CONSTRUCTION EXCLUSION ZONE - NO ENTRY

TREE PROTECTION FENCING

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION CAN RESULT IN BREACH OF PLANNING CONDITIONS AND/OR CRIMINAL PROSECUTION. (TOWN AND COUNTRY PLANNING ACT 1990)

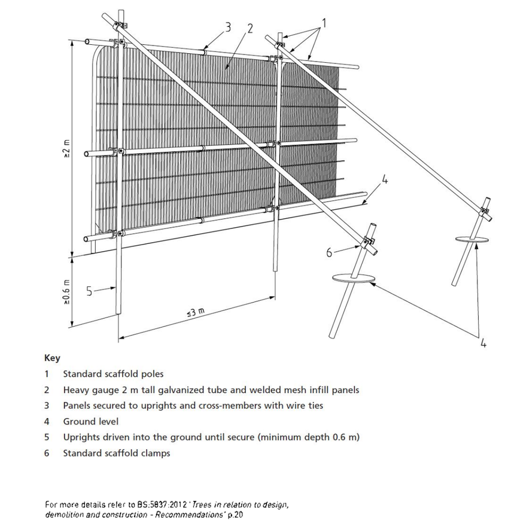
FOR ALL ENQUIRIES REGARDING TREES AT THIS DEVELOPMENT PLEASE CALL 01386 576161 OR EMAIL ENQUIRIES@BARTON-HYETT.CO.UK

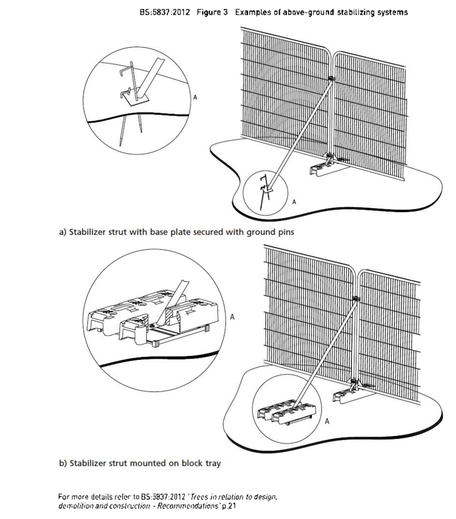
The protective measures specified on this Tree Protection Plan must be used in combination with an approved Arboricultural Method Statement, and with reference to the overarching conditions of planning consent.

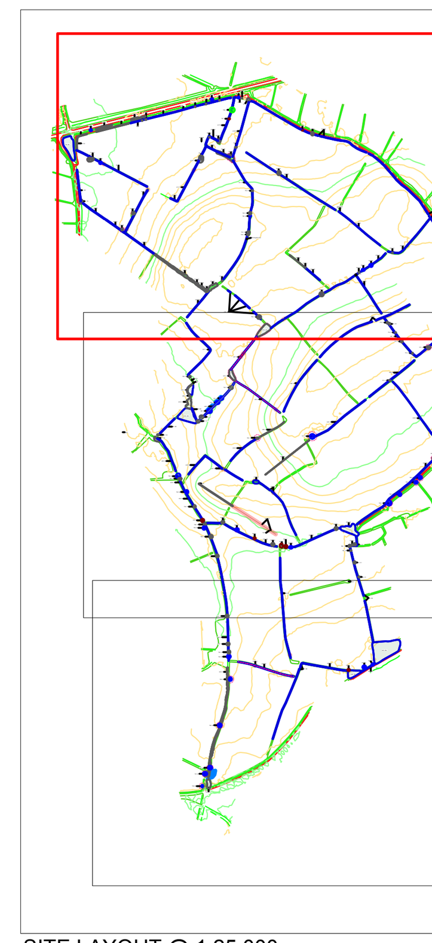
KEY

- Category A Tree - High quality (Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offsite tree/out of scope (OOS)
- Tree / Hedgerow / Group to be removed
- Tree Protection Barrier (Figure 3)
- Tree Protection Barrier (Figure 2)

BS:5837:2012 Figure 2 Default specification for protective barrier







SITE LAYOUT @ 1:25,000

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

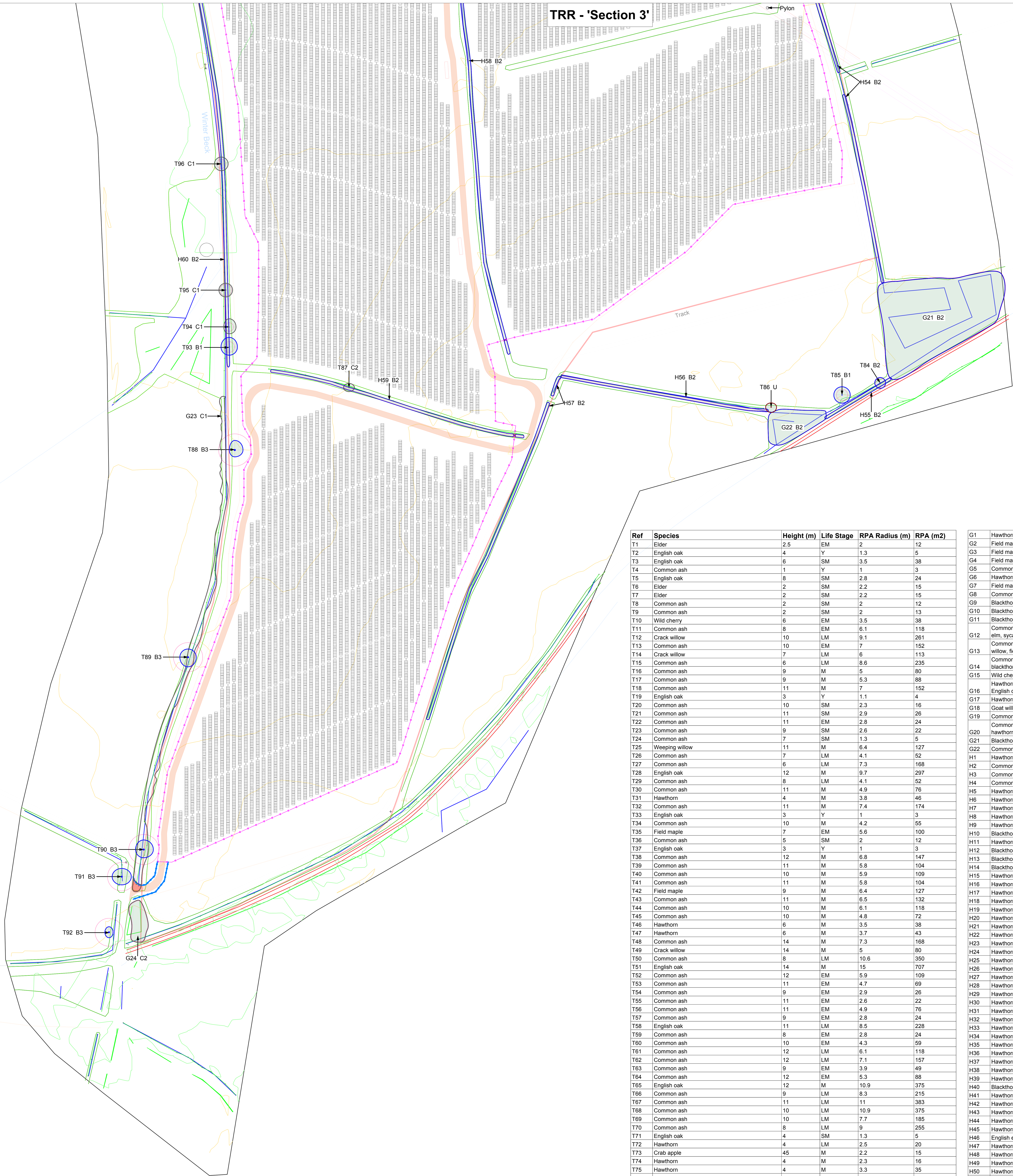
N GRID NORTH

0 10 20 30 40 50 Meters

PROJECT TITLE	**Belvoir, Melton**
DRAWING TITLE	Tree Retention, Removal & Protection Plan
SCALE	**1:1750 @ A1**
DRAWING NUMBER	**BHA_1035_02**
DRAWN BY	**DV**
APPROVED BY	**EB**
REVISION	**C**
SHEET	**2/3**
DATE	**30/11/2021**
LAYOUT USED WITHIN DRAWING	**20210630_49_1MIP540_export**
CLIENT	**JBM Solar**
COORDINATE SYSTEM / DATUM	**British National Grid / Newlyn Datum (AOD)**

