ret. Span	QV Grade
			(m <sup>2</sup> )	(m)	(m)	(m)	(m)	(mm)	(m)	(m2)	Y-SM-EM-M- OM	G-F-P-D		<10, 10+ 20+ >40	U-A-B-C
WG7001		Scots pine	21765	15	5	3 1.9	1.6	240	2.88	26	EM		Plantation stand. Little evidence of post planting management, with poor form trees still evident. No evidence of systemic problems and ground flora throughout is varied, with natural regeneration of rowan, holly and ash evident, although no significant regeneration of pine. All regeneration is currently under site threshold. Trees approaching felling age/size. Moderate habitat value	20+	В3
WG7002		Rowan, goat willow, pedunculate oak,	1195	10	2.0	6 0.2 - W	1.2	180	2.16	15	EM	F	Mixed broadleaf edge beside plantation woodland, probably planted as screening from commercial forestry. Moderate landscape value and Moderate habitat value	>40	В3
WG7003		Pedunculate oak, rowan, silver birch, goat willow, holly, ash, scots pine	3050	10.4	4 2.!	5 1.1 - S	1.3	170	2.04	13	EM	F	Remnants of woodland edge combined with older natural regeneration especially of ash, holly and willow Some small amounts of conifer regeneration also. Unmanaged throughout. Moderate landscape value and Moderate habitat value	20+	B2
WG7004		Rowan, silver birch, goat willow	385	11.5	5 2.8	8 0.8 - E	1.2	150	1.80	10	EM	F	Remnants of woodland edge with several multi-stemmed trees, especially rowans.  Trees appear unkempt and have suffered flail mower wounds to SE where edge is adjacent to road. Moderate habitat value	20+	B2
WG7005		Rowan, goat willow, silver birch	560	g	9 2.4	4 0.5 - E	1.1	140	1.68	9	EM	F	Many multi-stemmed trees in small stand which appears to be remnants of old woodland. Moderate landscape value  No management required at time of survey	20+	B2
WG7006		Silver birch, rowan, goat willow	500	10.5	5 2.8	8 1 - S	1.2	140	1.68	9	EM	F	Many multi-stemmed trees in small stand which appears to be remnants of old woodland. Moderate landscape value  No management required at time of survey	20+	B2
WG7007		Sitka spruce, norway spruce, silver birch, pedunculate oak, goat willow, rowan	2765	13.5	5 3.!	5 0.4 - S	0	240	2.88	26	EM		Planted edge of plantation that no-longer exists, with remnants of some conifers as well as native broadleaves. Some natural regeneration is evident with birch, willow and holly being particularly prevalent, but currently all under site threshold. Moderate habitat and landscape value	20+	В3







**Client** Third Energy

Instruction

Ebberston Well Site

Instruction ref.

CC33-1015

**Dwg title** Tree Survey Plan

**Dwg no.** 33-1015.01

09.05.13

33-1015.01

Date

Scale
Overview ca. 1:1000 @ A1
Plot sheets 1:500 @ A0

Key

Quality & value grades:

Category A High

Category B Moderate

Category C Low

Category U Unretainable

Trees preferred for retention (yellow on aerial imagery)

Trees defensibly removed to facilitate development (not shown layout pending)

Trees for removal for arboricultural reasons

Indicative tree root protection area (retention trees only)

Dendron House

enquiries@flac.uk.com www.flac.uk.com

**S1** 