Barton Hyett Associates
Arboricultural Consultants

Tel: 01386 576161 Website: www.barton-hyett.co.uk
Address: Barn 2, Oxpens Farm, Yanworth, Cheltenham, Gloucestershire, GL54 3QE



CONSTRUCTION EXCLUSION ZONE - NO ENTRY

TREE PROTECTION FENCING

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

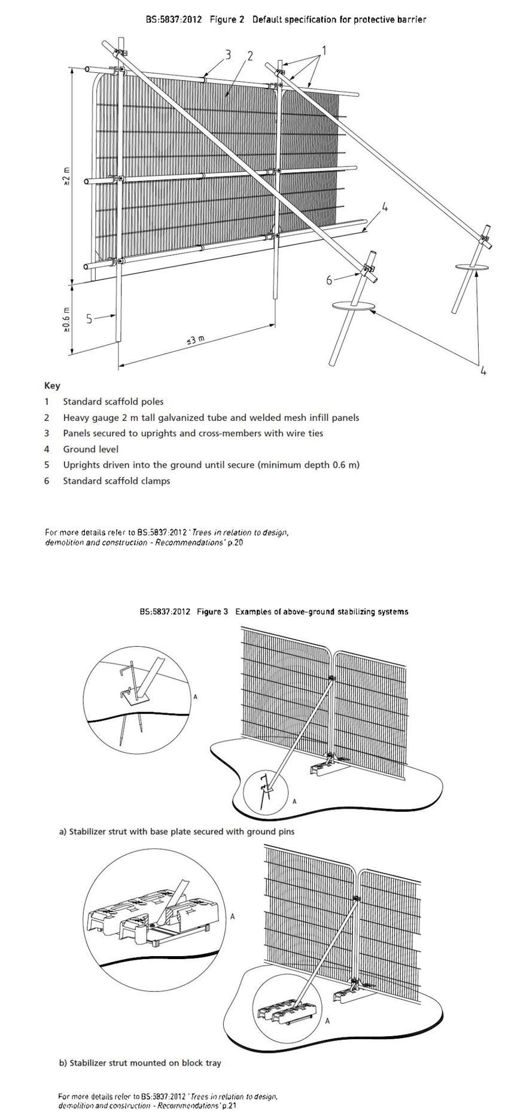
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION CAN RESULT IN BREACH OF PLANNING CONDITIONS AND/OR CRIMINAL PROSECUTION. (TOWN AND COUNTRY PLANNING ACT 1990)

FOR ALL ENQUIRIES REGARDING TREES AT THIS DEVELOPMENT PLEASE CALL 01386 576161 OR EMAIL ENQUIRIES@BARTON-HYETT.CO.UK

The protective measures specified on this Tree Protection Plan must be used in combination with an approved Arboricultural Method Statement, and with reference to the overarching conditions of planning consent.

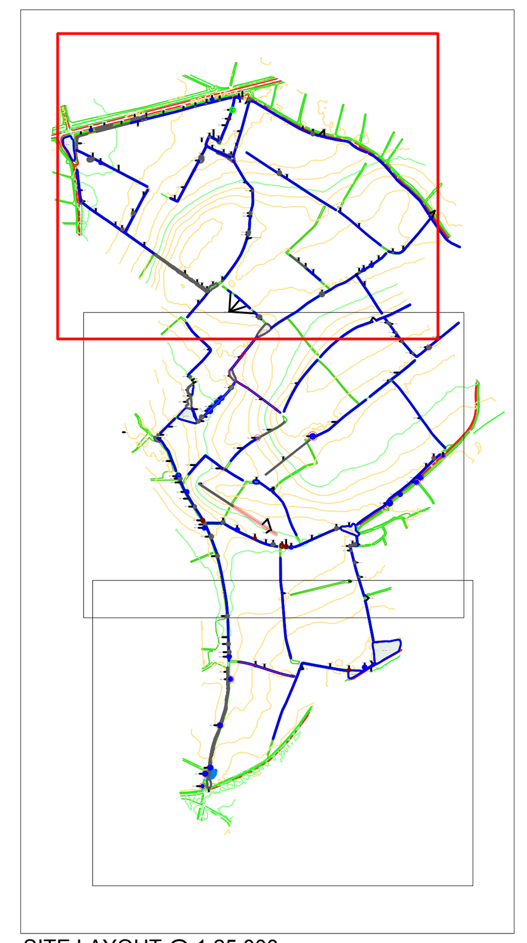
KEY

- Category A Tree - High quality (Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offsite tree/out of scope (OOS)
- Tree / Hedgerow / Group to be removed
- Tree Protection Barrier (Figure 3)
- Tree Protection Barrier (Figure 2)



Ref	Species	Height (m)	Life Stage	RPA Radius (m)	RPA (m2)
T1	Elder	2.5	EM	2	12
T2	English oak	4	Y	1.3	5
T3	English oak	6	SM	3.5	38
T4	Common ash	1	Y	1	3
T5	English oak	8	SM	2.8	24
T6	Elder	2	SM	2.2	15
T7	Elder	2	SM	2.2	15
T8	Common ash	2	SM	2	12
T9	Common ash	2	SM	2	13
T10	Wild cherry	6	EM	3.5	38
T11	Common ash	8	EM	6.1	118
T12	Crack willow	10	LM	9.1	261
T13	Common ash	10	EM	7	152
T14	Crack willow	7	LM	6	113
T15	Common ash	6	LM	8.6	235
T16	Common ash	9	M	5	80
T17	Common ash	9	M	5.3	88
T18	Common ash	11	M	7	152
T19	English oak	3	Y	1.1	4
T20	Common ash	10	SM	2.3	16
T21	Common ash	11	SM	2.9	26
T22	Common ash	11	EM	2.8	24
T23	Common ash	9	SM	2.6	22
T24	Common ash	7	SM	1.3	5
T25	Weeping willow	11	M	6.4	127
T26	Common ash	7	LM	4.1	52
T27	Common ash	6	LM	7.3	168
T28	English oak	12	M	9.7	297
T29	Common ash	8	LM	4.1	52
T30	Common ash	11	M	4.9	76
T31	Hawthorn	4	M	3.8	46
T32	Common ash	11	M	7.4	174
T33	English oak	3	Y	1	3
T34	Common ash	10	M	4.2	55
T35	Field maple	7	EM	5.6	100
T36	Common ash	5	SM	2	12
T37	English oak	3	Y	1	3
T38	Common ash	12	M	6.8	147
T39	Common ash	11	M	5.8	104
T40	Common ash	10	M	5.9	109
T41	Common ash	11	M	5.8	104
T42	Field maple	9	M	6.4	127
T43	Common ash	11	M	6.5	132
T44	Common ash	10	M	6.1	118
T45	Common ash	10	M	4.8	72
T46	Hawthorn	6	M	3.5	38
T47	Hawthorn	6	M	3.7	43
T48	Common ash	14	M	7.3	168
T49	Crack willow	14	M	5	80
T50	Common ash	8	LM	10.6	350
T51	English oak	14	M	15	707
T52	Common ash	12	EM	5.9	109
T53	Common ash	11	EM	4.7	69
T54	Common ash	9	EM	2.9	26
T55	Common ash	11	EM	2.6	22
T56	Common ash	11	EM	4.9	76
T57	Common ash	9	EM	2.8	24
T58	English oak	11	LM	8.5	228
T59	Common ash	8	EM	2.8	24
T60	Common ash	10	EM	4.3	59
T61	Common ash	12	LM	6.1	118
T62	Common ash	12	LM	7.1	157
T63	Common ash	9	EM	3.9	49
T64	Common ash	12	EM	5.3	88
T65	English oak	12	M	10.9	375
T66	Common ash	9	LM	8.3	215
T67	Common ash	11	LM	11	383
T68	Common ash	10	LM	10.9	375
T69	Common ash	10	LM	7.7	185
T70	Common ash	8	LM	9	255
T71	English oak	4	SM	1.3	5
T72	Hawthorn	4	LM	2.5	20
T73	Crab apple	45	M	2.2	15
T74	Hawthorn	4	M	2.3	16
T75	Hawthorn	4	M	3.3	35
T76	Hawthorn	4	M	3.5	38
T77	Common ash	11	LM	9.7	297
T78	English oak	6	SM	2.6	22
T79	Common ash	6	SM	2.2	15
T80	English oak	4	SM	2.2	15
T81	English oak	4	SM	1.5	7
T82	English oak	4	SM	1.8	10
T83	English oak	5	SM	1.7	9
T84	Common ash	12	SM	3.5	38
T85	English oak	11	SM	4.1	52
T86	Common ash	11	LM	5.4	92
T87	Common ash	10	EM	3.2	33
T88	Common ash	10	LM	11.8	435
T89	Common ash	14	LM	10.7	358
T90	Common ash	13	LM	11	383
T91	Common ash	13	LM	10.4	342
T92	Common ash	10	LM	10.2	327
T93	Common ash	11	EM	3.9	49
T94	Common ash	10	EM	3.1	31
T95	Common ash	10	EM	4.2	55
T96	Common ash	10	EM	3.3	35
T97	Common ash	9	EM	3.1	31
T98	Common ash	10	M	5.8	104

G1	Hawthorn	4-5	EM	3.8	46
G2	Field maple, hawthorn, English oak, wild cherry	3-5	SM	2.5	20
G3	Field maple, hawthorn, English oak, wild cherry		SM	2.4	18
G4	Field maple, elder, hawthorn, blackthorn	4-11	EM	4.1	52
G5	Common ash	7	EM	2.5	20
G6	Hawthorn, blackthorn, common ash	4-7	M	2.2	15
G7	Field maple, common ash, hawthorn, blackthorn	6-9	EM	2.6	22
G8	Common ash, blackthorn	3-10	M	8.3	215
G9	Blackthorn	4-5	EM	1.3	5
G10	Blackthorn	2-4	EM	0.8	2
G11	Blackthorn	4	M	1.5	7
G12	Common ash, blackthorn, hawthorn, English elm, sycamore, elder	4-11	M	4.9	76
G13	Common ash, hawthorn, blackthorn, crack willow, field maple, wild cherry	4-10	M	5.3	88
G14	Common ash, field maple, English oak hawthorn, blackthorn	4-12	EM	2.8	24
G15	Wild cherry, blackthorn, hawthorn,field maple	5-8	EM	2.8	24
G16	Hawthorn, common ash, blackthorn, wild cherry, English oak	4-9	EM	2.8	24
G17	Hawthorn, blackthorn	4	EM	2.2	15
G18	Goat willow, hawthorn	3-5	M	2	12
G19	Common ash, field maple, hawthorn	4-11	EM	4.8	72
G20	Common ash, English oak, field maple, hawthorn, blackthorn	5-11	EM	4.2	55
G21	Blackthorn, hawthorn, English oak	5-12	EM	2.3	16
G22	Common ash, English oak, hawthorn, blackthorn	4-11	EM	2.2	15
H1	Hawthorn	2	SM	0.8	2
H2	Common ash, elder	2	SM	1.3	5
H3	Common ash	2	SM	1.1	4
H4	Common ash	2	SM	1.1	4
H5	Hawthorn, elder	2	SM	1	3
H6	Hawthorn, blackthorn	3	SM	0.6	1
H7	Hawthorn, blackthorn, field maple,	2.5	SM	0.8	2
H8	Hawthorn	2.5	M	1.3	5
H9	Hawthorn, common ash,	2.5	EM	1.1	4
H10	Blackthorn, hawthorn, field maple	3	M	1.1	4
H11	Hawthorn	2	M	0.8	2
H12	Blackthorn	3	EM	1.1	4
H13	Blackthorn, hawthorn, common ash	3	EM	0.8	2
H14	Blackthorn, common ash	3	EM	0.8	2
H15	Hawthorn, blackthorn	3	EM	0.8	2
H16	Hawthorn, blackthorn	3	EM	0.6	1
H17	Hawthorn, blackthorn	2.5	EM	0.8	2
H18	Hawthorn, field maple, hazel, dogwood	2	EM	0.8	2
H19	Hawthorn, common ash, dogwood, field maple, haz	1.5	EM	0.8	2
H20	Hawthorn	1.5	M	0.6	1
H21	Hawthorn, common ash field maple, dogwood	1.5	EM	0.8	2
H22	Hawthorn, common ash, field maple	1.5	EM	0.8	2
H23	Hawthorn, blackthorn, field maple,	1.5	EM	0.8	2
H24	Hawthorn, blackthorn, field maple,	1.5	EM	0.8	2
H25	Hawthorn, blackthorn, common ash,	2	SM	0.6	1
H26	Hawthorn	0.5	Y	0	0
H27	Hawthorn, blackthorn, field maple, common ash	2	EM	0.8	2
H28	Hawthorn, blackthorn,field maple	2	EM	0.6	1
H29	Hawthorn, blackthorn	2	EM	0.8	2
H30	Hawthorn, blackthorn	2	SM	0.6	1
H31	Hawthorn	2	SM	0.6	1
H32	Hawthorn, blackthorn	2	SM	0.6	1
H33	Hawthorn, blackthorn, hazel	2	EM	0.6	1
H34	Hawthorn	1.5	EM	0.6	0
H35	Hawthorn, elder	2	M	1.1	4
H36	Hawthorn, blackthorn, field maple	2	M	1.3	5
H37	Hawthorn, blackthorn	2	M	1.1	4
H38	Hawthorn, blackthorn	2	M	1	3
H39	Hawthorn	1	Y	0	0
H40	Blackthorn, hawthorn, field maple, elder	2	M	1.5	7
H41	Hawthorn	1	Y	0	0
H42	Hawthorn, field maple	2	M	1.1	4
H43	Hawthorn, blackthorn, field maple	1.5	SM	0.8	2
H44	Hawthorn, blackthorn, English elm,	2	M	1.1	4
H45	Hawthorn, blackthorn, sycamore, hazel	2	EM	0.8	2
H46	English elm, crab apple, hawthorn,	2	EM	0.8	2
H47	Hawthorn, blackthorn, field maple, common ash	2	EM	0.8	2
H48	Hawthorn, blackthorn, crab apple, field maple	1.5	EM	0.8	2
H49	Hawthorn, blackthorn	2	M	1	3
H50	Hawthorn, blackthorn, field maple, crab apple	2	M	0.6	1
H51	Hawthorn, blackthorn	2	M	0.8	2
H52	Hawthorn, blackthorn	2	EM	0.6	1
H53	Hawthorn, blackthorn	2	M	0.8	2
H54	Hawthorn, blackthorn, crab apple	2	EM	0.8	2
H55	Hawthorn, blackthorn	3	EM	0.8	2
H56	Hawthorn, blackthorn	2	EM	0.6	1
H57	Hawthorn, blackthorn	2	EM	0.8	2
H58	Hawthorn, blackthorn	2	EM	0.8	2
H59	Hawthorn, blackthorn	2	EM	0.8	2
H60	Hawthorn, blackthorn	2	EM	0.8	2
H61	Hawthorn	1.5	Y	0	0



SITE LAYOUT @ 1:25,000

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

N
GRID NORTH

0 10 20 30 40 50
Meters

PROJECT TITLE
Belvoir, Melton

DRAWING TITLE
Tree Retention, Removal & Protection Plan

SCALE		DRAWING NUMBER		
1:1750 @ A1		BHA_1035_02		
DRAWN BY	APPROVED BY	REVISION	SHEET	DATE
DV	EB	C	3/3	30/11/2021

LAYOUT USED WITHIN DRAWING **20210630_49_1MIP540_export**

CLIENT **JBM Solar**

COORDINATE SYSTEM / DATUM **British National Grid / Newlyn Datum (AOD)**

Barton Hyett Associates
Arboricultural Consultants

Tel: 01386 576161 Website: www.barton-hyett.co.uk
Address: Barn 2, Oxpens Farm, Yanworth, Cheltenham, Gloucestershire, GL54 3QE

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

INDIVIDUAL TREES

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T1	Elder	On	3	1	#	160	1.0-1.0-1.0-1.0	0.5	-	-	EM	None	Small tree on verge adjacent to farm access track	Good	Fair	10+	C2	2	12
T2	English oak	On	4	1	-	100	0.5-1.0-1.0-1.0	1	1	W	Y	None	Small tree on verge adjacent to farm access track. Suppressed by adjacent tree.	Good	Good	40+	C1	1	5
T3	English oak	On	6	1	-	290	4.0-3.0-3.0-3.0	1	1	E	SM	None	Small tree on verge adjacent to farm access track. Good form.	Good	Good	40+	B1	3	38
T4	Common ash	On	1	3	-	80	1.0-1.0-1.0-1.0	0	-	-	Y	None	Small tree that has been cut to height of field boundary fence, almost could be classed as a hedgerow however it is a small section with clear stems. Growing against fence.	Good	Fair	10+	C2	1	3
T5	English oak	On	8	1	-	230	4.0-5.0-3.0-4.0	2	2	W	SM	None	Small tree behind hedgerow adjacent to track, potentially on highway verge.	Good	Good	40+	B1	3	24
T6	Elder	On	2	1	-	180	1.0-1.0-1.0-1.0	0	-	-	SM	None	Small tree that has been cut to height of field boundary fence, almost could be classed as a hedgerow however it is a small section with clear stems. Growing against fence.	Good	Fair	10+	C2	2	15
T7	Elder	On	2	1	-	180	1.0-1.0-1.0-1.0	0	-	-	SM	None	Small tree that has been cut to height of field boundary fence, almost could be classed as a hedgerow however it is a small section with clear stems. Growing against fence.	Good	Fair	10+	C2	2	15
T8	Common ash	On	2	1	-	160	1.0-1.5-1.0-2.0	0.3	-	-	SM	None	Small tree that has been cut to height of field boundary fence, almost could be classed as a hedgerow however it is a small section with clear stems. Growing against fence.	Good	Fair	10+	C2	2	12

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T9	Common ash	On	2	1	-	170	1.0-1.0-1.0-2.0	0.3	-	-	SM	None	Small tree that has been cut to height of field boundary fence, almost could be classed as a hedgerow however it is a small section with clear stems. Growing against fence.	Good	Fair	10+	C2	2	13
T10	Wild cherry	On	6	1	#	290	4.0-4.0-3.0-4.0	2.5	2	E	EM	None	Small tree behind hedgerow adjacent to track, potentially on highway verge.	Good	Fair	20+	B1	3	38
T11	Common ash	On	8	6	-	510	4.0-4.0-5.0-5.0	2.5	2	W	EM	None	Tree of average form on the edge of a ploughed field.	Good	Fair	10+	C1	6	118
T12	Crack willow	On	10	12	-	760	6.0-12.0-7.0-7.0	1	-	-	LM	None	Multi-stemmed tree with spreading form. Several stems have subsided and lean which is common for the species.	Fair	Poor	10+	C2	9	261
T13	Common ash	On	10	7	-	580	4.0-5.0-4.0-4.0	3.0	2.5	N	EM	None	Tree of average form on the edge of a ploughed field.	Good	Fair	20+	B2	7	152
T14	Crack willow	On	7.0	4	-	500	4.0-8.0-5.0-	3.0	-	-	LM	None	Multi-stemmed tree at the edge of a ploughed field. Stems have subsided and regrown resulting in spreading crown.	Good	Poor	10+	C2	6.0	113
T15	Common ash	On	6.0	1	-	720	4.0-4.0-3.0-2.0	2.0	2	S	LM	Emerging veteran	Leader has failed, hollow stem. Good regrowth.	Fair	Poor	10+	C3	8.6	235
T16	Common ash	On	9.0	4	-	420	3.0-4.0-4.0-3.0	4.0	3	W	M	None	Ash canker within crown. Average form. Within field boundary hedgerow.	Fair	Fair	10+	C2	5.0	80
T17	Common ash	On	9.0	3	-	440	3.0-4.0-4.0-3.0	4.0	2.5	W	M	None	Previous limb failure and pruning to eastern side over field. Cavity at base of southern stem.	Good	Fair	10+	C2	5.3	88
T18	Common ash	On	11.0	3	-	580	6.0-6.0-5.0-5.0	4.0	3	W	M	None	Deadwood within crown. Average form. Low vigour.	Fair	Fair	10+	C2	7.0	152
T19	English oak	On	3.0	1	-	90	1.0-1.0-1.0-1.0	1.0	1	N	Y	None	Young tree within field boundary hedgerow. Good form.	Good	Good	40+	C1	1.1	4

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T20	Common ash	On	10.0	1	-	190	2.0-3.0-3.0-4.0	3.0	2.5	N	SM	None	Within field boundary hedgerow between ploughed fields. Average form.	Fair	Fair	10+	C2	2.3	16
T21	Common ash	On	11.0	1	-	240	4.0-4.0-1.0-4.0	4.0	4	W	SM	None	Within field boundary hedgerow between ploughed fields. Average form.	Good	Fair	10+	C2	2.9	26
T22	Common ash	On	11.0	1	-	230	5.0-4.0-2.0-2.0	4.0	4	E	EM	None	Within field boundary hedgerow between ploughed fields. Average form.	Good	Good	20+	B2	2.8	24
T23	Common ash	On	9.0	1	-	220	4.0-4.0-5.0-3.0	3.0	2	SE	SM	None	Within field boundary hedgerow between ploughed fields. Average form.	Good	Fair	10+	C2	2.6	22
T24	Common ash	On	7.0	1	#	100	2.0-2.0-2.0-2.0	2.0	1.5	SW	SM	None	Within field boundary hedgerow between ploughed fields. Average form.	Good	Good	20+	C2	1.3	5
T25	Weeping willow	On	11.0	1	#	530	7.0-7.0-7.0-7.0	1.0	1.5	S	M	None	Tree of good form on the edge of a ploughed field.	Good	Fair	10+	C1	6.4	127
T26	Common ash	On	7.0	1	-	340	1.0-1.5-1.0-1.0	2.0	-	-	LM	None	Within field boundary hedgerow between ploughed fields. Average form.	Fair	Poor	10+	C2	4.1	52
T27	Common ash	On	6.0	1	#	610	2.0-3.0-2.0-2.0	2.0	2	E	LM	None	Tree with significant previous failures.	Poor	Poor	<10	U	7.3	168
T28	English oak	On	12.0	1	#	810	8.0-8.0-8.0-8.0	2.0	2	NE	M	Emerging veteran	Tree of good form and good vigour. Previous branch failure, crown deadwood.	Good	Fair	40+	A1	9.7	297
T29	Common ash	On	8.0	1	#	340	0.5-2.0-0.5-0.5	-	-	-	LM	None	Dying tree within hedgerow adjacent to the road.	Poor	Poor	<10	U	4.1	52
T30	Common ash	On	11.0	1	-	410	5.0-4.0-7.0-5.0	3.0	3	SE	M	None	*Inonotus hispidus* on stem at first branch to east side.	Fair	Poor	10+	C2	4.9	76
T31	Hawthorn	On	4.0	2	-	320	1.0-3.0-2.0-3.0	2.0	-	-	M	None	Within field boundary hedgerow.	Fair	Fair	10+	C2	3.8	46

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T32	Common ash	On	11.0	1	-	620	7.0-7.0-7.0-4.0	4.0	2.5	S	M	None	Fungal fruiting body at base to south-eastern side. *Inonotus hispidus* on stem at 3m. Deadwood throughout crown. Central leader dead.	Fair	Poor	10+	C2	7.4	174
T33	English oak	On	3.0	1	-	80	1.0-1.0-1.0-1.0	1.5	1.5	W	Y	None	Young tree within field boundary hedgerow. Ditch to the northeast.	Good	Good	40+	C1	1.0	3
T34	Common ash	On	10	2	-	350	5.0-5.0-5.0-6.0	4.0	3	E	M	None	Within field boundary hedgerow, ditch to northern side.	Good	Fair	20+	B1	4.2	55
T35	Field maple	On	7.0	3	-	470	3.0-5.0-4.0-5.0	3.0	2	S	EM	None	Ditch to northern side. Stem covered in ivy extending into crown.	Good	Fair	20+	B1	5.6	100
T36	Common ash	On	5.0	1	-	160	1.5-2.0-2.0-1.0	2.0	2	E	SM	None	Ditch to northern side. Bark damage to stem on northern side.	Good	Fair	10+	C1	2.0	12
T37	English oak	On	3.0	1	-	80	1.0-1.0-1.0-1.0	1.5	1	NE	Y	None	young tree within field boundary hedgerow.	Good	Good	40+	C1	1.0	3
T38	Common ash	On	12.0	2	-	570	7.0-7.0-7.0-7.0	4.0	2.5	SW	M	None	Ditch to north. *Inonotus hispidus* bracket at first fork. Significant dieback in central leader.	Fair	Fair	10+	C1	6.8	147
T39	Common ash	On	11.0	1	-	480	6.0-8.0-6.0-5.0	5.0	3	W	M	None	Deadwood throughout crown. Birdbox in crown.	Fair	Fair	10+	C1	5.8	104
T40	Common ash	On	10.0	1	-	490	5.0-6.0-5.0-5.0	4.0	3	E	M	None	*Inonotus hispidus* on main stem. Dieback in central leader. Deadwood within crown.	Fair	Fair	10+	C1	5.9	109
T41	Common ash	On	11.0	1	-	480	5.0-5.0-5.0-5.0	4.0	3.5	N	M	None	Tree of average form within field boundary hedgerow. Ditch to north.	Good	Fair	20+	B1	5.8	104
T42	Field maple	On	9.0	1	-	530	5.0-7.0-5.0-6.0	3.0	3	W	M	None	Within field boundary hedgerow. Ditch to north. Birdbox in crown.	Good	Good	20+	B1	6.4	127
T43	Common ash	On	11.0	1	-	540	7.0-8.0-7.0-7.0	4.0	3	E	M	None	Deadwood within crown. Previous branch failure.	Good	Fair	20+	B1	6.5	132

SECTION 4

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T44	Common ash	On	10.0	1	-	510	4.5-6.0-6.0-6.0	4.0	2	N	M	None	*Inonotus hispidus* bracket on main stem. Previous limb failure. Decay evident to northern side.	Fair	Poor	10+	C2	6.1	118
T45	Common ash	On	10.0	2	-	400	3.0-5.0-5.0-5.0	3.0	2	NW	M	None	Ditch to north. Twin stemmed tree within boundary hedgerow. Previous limb failure	Fair	Fair	10+	C1	4.8	72
T46	Hawthorn	On	6.0	1	-	290	2.0-3.0-3.0-3.0	2.0	-	-	M	None	Within field boundary hedgerow. Flailed back from field edge.	Fair	Fair	10+	C2	3.5	38
T47	Hawthorn	On	6.0	1	-	310	2.0-3.0-2.0-3.0	2.0	-	-	M	None	Bramble growing throughout crown. Ditch to the north.	Fair	Fair	10+	C2	3.7	43
T48	Common ash	On	14.0	1	-	610	9.0-7.0-6.0-8.0	4.0	4	W	M	None	Stream to west. Good bud density. Major deadwood over stream.	Good	Fair	20+	B1	7.3	168
T49	Crack willow	On	14.0	2	-	420	2.0-5.0-5.0-6.0	5.0	-	-	M	None	One stem has been removed. Southern stem has large sections of necrotic bark and deadwood within the crown. Bark damage to northern stem.	Fair	Poor	10+	C2	5.0	80
T50	Common ash	On	8.0	1	-	880	1.0-5.0-4.0-4.0	3.0	2	W	LM	None	Tree has sustained multiple limb losses. Stem is hollowing from failure points.	Fair	Poor	10+	C2	10.6	350
T51	English oak	On	14.0	1	-	1490	7.0-8.0-8.0-8.0	2.0	2	E	M	Emerging veteran	Significant limb loss and major deadwood within the crown. Burrows between buttress roots.	Good	Fair	20+	B1	15.0	707
T52	Common ash	On	12.0	2	-	490	6.0-5.0-6.0-5.0	3.5	3	W	EM	None	Tree of average form within boundary hedgerow.	Good	Fair	20+	B2	5.9	109
T53	Common ash	On	11.0	6	-	390	5.0-4.0-4.0-3.0	4.0	2.5	SE	EM	None	Multi-stemmed tree on stream bank.	Good	Fair	10+	C2	4.7	69
T54	Common ash	On	9.0	1	-	240	5.0-5.0-6.0-5.0	4.0	3	NE	EM	None	Multiple brackets of *Inonotus hispidus* on stem to northern side. Crown dieback.	Poor	Poor	<10	U	2.9	26
T55	Common ash	On	11.0	1	-	220	4.0-5.0-1.0-3.0	4.0	2	N	EM	None	Bark damage on stem to eastern side. Sparse crown.	Fair	Fair	10+	C2	2.6	22
T56	Common ash	On	11.0	1	-	410	5.0-5.0-6.0-5.0	4.0	3.5	E	EM	None	Tree of good form. On bank of stream.	Good	Good	20+	B1	4.9	76

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T57	Common ash	On	9.0	1	-	230	4.0-5.0-5.0-5.0	3.5	2.5	SW	EM	None	Growing on southern bank of field drainage ditch.	Good	Fair	10+	C2	2.8	24
T58	English oak	On	11.0	1	-	710	5.0-6.0-5.0-5.0	2.0	2.5	SW	LM	Emerging veteran	Field drainage ditch to north. Within field boundary hedgerow. Main leader has historically failed. Significant deadwood in upper crown.	Good	Fair	20+	B1	8.5	228
T59	Common ash	On	8.0	1	-	230	3.0-3.0-4.0-4.0	2.5	3	SW	EM	None	*Inonotus hispidus* bracket on stem to the north. Strip of necrotic bark to north. Deadwood throughout crown especially to the northeast. Field drainage ditch to north.	Fair	Poor	<10	U	2.8	24
T60	Common ash	On	10.0	1	-	360	5.0-5.0-5.0-6.0	3.5	4	N	EM	None	Previous limb failure to north side. Field drainage ditch to north.	Fair	Fair	10+	C2	4.3	59
T61	Common ash	On	12.0	1	-	510	8.0-3.0-6.0-7.0	5.0	3	S	LM	None	*Inonotus hispidus* bracket on stem to the north. Strip of necrotic bark to north. Deadwood throughout crown especially to the northeast. Field drainage ditch to north.	Fair	Poor	<10	U	6.1	118
T62	Common ash	On	12.0	2	-	590	5.0-5.0-6.0-5.0	5.0	2	S	LM	None	*Inonotus hispidus* bracket on stem to the north. Strip of necrotic bark to north. Deadwood throughout crown especially to the northeast. Field drainage ditch to north.	Fair	Poor	<10	U	7.1	157
T63	Common ash	On	9.0	1	-	330	5.0-5.0-4.0-5.0	3.5	2.5	NE	EM	None	Tree of average form within boundary hedgerow.	Good	Fair	20+	B2	3.9	49
T64	Common ash	On	12.0	3	-	440	5.0-5.0-5.0-5.0	3.0	3	W	EM	None	Tree of average form within boundary hedgerow.	Fair	Fair	10+	C1	5.3	88
T65	English oak	Off	12.0	1	-	910	8.0-7.0-7.0-9.0	3.0	2	W	M	Emerging veteran	Tree of good form within boundary hedgerow to the south of an access track and public bridleway.	Good	Good	20+	B3	10.9	375
T66	Common ash	Off	9.0	1	-	690	4.0-5.0-6.0-5.0	4.0	2	SW	LM	Emerging veteran	Within boundary hedgerow to the south of an access track and public bridleway. Crown deadwood, previous branch failure. Locally notable tree.	Good	Good	20+	B3	8.3	215

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T67	Common ash	Off	11.0	1	-	920	4.0-5.0-5.0-6.0	3.5	3	SW	LM	Emerging veteran	Within boundary hedgerow to the south of an access track and public bridleway. Crown deadwood, previous branch failure. Locally notable tree.	Good	Good	20+	B3	11.0	383
T68	Common ash	Off	10.0	1	-	910	6.0-6.0-5.0-5.0	3.0	3	N	LM	Emerging veteran	Within boundary hedgerow to the south of an access track and public bridleway. Crown deadwood, previous branch failure. Locally notable tree.	Good	Good	20+	B3	10.9	375
T69	Common ash	On	10.0	1	-	640	3.0-5.0-6.0-3.0	4.0	3	S	LM	Emerging veteran	Split stem with good woundwood development. Crown retrenching. Locally notable tree with some veteran characteristics, limb loss and deadwood, stem decay.	Fair	Fair	10+	C3	7.7	185
T70	Common ash	Off	8.0	1	-	750	3.0-3.0-1.0-1.0	2.0	-	-	LM	Emerging veteran	Within boundary hedgerow to the south of an access track and public bridleway. Crown deadwood, precious branch failure. Locally notable tree.	Good	Good	20+	B3	9.0	255
T71	English oak	On	4.0	1	-	110	1.5-2.0-1.5-1.5	1.5	1	W	SM	None	To the north of the field boundary hedgerow and ditch. Attractive tree with good form.	Good	Good	40+	C1	1.3	5
T72	Hawthorn	On	4.0	2	-	210	1.0-1.0-3.0-1.0	2.0	-	-	LM	None	Within field boundary hedgerow. Flailed to west side.	Fair	Fair	10+	C2	2.5	20
T73	Crab apple	On	45.0	1	-	180	4.0-3.0-3.0-3.0	2.5	2	N	M	None	Within field boundary hedgerow.	Good	Fair	10+	C2	2.2	15
T74	Hawthorn	On	4.0		-	190	1.0-2.0-1.0-0.5	-	-	-	M	None	Within field boundary hedgerow. Flailed to west side.	Fair	Fair	10+	C2	2.3	16
T75	Hawthorn	On	4.0	1	-	280	3.5-2.0-3.0-1.5	2.0	-	-	M	None	Within field boundary hedgerow. Flailed to west side.	Good	Fair	10+	C2	3.3	35

BS5837:2012 TREE SURVEY SCHEDULE

PROJECT NO: J.3834

BELVOIR SOLAR FARM

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T76	Hawthorn	On	4.0	1	-	290	3.0-2.0-3.0-1.0	2.0	-	-	M	None	Within field boundary hedgerow. Flailed to west side.	Good	Fair	10+	C2	3.5	38
T77	Common ash	On	11.0	1	-	810	4.0-6.0-6.0-6.0	4.0	3.5	N	LM	None	Historic crack at first fork, decay visible. Good woundwood development. Brackets of *Inonotus hispidus* on western stem.	Fair	Poor	<10	C1	9.7	297
T78	English oak	On	6.0	1	-	220	4.0-4.0-4.0-4.0	2.0	1	N	SM	None	Within field drainage ditch. Attractive tree of good form.	Good	Good	20+	C1	2.6	22
T79	Common ash	On	6.0	1	-	180	3.0-3.0-2.0-3.0	3.0	2	W	SM	None	Within boundary hedgerow. South of drainage ditch.	Good	Good	20+	C1	2.2	15
T80	English oak	On	4.0	1	-	180	4.0-4.0-4.0-3.0	2.0	2	NW	SM	None	Within boundary hedgerow. East of drainage ditch.	Good	Good	40+	C1	2.2	15
T81	English oak	On	4.0	1	-	120	1.0-2.0-2.0-1.0	2.0	1	E	SM	None	Within boundary hedgerow. East of drainage ditch.	Good	Good	40+	C1	1.5	7
T82	English oak	On	4.0	1	-	150	4.0-4.0-4.0-3.0	2.0	1.5	N	SM	None	Within boundary hedgerow. East of drainage ditch.	Good	Good	40+	C1	1.8	10
T83	English oak	On	5.0	1	-	140	2.0-2.0-2.0-2.0	2.5	2	S	SM	None	Within boundary hedgerow. East of drainage ditch.	Good	Good	40+	C1	1.7	9
T84	Common ash	On	12.0	2	-	290	4.0-4.0-4.0-4.0	3.0	3.5	W	SM	None	Within boundary hedgerow. South of ditch.	Good	Fair	20+	B2	3.5	38
T85	English oak	On	11.0	1	-	340	6.0-6.0-6.0-6.0	3.0	2	SW	SM	None	Growing in northern bank of ditch. Lower canopy flailed to the north.	Good	Good	20+	B1	4.1	52
T86	Common ash	On	11.0	1	#	450	3.0-4.0-4.0-4.0	3.0	2	W	LM	None	Multiple brackets of *Inonotus hispidus* on stem. Major crown dieback.	Poor	Poor	<10	U	5.4	92
T87	Common ash	On	10.0	3	-	270	3.0-4.0-3.0-4.0	3.0	2.5	S	EM	None	Dieback within crown. Ditch to north.	Fair	Fair	10+	C2	3.2	33
T88	Common ash	On	10.0	1	-	980	7.0-6.0-5.0-4.0	3.0	2	N	LM	Emerging veteran	Multiple historic failures, strips of necrotic bark. Decay evident at base.	Fair	Fair	20+	B3	11.8	435
T89	Common ash	On	14.0	1	-	890	6.0-6.0-7.0-6.0	4.0	3.5	E	LM	Emerging veteran	Multiple historic failures, strips of necrotic bark. Decay evident at base.	Fair	Fair	20+	B3	10.7	358

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T90	Common ash	On	13.0	1	-	920	7.0-7.0-6.0-6.0	4.0	3	S	LM	Emerging veteran	Multiple historic failures, strips of necrotic bark. Decay evident at base.	Fair	Fair	20+	B3	11.0	383
T91	Common ash	On	13.0	1	-	870	6.0-7.0-6.0-7.0	4.0	3.5	W	LM	Emerging veteran	Multiple historic failures, strips of necrotic bark. Decay evident at base.	Fair	Fair	20+	B3	10.4	342
T92	Common ash	On	10.0	1	-	850	4.0-3.0-4.0-3.0	3.0	3	N	LM	Emerging veteran	Multiple historic failures, strips of necrotic bark. Decay evident at base.	Fair	Fair	20+	B3	10.2	327
T93	Common ash	On	11.0	1	-	330	7.0-6.0-6.0-6.0	4.0	3	S	EM	None	Growing in bank to east of ditch.	Good	Fair	20+	B1	3.9	49
T94	Common ash	On	10.0	2	-	260	6.0-5.0-5.0-4.0	4.0	2	SE	EM	None	Within field boundary hedgerow. Stream to east.	Good	Fair	10+	C1	3.1	31
T95	Common ash	On	10.0	1	-	350	5.0-5.0-5.0-5.0	3.0	3	S	EM	None	Within field boundary hedgerow. Stream to east.	Good	Fair	10+	C1	4.2	55
T96	Common ash	On	10.0	1	-	280	5.0-5.0-5.0-5.0	3.0	2.5	NE	EM	None	Within field boundary hedgerow. Stream to east.	Good	Fair	10+	C1	3.3	35
T97	Common ash	On	9.0	1	-	260	6.0-5.0-4.0-4.0	4.0	3.5	NE	EM	None	Within field boundary hedgerow. Stream to east.	Good	Fair	10+	C1	3.1	31
T98	Common ash	On	10.0	1	-	480	6.0-6.0-6.0-5.0	3.0	2	N	M	None	Brackets of *Inonotus hispidus* at first fork. Deadwood within crown.	Fair	Fair	10+	C1	5.8	104

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

GROUPS OF TREES

Ref	Species	On / off-site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. Canopy Height (m)	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Hawthorn	On	4-5	3	#	320	2.0	0.5	EM	None	Linear group of trees on field boundary.	Good	Fair	20+	C2	3.8
G2	Field maple, hawthorn, English oak, wild cherry	Off	3-5	5	-	210	2.0	2.0	SM	None	Small tree behind hedgerow adjacent to track, potentially on highway verge.	Good	Fair	10+	C2	2.5
G3	Field maple, hawthorn, English oak, wild cherry	Off		6	-	200	2.0	2.0	SM	None	Linear group of small trees behind hedgerow adjacent to track, potentially on highway verge.	Good	Fair	10+	C2	2.4
G4	Field maple, elder, hawthorn, blackthorn	On	4-11	20	-	340	4.0	2.0	EM	None	Group of trees between site and highway, behind access track so potentially off-site. Uniform age and average form.	Good	Fair	20+	B2	4.1
G5	Common ash	On	7	2	#	210	2.5	3.0	EM	None	Trees of average form. Behind field boundary hedgerow.	Good	Fair	10+	C2	2.5
G6	Hawthorn, blackthorn, common ash	On	4-7	50	-	180	1.5		M	None	Trees of average form. Behind field boundary hedgerow.	Fair	Fair	10+	C2	2.2
G7	Field maple, common ash, hawthorn, blackthorn	On	6-9	16	-	220	3.0	2.0	EM	None	Trees of average form. Behind field boundary hedgerow.	Good	Fair	10+	C2	2.6
G8	Common ash, blackthorn	On	3-10	3	-	690	4.0	4.0	M	None	Trees of average form. Behind field boundary hedgerow.	Fair	Fair	10+	C2	8.3
G9	Blackthorn	On	4-5	20	-	110	1.5	0.0	EM	None	Trees of average form. Behind field boundary hedgerow.	Good	Fair	10+	C2	1.3
G10	Blackthorn	On	2-4	30	-	70	1.0	0.3	EM	None	Trees of average form. Behind field boundary hedgerow.	Good	Good	20+	C2	0.8
G11	Blackthorn	On	4	10	-	120	1.0	2.0	M	None	Trees of average form. Behind field boundary hedgerow.	Fair	Fair	10+	C2	1.5
G12	Common ash, blackthorn, hawthorn, English elm, sycamore, elder	On	4-11	30	-	410	2.0	1.0	M	None	Group of ash and sycamore surrounded by linear group of hawthorn and blackthorn. Ditch to northern and eastern sides. Dead and dying elms within the group.	Fair	Fair	10+	C2	4.9

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. Canopy Height (m)	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G13	Common ash, hawthorn, blackthorn, crack willow, field maple, wild cherry	On	4-10	35	-	440	2.0	1.0	M	None	Mature willow in centre of group adjacent to water-filled dip. Edges of group flailed.	Good	Fair	10+	C2	5.3
G14	Common ash, field maple, English oak hawthorn, blackthorn	On	4-12	30	-	230	2.0	2.0	EM	None	Dense group of trees with drawn up form.	Good	Fair	20+	B2	2.8
G15	Wild cherry, blackthorn, hawthorn,field maple	On	5-8	12	-	230	2.0	1.5	EM	None	Linear group of trees on field boundary.	Good	Fair	20+	C2	2.8
G16	Hawthorn, common ash, blackthorn, wild cherry, English oak	On	4-9	23	-	230	2	1.0	EM	None	Small group of trees at edge of field.	Good	Fair	20+	B2	2.8
G17	Hawthorn, blackthorn	On	4	6	-	180	2	1.0	EM	None	Ditch to the north. Average form. Some stems to west of boundary hedgerow.	Fair	Fair	10+	C2	2.2
G18	Goat willow, hawthorn	On	3-5	3	-	160	2	2.0	M	None	Goat willow has been pruned back from field. Stream to west.	Fair	Fair	10+	C2	2.0
G19	Common ash, field maple, hawthorn	On	4-11	8	-	400	3	2.0	EM	None	Group of trees on field boundary. Average form.	Good	Fair	20+	B2	4.8
G20	Common ash, English oak, field maple, hawthorn, blackthorn	On	5-11	20	-	350	3	2.0	EM	None	Group of trees between fields. Access track to the rear of the group.	Good	Fair	20+	B2	4.2
G21	Blackthorn, hawthorn, English oak	Off	5-12	50	#	190	2	2.0	EM	None	Group of densely planted offsite trees. Ditch to west. Flailed on western side.	Good	Fair	20+	B2	2.3

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. Canopy Height (m)	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G22	Common ash, English oak, hawthorn, blackthorn	Off	4-11	50	#	180	2	-	EM	None	Group of densely planted offsite trees. Ditch to northeast.	Good	Fair	20+	B2	2.2
G23	Hawthorn, common ash, blackthorn	On	4-6	30	-	110	1.5	-	EM	None	Linear group to the west of a stream on the field boundary. Average form for species.	Fair	Fair	10+	C2	1.3
G24	Hawthorn, blackthorn, crab apple	On	4-5	4	-	130	2	-	EM	None	To the south of the field entrance. Trees ground in close proximity to each other. Average form.	Good	Fair	10+	C2	1.6

HEDGES

Ref	Species	On / off-site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Hawthorn	On	2	2.0	70.0	0.3	SM	Quick thorn hedge planted behind wooden post and rail fence.	Good	Good	20+	B2	0.8
H2	Common ash, elder	On	2	2.0	100.0	0.3	SM	Self-set trees growing against field boundary post and rail fence	Good	Fair	10+	C2	1.3
H3	Common ash	On	2	2.0	90.0	0.3	SM	Field boundary hedgerow adjacent to access track.	Good	Fair	10+	C2	1.1
H4	Common ash	On	2	2.0	90.0	0.25	SM	Field boundary hedgerow adjacent to access track.	Good	Fair	10+	C2	1.1
H5	Hawthorn, elder	On	2	2.0	80.0	0.3	SM	Well maintained field boundary hedgerow. Several gaps	Good	Fair	20+	B2	1.0
H6	Hawthorn, blackthorn	On	3	2.5	50	0	SM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.6
H7	Hawthorn, blackthorn, field maple,	On	3	2.5	70	0	SM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H8	Hawthorn	On	3	2.5	110	0.3	M	Well maintained field boundary hedgerow. Several gaps.	Good	Fair	20+	B2	1.3
H9	Hawthorn, common ash,	On	3	2.5	90	0.3	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	1.1
H10	Blackthorn, hawthorn, field maple	On	3	2.5	90	0	M	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	1.1

BS5837:2012 TREE SURVEY SCHEDULE

PROJECT NO: J.3834

BELVOIR SOLAR FARM

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Ref	Species	On / off-site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H11	Hawthorn	On	2	2.0	70	0	M	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H12	Blackthorn	On	3	2.5	90	0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	1.1
H13	Blackthorn, hawthorn, common ash	On	3	2.5	70	0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H14	Blackthorn, common ash	On	3	2.5	60	0	EM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H15	Hawthorn, blackthorn	On	3	2.5	70	0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H16	Hawthorn, blackthorn	On	3.0	3.0	50	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.6
H17	Hawthorn, blackthorn	On	2.5	2.5	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H18	Hawthorn, field maple, hazel, dogwood	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H19	Hawthorn, common ash, dogwood, field maple, hazel.	On	1.5	2.0	70	0.0	EM	Well maintained field boundary hedgerow. Ditch to northern side.	Good	Fair	20+	B2	0.8
H20	Hawthorn	On	1.5	1.5	50	0.3	M	Old laid hedge with new planting to infill.	Good	Fair	20+	B2	0.6
H21	Hawthorn, common ash field maple, dogwood	On	1.5	1.5	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H22	Hawthorn, common ash, field maple	On	1.5	1.5	70	0.0	EM	Well maintained field boundary hedgrow. Ditch to northern side	Good	Fair	20+	B2	0.8
H23	Hawthorn, blackthorn, field maple,	On	1.5	1.5	60	0.0	EM	Well maintained field boundary hedgerow. Ditch to northern side.	Good	Fair	20+	B2	0.8
H24	Hawthorn, blackthorn, field maple,	On	1.5	1.5	60	0.0	EM	Well maintained field boundary hedgerow. Several gaps within hedgerow.	Good	Fair	20+	B2	0.8
H25	Hawthorn, blackthorn, common ash,	On	2.0	2.0	50	0.0	SM	Well maintained field boundary hedgerow. Ditch to western side.	Good	Good	20+	B2	0.6
H26	Hawthorn	On	0.5	0.5	20	0.0	Y	New planting with spiral guards.	Good	Good	40+	C2	0.0
H27	Hawthorn, blackthorn, field maple, common ash	On	2.0	2.0	70	0.0	EM	Evidence of old laid hedge between younger stems. Well maintained	Good	Good	20+	B2	0.8
H28	Hawthorn, blackthorn,field maple	On	2.0	2.0	50	0.0	EM	Well maintained field boundary hedgerow. Ditch to north.	Good	Fair	20+	B2	0.6
H29	Hawthorn, blackthorn	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow. Ditch to east side.	Good	Good	20+	B2	0.8
H30	Hawthorn, blackthorn	On	2.0	2.0	50	0.0	SM	Well maintained field boundary hedgerow. Ditch to west.	Good	Fair	10+	C2	0.6

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H31	Hawthorn	On	2.0	2.0	50	0.0	SM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.6
H32	Hawthorn, blackthorn	On	2.0	2.0	50	0.0	SM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.6
H33	Hawthorn, blackthorn, hazel	On	2.0	1.5	50	0.0	EM	Mix of mature hawthorn inter-planted to fill gaps	Good	Fair	20+	B2	0.6
H34	Hawthorn	On	1.5	2.0	5	0.3	EM	Well maintained field boundary hedgerow. Ditch to the north.	Good	Fair	20+	B2	0.0
H35	Hawthorn, elder	On	2.0	2.0	90	0.3	M	Stream to the west. Well maintained field boundary hedgerow. Bramble dominating several sections.	Good	Fair	20+	B2	1.1
H36	Hawthorn, blackthorn, field maple	On	2.0	2.0	110	0.3	M	Well maintained field boundary hedgerow. Ditch to the south.	Good	Fair	20+	B2	1.3
H37	Hawthorn, blackthorn	On	2.0	2.0	90	0.3	M	Well maintained field boundary hedgerow. Ditch to the west	Good	Fair	20+	B2	1.1
H38	Hawthorn, blackthorn	On	2.0	2.0	80	0.3	M	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	1.0
H39	Hawthorn	On	1.0	0.5	20	0.5	Y	Newly planted hedgerow with plastic spiral guards.	Good	Good	40+	C2	0.0
H40	Blackthorn, hawthorn, field maple, elder	On	2.0	2.0	120	0.0	M	Well maintained field boundary hedgerow.	Good	Good	20+	B2	1.5
H41	Hawthorn	On	1.0	0.5	20	0.5	Y	Newly planted hedgerow with plastic spiral guards.	Good	Good	40+	C2	0.0
H42	Hawthorn, field maple	On	2.0	2.0	90	0.0	M	Well maintained field boundary hedgerow.	Good	Good	20+	B2	1.1
H43	Hawthorn, blackthorn, field maple	On	1.5	1.5	60	0.0	SM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H44	Hawthorn, blackthorn, English elm,	On	2.0	2.0	90	0.0	M	Well maintained field boundary hedgerow. Stream to west.	Good	Good	20+	B2	1.1
H45	Hawthorn, blackthorn, sycamore, hazel	On	2.0	2.0	60	0.0	EM	Field drainage ditch to north.	Good	Fair	20+	B2	0.8
H46	English elm, crab apple, hawthorn,	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H47	Hawthorn, blackthorn, field maple, common ash	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H48	Hawthorn, blackthorn, crab apple, field maple	On	1.5	1.5	60	0.3	EM	Early mature hedgerow interplanted with small whips with spiral guards.	Good	Fair	20+	B2	0.8

BS5837:2012 TREE SURVEY SCHEDULE

BELVOIR SOLAR FARM

PROJECT NO: J.3834

SURVEYOR:ELLEN BOARDMAN

CLIENT: JBM SOLAR PROJECTS LTD

SURVEY DATES: 29/10/2020 & 03/11/2020

Barton Hyett Arboricultural Consultants

Ref	Species	On / off-site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H49	Hawthorn, blackthorn	On	2.0	2.0	80	0.0	M	Well maintained field boundary hedgerow. Ditch to the north. Gaps interplanted with young whips with spiral guards.	Good	Good	20+	B2	1.0
H50	Hawthorn, blackthorn, field maple, crab apple	On	2.0	2.0	50	0.0	M	Well maintained field boundary hedgerow. Bramble dominating several sections.	Good	Fair	20+	B2	0.6
H51	Hawthorn, blackthorn	On	2.0	2.0	60	0.0	M	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	0.8
H52	Hawthorn, blackthorn	On	2.0	2.0	50	0.0	EM	Well maintained field boundary hedgerow. Ditch to west.	Good	Good	20+	B2	0.6
H53	Hawthorn, blackthorn	On	2.0	2.0	70	0.0	M	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H54	Hawthorn, blackthorn, crab apple	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow. Ditch to the east. National nature reserve to the east.	Good	Good	20+	B2	0.8
H55	Hawthorn, blackthorn	On	3.0	2.0	60	0.0	EM	Ditch to north. Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H56	Hawthorn, blackthorn	On	2.0	2.0	50	0.0	EM	Ditch to north. Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.6
H57	Hawthorn, blackthorn	On	2.0	2.0	60	0.0	EM	Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H58	Hawthorn, blackthorn	On	2.0	2.0	60	0.0	EM	Ditch to west. Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H59	Hawthorn, blackthorn	On	2.0	2.0	70	0.0	EM	Ditch to north. Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H60	Hawthorn, blackthorn	On	2.0	2.0	60	0.0	EM	Ditch to east. Well maintained field boundary hedgerow.	Good	Good	20+	B2	0.8
H61	Hawthorn	On	1.0	1.5	20	0.5	Y	Newly planted hedgerow with plastic spiral guards.	Good	Good	40+	C2	0.0

IMAGE 1: T28, English oak, a high quality tree to the north-east of the site. Image is taken looking north-east.

IMAGE 2: A well maintained field boundary hedgerow located within the site and indicative of the site's hedgerows.

IMAGE 3: T51, English oak, a moderate quality tree located centrally within the site. Image is taken looking south-east.

IMAGE 4: T5, common ash, within a field boundary hedgerow. Image is taken looking north-east.

IMAGE 5: T64, common ash, to the right of the image. G20 is to the left of the image. Image is taken looking south-east.

IMAGE 6: T88, common ash, an emerging veteran to the south of the site. The image is taken looking south.

- The tree survey was carried out with reference to the methodology set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (eg avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups/woodlands were also surveyed as individuals
- The full tree survey findings are recorded in the following tree survey schedule.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.

The **DIMENSIONS** taken are:

- STEM-No. Indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (Used in the calculation of RPA.) "m-s" = Multi-stemmed.
- STEM DIAMETER (in millimetres), obtained from the girth measured at approx.1.5m. For trees with 2 to 5 sub-stems, a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees the notional diameter may be estimated on the basis of the average stem size x the number of stems. (A notional diameter may be estimated where measurement is not possible.)
- HEIGHT, are measured in metres. They are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD are taken at the four cardinal points to derive an accurate representation of the tree crown. They are recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES are expressed both as existing height above ground level of first significant branch along with its direction of growth (eg 2.5m-N), and also in terms of the overall crown e.g. the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES. Where any measurement has had to be estimated, due to inaccessibility for example, this is indicated by a "#" suffix to the measurement as shown in the tree survey schedule.

LIFE STAGE is defined as follows:

Y Young: normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread, but as yet making limited impact upon the landscape.

SM Semi-mature: Established young trees, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature).

EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & environment.

M Mature: Well-established trees, still growing with some vigour, but tending to fill out and increase spread. Bark may be beginning to crack & fissure. In the middle half of their safe, useful life expectancies.

LM Late-Mature: In full maturity but possibly beyond mature and in a state of natural decline). Still retaining some vigour but any growth is slowing.

A Ancient: A tree that has passed beyond maturity and is old./aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (Fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

Good: No significant health issues.
Fair: indications of slight stress or minor disease (e.g. the presence of minor dieback/deadwood or of epicormic shoot growth)
Poor: Significant stress or disease noted; larger areas of dieback than above
Dead: (or Moribund)

STRUCTURAL CONDITION:

Defects affecting the structural stability of the tree, including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

Good: No obvious structural defects: basically sound
Fair: Minor, potential or incipient defects
Poor: Significant defect(s) likely to lead to actual failure in the medium to long-term
Dead: (or Moribund)

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance)

- less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high value trees such as ancient trees/woodland, or veteran trees. Such trees may be regarded as the principal arboricultural features of a site, and pose a significant constraint to potential development.

An *ancient* tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

Veteran trees are often very old, but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value:

(1) arboricultural qualities
(2) landscape qualities, and
(3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

CATEGORY A: HIGH QUALITY:

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees within an avenue etc.)
A2: Trees, groups or woodlands of particular visual importance as landscape features.
A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g. veteran trees or wood pasture.)

CATEGORY B: MODERATE QUALITY:

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable, but only after full consideration of all alternative courses of action.

B1: Fair quality but not exceptional; good specimens showing some impairment (e.g. remediable defects, minor storm damage or poor past management.)
B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also numbers of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees' overall, collective value).
B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY:

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 15cm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

C1: Unremarkable trees of very limited merit or of significantly impaired condition.
C2: Trees offering only low or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
C3: Trees with extremely limited conservation or other cultural benefit.

CATEGORY U:

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development.

E.g. dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low quality trees that are suppressing better specimens

(Category U trees may have conservation values that it might be desirable to preserve.

It may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but the shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

NATIONAL PLANNING POLICY

The National Planning Policy Framework 2019 (NPPF paragraph 175) states that:

'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons, and a suitable compensation strategy exists'.

In this respect the following definitions apply:

'Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)', and

'Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'

Note: Further information from the National Planning Policy Guidance Suite and Standing Advice is provided in the design guidance section.

STATUTORY CONTROLS

Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine is the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year, and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as "a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority". "**The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained**".

BS5837:2012 states (4.6.2) that, "where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced." The BS goes on to state that, "modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution," and that any deviation from the original circular plot should take into account:

- morphology and disposition of roots
- topography and drainage
- soil type and structure
- the likely tolerance of the tree to root damage/disturbance

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planing Policy Guidance:

'A buffer zone's purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development'.

Ancient woodland buffer:

'For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you're likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic'.

Ancient and veteran tree buffer:

'A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter'.

Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light.

Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may be needed recommended.

Recommended Buffer to development - similar to the Recommend Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree