

Local Government Act 1972

Whalley Parish Council

Whalley, Wiswell & Barrow Joint Burial Committee

Members of the Whalley, Wiswell & Barrow Joint Burial Committee, you are summoned to a Meeting to be held on Wednesday 8th October 2025, Whalley Old Grammar School at 7.00pm

Signed: *EKHaworth*

Liz Haworth - Clerk & Responsible Finance Officer, Whalley Parish Council

Agenda

Agenda items should be submitted to the Clerk seven clear days before the meeting.
The Clerk will forward Councillors, all relevant information and supporting documents, 3 clear days before the meeting.

1.	Attendance & Apologies	
	To record attendance and to receive apologies for absence.	
2.	Declaration of Interests	
	Members are reminded of their responsibility to declare any disclosable pecuniary, other registrable or non-registrable interest in respect of matters contained in the agenda.	
3.	To Approve the Minutes of the Previous WWBJBC Meeting	
	To approve and confirm the accuracy of the Minutes of the meeting held Wednesday 9 th July 2025.	P3-6
4.	Financial Reports July, August & September 2025	
	To Approve Accounts, Payments, Receipts & Balances.	P7-9
5.	Cemetery Inspection Review and Maintenance Visit	
	5.1 To receive an update on the Cemetery Inspection Review and Maintenance Visit held 24 th September 2025. 5.2 To book the next Cemetery Inspection Review and Maintenance Visit.	
6.	Cemetery Grounds	
	To receive updates on the general grounds maintenance including; 6.1 The area between the wall and the front fence of the cemetery. 6.2 Removal of the moss and renewing the stoned area near the turning circle down to the Remembrance Garden. 6.3 Path edgings to the woodland by the Remembrance Garden. 6.4 Pedestrian gate refurb. 6.5 Double gate latch bracket, larger bolts and fixings for new gates. 6.5 Stone pillars to the entrance. 6.6 Bench maintenance. 6.7 Grass strimmed to the front of memorial plinths.	

	6.8 Settled graves topped and reseeded. 6.9 Creation of new Pathside Plot area along the path to the woodland. 6.9 Creation of an ashes scattering area within the Remembrance Garden.	
7.	Tree Inspection Reports	
	To review the Tree Risk Management Appraisal Report.	P 10-36
8.	Memorial Safety	
	To receive an update on Memorial Safety.	
9.	Reports by Cllrs & Clerk as INFORMATION only – Not for decision	
	Items arisen, correspondence received since the last meeting for information only, that may result in a future agenda item. • Plot 460 – unauthorised planters placed either side of plot – removal not actioned • Email received about dog fouling in the Woodland Area • Community Engagement - News items on WWB Cemetery Website	
10.	Next Meeting Date	
	To approve the next meeting date of Wednesday 14 th January 2026 at 7.00pm at Whalley Old Grammar School.	

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Signed: *EKHaworth*

Liz Haworth - Clerk & Responsible Finance Officer, Whalley Parish Council

Minutes

Agenda items should be submitted to the Clerk seven clear days before the meeting.
The Clerk will forward Councillors, all relevant information and supporting documents, 3 clear days before the meeting.

1.	Attendance & Apologies	
	Present: Cllr Chiappi, Cllr Heyworth, Cllr Highton (Chairman) Cllr Vickers Apologies: Cllr Scholfield In Attendance: Liz Haworth (Clerk)	139/25
2.	Declaration of Interests	
	There were no declarations of interest.	140/25
3.	To Approve the Minutes of the Previous WWBJBC Meeting	
	It was resolved to approve and confirm the accuracy of the Minutes of the meeting held Wednesday 9 th April 2025.	141/25
4.	Financial Reports April, May, June 2025	
	It was resolved to approve Accounts, Payments, Receipts & Balances.	142/25
WWB Joint Burial Committee Cash Book APRIL 2025 Chq No. Date Inv Ref Payee / Payer Description Current Reserve Total £ £ £ DD 01/04/2025 Easy Web Website/Email Services (44.40) (44.40) DPC 03/04/2025 Foster Bradley 418 270.00 270.00 BAC 11/04/2025 L Dawson Credit 10.00 10.00 Bankline 21/04/2025 E Haworth Salary/Office/Travel (519.57) (519.57) Bankline 21/04/2025 HMRC Tax£144.20 NI£57.72 ENI£108.22 (310.14) (310.14) Bankline 21/04/2025 E Haworth Re-imbursement Stamps (20.88) (20.88) Bankline 21/04/2025 E Haworth Re-imbursement Paper (7.00) (7.00) Bankline 21/04/2025 736 Abbey Gardening Services Grounds Maintenance (March 2025) (552.00) (552.00) Bankline 21/04/2025 4409/2021 ICCM Membership (105.00) (105.00) Bankline 22/04/2025 SDebtA06 RVBC Waste (317.00) (317.00) BAC 22/04/2025 196 Brian Price Ltd Stevenson 820.00 820.00 INT 30/04/2025 Reserve Account Credit Interest 46.21 46.21 0.00 0.00 Movement in Month (775.99) 46.21 (729.78) Cash Book Balance at START of Month 4,862.90 46,078.85 50,941.75 Cash Book Balance at END of Month 4,086.91 46,125.06 50,211.97		

	WWB Joint Burial Committee	Cash Book	MAY	2025	
Chq No.	Date	Inv Ref	Payee / Payer	Description	Total
					£
DD	01/05/2025		Easy Web	Website/Email Services	(44.40)
BAC	07/05/2025		Langshaws/Dignity	Hickling	925.00
BAC	09/05/2025		Dawson	Credit	10.00
BAC	13/05/2025	198	Ken Frasers	Silson	30.00
BAC	16/05/2025	201	Thos Rock	Stevenson	175.00
DPC	19/05/2025		AV Giffiths & Son	Sharpe	305.00
Bankline	19/05/2025		E Haworth	Salary/Office/Travel	(551.95)
Bankline	19/05/2025		HMRC	Tax£149 NI£59.66 ENI£111.86	(320.52)
Bankline	19/05/2025		Brush Strokes	Treatment of cemetery gates	(528.00)
BAC	23/05/2025	197	Langshaws/Dignity	Phillips	1,545.00
BAC	28/05/2025	199	Langshaws/Dignity	Hopkinson	1,320.00
INT	30/05/2025		Reserve Account	Credit Interest	41.70
					41.70
			Movement in Month		2,865.13
			Cash Book Balance at START of Month		4,086.91
			Cash Book Balance at END of Month		6,952.04
					46,166.76
					53,118.80
	WWB Joint Burial Committee	Cash Book	JUNE	2025	
Chq No.	Date	Inv Ref	Payee / Payer	Description	Total
					£
DD	02/06/2025		Easy Web	Website/Email Services	(44.40)
BAC	02/06/2025	203	Howell	Howell	785.00
DPC	06/06/2025		Stevensons	Credit	143.00
BAC	06/06/2025		L Dawson	Credit	10.00
BAC	09/06/2025	205	Silson	Silson	435.00
DPC	10/06/2025	202	Benko	Resrved Plot	310.00
DPC	10/06/2025	204	Jamieson	Interment	305.00
BAC	11/06/2025	206	Havencare/Hyndburn FS	Helm	685.00
Bankline	23/06/2025		E Haworth	Salary/Office/Travel	(538.24)
Bankline	23/06/2025		HMRC	Tax£146.60 NI£58.69 ENI£110.04	(315.33)
Bankline	23/06/2025	766	Abbey Gardening Services	Grounds Maintenance (April)	(552.00)
Bankline	23/06/2025	790	Abbey Gardening Services	Grounds Maintenance (May)	(552.00)
Bankline	23/06/2025	JM3004	WEF	Room Hire	(19.00)
Bankline	23/06/2025	1143	AER Accountants	Internal Audit	(250.00)
Bankline	23/06/2025	CR 201	M Rayson	Stevenson	(175.00)
INT	30/06/2025		Reserve Account	Credit Interest	43.13
BAC	30/06/2025	207	Champs Funeral Services	Dell AW3	55.00
			Movement in Month		282.03
			Cash Book Balance at START of Month		6,952.04
			Cash Book Balance at END of Month		7,234.07
					46,209.89
					53,443.96
5.	Cemetery Inspection Review and Maintenance Visit				
5.1	The committee reported that upon inspection, grave maintenance was predominantly of a high standard.				
	Maintenance Work involved clearing dead flowers, and placing items outside of the memorial back onto the memorial plinths to adhere with Cemetery Policy.				
5.2	The next Cemetery Inspection Review and Maintenance Visit will take place on 17 th September 2025 at 1.30pm.				

6.	Cemetery Grounds	
	The committee received updates on the general grounds maintenance including; 6.1 The area between the wall and the front fence of the cemetery – work is ongoing.	145/25
	6.2 The stoned area near the turning circle down to the Remembrance Garden – work will be undertaken when the work at the front of the cemetery has been completed so as not to spoil newly stoned area.	146/25
	6.3 Bench Maintenance – mainly in good repair. A couple that are the responsibility of the cemetery need some maintenance. Clerk to organise with the groundsman. The owners of the bench in the woodland have removed the bench as discussed.	147/25
	6.4 Pedestrian gate latch has been repaired. Cllr Highton is to source a clasp to go over the top of the new gates for extra support to keep the gates fixed closed and possibly replace the lock bolts and fixings.	148/25
	The committee commented that the pedestrian gate still requires some maintenance work – stripping and re-staining - and nominate Cllr Duckworth to offers some suggestions for this.	149/25
7.	Pathside Ashes Plots	
	7.1 It was approved to create a designated pathside plot area alongside the path to the woodland with path edgings and stones to match existing pathside areas at a cost of £2400 as per quote provided by D Uttley Services.	150/25
	7.2 Future ashes plot areas considered are the right hand side of the path to the woodland and the right hand side of the CE section alongside the footpath.	151/25
8.	Remembrance Garden	
	It was agreed that the Remembrance Garden would serve as an additional designated area for the scattering of ashes. The Clerk will contact the gardening contractors and request that the gardeners create seasonal planting sections within each of the four quartiles. A bench will be sited near the area to provide an area for reflection.	152/25
9.	Plot Maintenance	
	The committee discussed the telephone conversation held on 29/5/2025 between the plot holder and the Clerk regarding plot 419. It was agreed that members of staff should not be subjected to abusive or inappropriate communication, and that all such cemetery matters or complaints should be referred directly to the committee. The committee also noted that many plot holders may not fully understand that their rights are limited to the exclusive right of burial in the plot and the right to erect a memorial. No rights extend beyond the memorial plinth, except for the placement of a single spiked flower vase. The committee reaffirmed its commitment to enforcing the Cemetery Policy, and its decisions in such matters are final.	153/25
10.	Tree Inspection Reports	
	It was agreed to contract Bowland Tree Consultants for the Cemetery Tree Risk Assessment Report at a cost of £830.46.	154/25

11.	Memorial Safety Policy	
	This item was to be reviewed after the next memorial safety inspection to ensure all practices are included.	155/25
12.	Memorial Safety	
	Clerk to request a Memorial Safety inspection with D Uttley Memorial Services.	156/25
13.	Complaints Policy	
	It was resolved to adopt the WWB Cemetery Complaints Procedure and clerk to upload to the WWB Cemetery website.	157/25
14.	Reports by Cllrs & Clerk as INFORMATION only – Not for decision	
	Items arisen, correspondence received since the last meeting for information only, that may result in a future agenda item. • Plot 744 – removal of items from plot – not by committee • Plot 460 – unauthorised planters placed either side of plot	158/25
15.	Next Meeting Dates	
	It was resolved to approve the next meeting to be held Wednesday 8 th October 2025 at 7.00pm at Whalley Old Grammar School.	159/25

Meeting Closed at 8.45pm

Draft Minutes Subject to Confirmation

WWB Joint Burial Committee

Cash Book

JULY

2025

Chq No.	Date	Inv Ref	Payee / Payer	Description	Current £	Reserve £	Total £	VAT £	Net £
DD	01/07/2025		Easy Web	Website/Email Services	(44.40)		(44.40)	(7.40)	(37.00)
BAC	04/07/2025		L Dawson	Credit	10.00		10.00		10.00
BAC	02/07/2025	208	Dignity/Langshaws	Oconnor	1,545.00		1,545.00		1,545.00
Bankline	21/07/2025		E Haworth	Salary/Office/Travel	(533.29)		(533.29)		(533.29)
Bankline	21/07/2025		HMRC	Tax£146.60 NI£58.69 ENI£110.04	(315.33)		(315.33)		(315.33)
Bankline	21/07/2025	576	David Uttley	Grave Digging Services	(2,480.00)		(2,480.00)		(2,480.00)
INT	31/07/2025		Reserve Account	Credit Interest		42.22	42.22		42.22
Movement in Month					(1,818.02)	42.22	(1,775.80)	(7.40)	(1,768.40)
Cash Book Balance at START of Month					7,234.07	46,209.89	53,443.96		
Cash Book Balance at END of Month					5,416.05	46,252.11	51,668.16		

Bank Reconciliation

	Current £	Reserve £	Overall £
<i>Bank Statement Balance at START of month</i>	7,234.07	46,209.89	53,443.96
			0.00
			0.00
Cash Book Balance at START of month	7,234.07	46,209.89	53,443.96

WWB Joint Burial Committee
Approved Minutes Ref No:

Cash Book

AUGUST 2025

Chq No.	Date	Inv Ref	Payee / Payer	Description	Current £	Reserve £	Total £	VAT £	Net £
DD	01/08/2025		Easy Web	Website/Email Services	(44.40)		(44.40)	(7.40)	(37.00)
BAC	01/08/2025		L Dawson	Credit	10.00		10.00		10.00
BAC	04/08/2025		F Hickling	Grant Transfer 684 Hickling	55.00		55.00		55.00
Bankline	26/08/2025		E Haworth	Salary incl backpay/Office/Travel	(610.59)		(610.59)		(610.59)
Bankline	26/08/2025		HMRC	Tax£169.60 NI£67.85 ENI£127.21	(364.66)		(364.66)		(364.66)
Bankline	26/08/2025	855	Abbey Gardening Services	Grounds Maintenance (July 2025)	(552.00)		(552.00)	(92.00)	(460.00)
Bankline	26/08/2026	JM3126	WEF	Room Hire	(19.00)		(19.00)		(19.00)
Bankline	26/08/2026	822	Abbey Gardening Services	Grounds Maintenance (June 2025)	(552.00)		(552.00)	(92.00)	(460.00)
BAC	29/08/2025		L Dawson	Credit	10.00		10.00		10.00
INT	29/08/2025		Reserve Account	Credit Interest		38.59	38.59		38.59
Movement in Month					(2,067.65)	38.59	(2,029.06)	(191.40)	(1,837.66)
Cash Book Balance at START of Month					5,416.05	46,252.11	51,668.16		
Cash Book Balance at END of Month					3,348.40	46,290.70	49,639.10		

Bank Reconciliation

	Current £	Reserve £	Overall £
<i>Bank Statement Balance at START of month</i>	5,416.05	46,252.11	51,668.16
			0.00
			0.00
Cash Book Balance at START of month	5,416.05	46,252.11	51,668.16

WWB Joint Burial Committee
Approved Minutes Ref No:

Cash Book

SEPTEMBER 2025

Chq No.	Date	Inv Ref	Payee / Payer	Description	Current £	Reserve £	Total £	VAT £	Net £
DD	02/09/2025		Easy Web	Website/Email Services	(44.40)		(44.40)	(7.40)	(37.00)
BAC	03/09/2025	212	Dignity/Langshaws	Goodwin	480.00		480.00		480.00
Bankline	09/09/2025	2.212E+09	Zurich	Insurance Renewal	(748.56)		(748.56)		(748.56)
BAC	19/09/2025	218	Memories Memorials	Goodwin W72	130.00		130.00		130.00
Bankline	22/09/2025		E Haworth	Salary/Office/Travel	(547.15)		(547.15)		(547.15)
Bankline	22/09/2025		HMRC	Tax£152 NI£60.80 ENI£114	(326.80)		(326.80)		(326.80)
Bankline	22/09/2025	884	Abbey Gardening Services	Grounds Maintenance (August 20:	(552.00)		(552.00)	(92.00)	(460.00)
Bankline	22/09/2025	4204	Bowland Tree Consultancy	Tree Risk Assessment Report	(830.46)		(830.46)	(138.41)	(692.05)
BAC	22/09/2025	215	Havencare/Clitheroe Fune	Traenor CE0019	1,415.00		1,415.00		1,415.00
Bankline	22/09/2025	TRF	WWBJBC	Trf of funds-reserve to current	5,000.00	(5,000.00)	0.00		0.00
BAC	24/09/2025	210	Dignity/Langshaws	De Vince	335.00		335.00		335.00
BAC	26/09/2025		L Dawson	Credit	10.00		10.00		10.00
INT	30/09/2025		Reserve Account	Credit Interest		41.46	41.46		41.46
Movement in Month					4,320.63	(4,958.54)	(637.91)	(237.81)	(400.10)
Cash Book Balance at START of Month					3,348.40	46,290.70	49,639.10		
Cash Book Balance at END of Month					7,669.03	41,332.16	49,001.19		

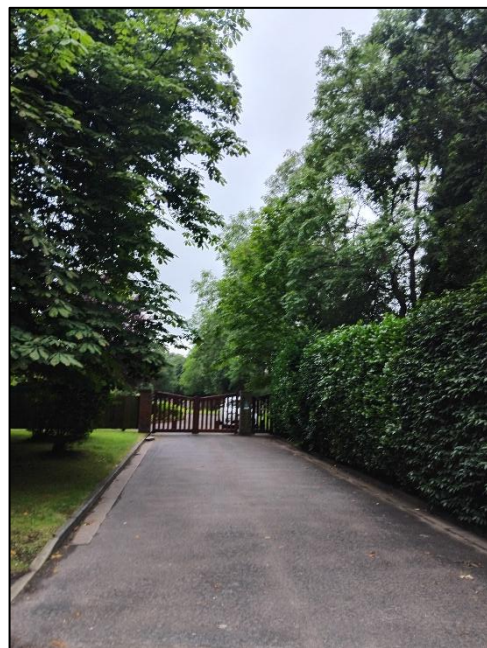
Bank Reconciliation

	Current £	Reserve £	Overall £
<i>Bank Statement Balance at START of month</i>	3,348.40	46,290.70	49,639.10
			0.00
			0.00
Cash Book Balance at START of month	3,348.40	46,290.70	49,639.10



Tree Risk Management Appraisal

of Trees within the Identified Boundaries of



**Whalley, Wiswell & Barrow Cemetery,
Clitheroe Road, Whalley, Lancashire,
BB7 9AD**

Prepared by:

Bowland 
Tree Consultancy Ltd

August 2025

**TREE RISK MANAGEMENT APPRAISAL
WHALLEY WISWELL & BARROW CEMETERY, CLITHEROE ROAD, WHALLEY**

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1. CIVIL LAW REGARDING TREE OWNERSHIP AND DUTY OF CARE
2. QTRA METHODOLOGY OVERVIEW AND APPLICATION IN MANAGEMENT DECISIONS
3. PROTECTED SPECIES AND STATUTORY RESTRICTIONS
4. SUMMARY OF SURVEY FINDINGS AND RECOMMENDATIONS
5. GENERAL TREE MANAGEMENT COMMENTS
6. TREE RISK MANAGEMENT STRATEGY RECOMMENDATIONS
7. TREE SURVEY SCHEDULE
8. TREE SURVEY PLAN
9. QTRA PRACTICE NOTE



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Bowland 
Tree Consultancy Ltd

**TREE RISK MANAGEMENT APPRAISAL
WHALLEY WISWELL & BARROW CEMETERY, CLITHEROE ROAD, WHALLEY**

PROJECT DETAILS

Project No.: BTC3282

Site: Whalley Wiswell & Barrow Cemetery, Clitheroe Road,
Whalley, Lancashire, BB7 9AD

Survey Type: Individual Tree Survey

Tree(s) Considered: Areas as identified by client

Report Time Frame: 12 months from date of issue

Next Inspection Date: ≈18 months from date of issue

Client: Whalley, Wiswell & Barrow Joint Burial Committee

Survey Dates: 17 & 21 July 2025

Surveyor: Dan Brown FdSc MArborA

Report Prepared by: Dan Brown FdSc MArborA

Report Checked by: Joseph Lambert BSc(Hons) FdSc MArborA MICFor

Date of Issue: 18 August 2025

Version No: 1

1. **CIVIL LAW REGARDING TREE OWNERSHIP AND DUTY OF CARE**

- 1.1 Under civil law the owner of the land on which a tree stands, together with any party who has control over the tree's management, has a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land in question.
- 1.2 In turn, it is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey the tree in order to identify and appraise any risk of harm to persons or damage to property that it may present and, where unacceptable risks are identified, taking suitable remedial action to negate or reduce those risks accordingly.

2. **QTRA METHODOLOGY OVERVIEW AND APPLICATION IN MANAGEMENT DECISIONS**

- 2.1 A survey was carried out in order to consider the general structural stability of the identified trees at the site and the associated risk of harm posed to persons and/or property and, from this information, to make management recommendations to reduce any risks identified to be unacceptable to a level that is considered to be either tolerable or broadly acceptable (see Table 1, below).
- 2.2 The Quantified Tree Risk Assessment (QTRA) methodology utilised for the tree survey (see appended QTRA Practice Note for more details) quantifies the three components of tree failure risk, which are:
- Target* (something with potential to be harmed and/or damaged by the mechanical failure of tree parts);
 - Impact Potential*; and
 - Probability of Failure* (within the coming year).
- 2.3 The product of the three component values is the annualised 'Risk of Harm', which is a combined measure of the likelihood and the consequence of tree failure considered in terms of the loss within the coming year, and is expressed as a probability. In applying the 'Tolerability of Risk Framework' (ToR) the QTRA methodology divides the 'Risk of Harm' into three threshold values, being;
- Unacceptable* (i.e. $>1/1,000$), which is unacceptable and will not ordinarily be tolerated;
 - Tolerable* (i.e. between $1/1,000,000$ and $1/1,000$, where the Risk of Harm will be tolerable if it is As Low As Reasonably Practicable (ALARP); but a Risk of Harm $1/10,000$ or greater will not ordinarily be Tolerable where it is imposed on others, such as the public. In the Tolerable range management decisions are informed by consideration of the benefits and costs of risk control, including benefits provided by trees that would be lost to risk control measures; and
 - Broadly Acceptable* ($<1/1,000,000$), which is already ALARP.
- 2.4 The QTRA advisory thresholds, (see Table 1, below) are proposed as a reasonable approach to balancing safety from falling trees with the costs of risk reduction. This approach takes account of the principles of ALARP and ToR, but does not dictate how these principles should be applied. While the thresholds can be the foundation of a robust policy for tree risk management, tree managers should make decisions based on their own situation, values and resources.

Table 1: QTRA Advisory Risk Thresholds:

Threshold	Description	Action
Risk of harm of $1/1,000$ or greater	Unacceptable - Risks will not ordinarily be tolerated	▪ Control the risk
Risk of harm between $1/1,000$ and $1/10,000$	Unacceptable (where imposed on others) - Risks will not ordinarily be tolerated	▪ Control the risk ▪ Review the risk
	Tolerable (by agreement) Risks may be tolerated if those exposed to the risk accept it, or the tree has exceptional value	▪ Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value ▪ Review the risk
Risk of harm between $1/10,000$ and $1/1,000,000$	Tolerable (where imposed on others) - Risks are tolerable if ALARP	▪ Assess costs and benefits of risk control ▪ Control the risk only where a significant benefit might be achieved at reasonable cost ▪ Review the risk
Risk of harm less than $1/1,000,000$	Broadly Acceptable - Risk is already ALARP	▪ No action currently required ▪ Review the risk

- 2.5 As detailed in Table 1, a Risk of Harm less than $1/1,000,000$ is Broadly Acceptable and already ALARP (i.e. 'as low as reasonably practicable'). A Risk of Harm $1/1,000$ or greater is unacceptable and will not

ordinarily be tolerated. Between these two thresholds, the Risk of Harm is in the Tolerable region of the ToR Framework and will be tolerable if it is ALARP, but a Risk of Harm 1/10,000 or greater will not ordinarily be Tolerable where it is imposed on others, such as the public. Here, management decisions are informed by consideration of the benefits and costs of risk control, including benefits provided by trees that would be lost to risk control measures.

- 2.6 In respect of the above the assessor (i.e. Bowland Tree Consultancy Ltd) may consider the costs of risk control when providing options for management if specifically asked to do so, but the tree owner/manager, who owns the risk and therefore exercises control over the costs, must consider the balance and make the final management decision(s).

3. PROTECTED SPECIES AND STATUTORY RESTRICTIONS

Tree Preservation Orders and Conservation Area Designations

- 3.1 The Town & Country Planning Act (1990) (the Act) and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). The Act also affords protection for trees of over 75mm diameter that stand within the curtilage of a Conservation Area (CA). Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or to remove trees within a CA that are not protected by a TPO.
- 3.2 According to the LPA's website, checked 04 August 2025, the site does not stand in a CA and there are no TPOs within the boundaries of the site. However, given the possibility that online information is not up to date, it is essential that confirmation of the above is obtained from the planning department of the local council, in this case Ribble Valley Borough Council, prior to scheduling or undertaking any tree works.

Protected Species

- 3.3 Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981) (as amended) and their potential presence should therefore be considered when clipping hedges, removing climbing plants and pruning and removing trees. The breeding period for woodlands runs from March to August inclusive. Hedges provide valuable nesting sites for many birds and clipping should therefore be avoided during March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.
- 3.4 All bat species and their roosts are protected under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). In this respect, it should be noted that it is possible that unidentified bat habitat features may be located high in tree crowns and all personnel carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are identified, then it is essential that works are halted immediately and that a suitably qualified and experienced ecologist investigates and advises on appropriate actions prior to works continuing.
- 3.5 In turn, any subsequent works carried out in relation to any protected species must be carried out under guidance from a suitably qualified and experienced ecologist and in strict accordance with applicable industry guidance (i.e. BS8596:2015 - Surveying for Bats in Trees and Woodlands).

Felling Licences

- 3.6 Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter, providing no more than two cubic metres are sold. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A felling licence is, however, not required for trees standing within the curtilage of a private residential garden, orchard, churchyard or in public open spaces such as land registered under the Commons Act 1899, village greens, public parks and public gardens.

4. SUMMARY OF SURVEY FINDINGS AND RECOMMENDATIONS

- 4.1 An 'Individual Tree Survey' (see 'Schedule of Operations' appended to agreed project quote) was carried out on 17 and 21 July 2024 at the site under consideration. In turn, the ownership boundaries, and the trees to be considered within the survey, were identified by email by the instructing client's representative Liz Haworth of the Whalley, Wiswell & Barrow Joint Burial Committee, prior to the site visit.
- 4.2 The survey identified 11 individual trees, nine tree groups and one woodland. The age range of the trees surveyed are from young to mature, with heights of up to 24 metres, stem diameters of up to 1050 millimetres, and maximum diametral crown spreads of up to approximately 22 metres. P10-
- 4.3 The site under consideration is a burial ground with associated vehicular and pedestrian access, with access to the site from the north by Clitheroe Road. The site also includes a small grassed area to the outside of the burial ground which is adjacent to Clitheroe Road, consisting of two mature trees. The site also contains a woodland area which runs alongside the south and west boundary.
- 4.4 As a component of this appraisal various targets were identified to be within falling distances of the surveyed trees, including, but not restricted to, pedestrians and vehicles and occupants travelling along the moderate usage Clitheroe Road and adjacent public footpath, pedestrians using the footpaths that run throughout the burial ground, and various items of property including grave stones, parked vehicles, benches and boundary features such as fences and walls.
- 4.5 Furthermore, it is noted that a widespread presence of Ash Dieback Disease (*Hymenoscyphus fraxineus*) was identified throughout the Ash tree population, both within the site under consideration and the wider local landscape.
- 4.6 In turn, as a guide, the surveyed Ash trees have been assessed in accordance with the following scales of approximate percentages of remaining canopy at the time of viewing:
- Class 1 – 100% canopy - Healthy trees displaying good vitality;
 - Class 2 – 75% canopy - Weakened trees show treetop shoots in the degeneration phase;
 - Class 3 – 50% canopy – Severely weakened trees exhibiting a significant reduction in vitality, e.g. with bushy and lumpy accumulation of growth; and
 - Class 4 – 25% canopy – Trees in a state of severe decline, e.g. with large dead canopy areas and twigs and branches starting to break off.
- 4.7 Regarding these classifications, it is emphasised that trees falling within classes 3 and 4 are normally recommended for risk management remedial work where targets exist within falling distance of said trees.
- 4.8 In turn, as highlighted with the colours yellow and green in the appended Tree Survey Schedule, and in Table 2 (below), the risk assessment established that all the surveyed trees have calculated QTRA risk indices that fall within the tolerable to acceptable risk threshold range of less than 1/10,000 to less than 1,000,000 (please refer to Table 1, on the previous page, with regard to advisory tree risk thresholds). However, as also detailed in Table Two, various recommendations have also been made for a range of general management purposes.

Table 2: Tree Work Recommendations:

No.	Species	Management Works Recommended*	Responsible Professional	Work Priority
T1	Common Horse Chestnut	1. Prune tree to remove deadwood >35mm diameter due to identified increased risk of failure, as part of schedule with other recommended tree works on site.	1. Tree contractor	1. Low
T2	Common Horse Chestnut	1. Remove due to physiological decline an identified increased risk of stem failure and subsequent increased risk of damage to property.	1. Tree contractor	1. High
T3	Pissards Plum	1. Prune tree to reduce canopy by 1m to reduce static and dynamic loading on defective stems and subsequently reduce risk of stem failure.	1. Tree contractor	1. Low

Table continued overleaf

Table 2: Tree Work Recommendations (continued):

No.	Species	Management Works Recommended*	Responsible Professional	Work Priority
T4	Sycamore	1. Prune tree to remove deadwood >35mm diameter over adjacent footpath due to identified increased risk of failure and subsequent increased risk of harm to persons.	1. Tree contractor	1. High
T5	Common Ash	1. Canopy condition of tree to be reviewed during next summer period due to colonisation of ADD	1. Tree Consultant	1. Low
T6	Goat Willow	1. Remove tree due to identified risk of failure.	1. Tree contractor	1. Low
T7	Sycamore	1. Reduce tree to a standing stem of 6m similar to adjacent decayed stem due to identified increased risk of failure and subsequent increased risk of damage to property.	1. Tree contractor	1. Moderate
T8	Whitebeam	1. Prune tree canopy to attain approximately 2.5m ground clearance over footpath (M).	1. Tree contractor	1. Low
T13	Common Oak	1. Prune tree to laterally reduce first primary branch arising to south by approximately 0.5m to reduce static and dynamic loading due to identified increased risk of failure and subsequent increased risk of damage to property.	1. Tree contractor	1. Moderate
G1	Various Broadleaf	1. Prune tree canopy to attain approximately 2.5m ground clearance over footpath (M). 2. Remove dead Hawthorn stem leaning towards footpath due to increased risk of failure.	1. Tree contractor 2. Tree contractor	1. Low 2. Low
G2	2no. Common Horse Chestnut	1. Prune tree to remove deadwood >35mm diameter in canopy due to identified increased risk of failure.	1. Tree contractor	1. Moderate
G3	2no. Mountain Ash	1. Remove redundant tree stakes and ties around stems to prevent long term damage to stems.	1. Grounds maintenance staff	1. High
G4	4no. Common Hawthorn, 4no. Paper Birch, 1no. Mountain Ash	1. Prune applicable tree canopies to attain approximately 2.5m ground clearance over footpath (M).	1. Tree contractor	1. Low
G5	6no. Sargent Cherry, 5no. Mountain Ash	1. Prune applicable tree canopies to attain approximately 2.5m ground clearance over footpath (M).	1. Tree contractor	1. Low
G6	3no. Wild Cherry	1. Prune group to reduce height of all three trees by approximately 3m to reduce risk of future stem failure over long term due to increasing loading on attenuated tree stems from top of stem.	1. Tree contractor	1. Low

Table continued overleaf

Table 2: Tree Work Recommendations (continued):

No.	Species	Management Works Recommended*	Responsible Professional	Work Priority
G7	9no. Common Ash	1. Prune tree to remove deadwood >35mm diameter over graves due to identified increased risk of failure and subsequent increased risk of damage to property. 2. G7a - Remove tree due to increased risk of failure due to evident physiological decline. 3. G7b - Remove tree, leaving standing stem of stem 2m due to increased risk of stem union failures.	1. Tree contractor 2. Tree contractor 3. Tree contractor	1. Moderate 2. Moderate 3. Moderate
G8	Lawson Cypress, Common hawthorn, Common Ash, Common Horse Chestnut	1. Prune tree canopy to west to attain approximately 2.5m ground clearance over footpath (M).	1. Tree contractor	1. Low
W1	Sycamore, Wild Cherry, Grey Alder, Common Ash, English Yew, Common Horse Chestnut	1. Prune applicable trees to remove deadwood >35mm diameter due to identified increased risk of failure, as part of schedule with other recommended tree works on site. 2. W1a - Remove deadwood over 35mm diameter over bench and grassed area adjacent. 3. W1b - Remove detritus build up from around tree stems to avoid build up of moisture and soil compaction. 4. W1c - Remove spoil build up from around tree stems to avoid build up of soil compaction.	1. Tree contractor 2. Tree contractor 3. Grounds maintenance staff 4. Grounds maintenance staff	1. Low 2. Low 3. Low 4. Low

*Note: it shall be the client's responsibility to arrange contact with the applicable council's planning department to check for any statutory tree protection, and obtain any necessary permissions if required, prior to scheduling or carrying out any tree works

- 4.9 Table 3, below, details the trees that are recommended for more detailed inspections for risk management related reasons following any works recommended in Table 2, along with their accompanying re-inspection schedule.

Table 3: Tree Re-Inspection Recommendations:

No.	Species	Re-Inspection Recommendations*	When?
T5	Common Ash	1. Review group when next in full leaf to re-appraise physiological condition and make subsequent recommendations where appropriate.	1. Summer 2026
G7	Common Ash	2. Review group when next in full leaf to re-appraise physiological condition and make subsequent recommendations where appropriate	2. Summer 2026

*Note: Unless otherwise specified, all inspections detailed in Table 3 are to be carried out by the project tree consultant upon instruction by the client

- 4.10 Furthermore, with regard to the above, it is noted that, where trees are recommended for removal, whether for risk management purposes or for other arboricultural management reasons, then it is recommended that replacement trees of suitable sizes and species be planted in appropriate locations of the site, both in order to compensate for the loss of the multiple benefits the trees provided to the environment, and to help ensure continuity of canopy cover in the local area. Accordingly, new tree planting advice should be sought from the project tree consultant, and may need to be agreed with the LPA in respect of any statutory tree protection at the site.

- 4.11 Subsequently, any new tree planting should be carried out in strict accordance with BS8545:2014 that they are of a suitable quality for usage, and that they are provided with adequate care and maintenance following planting for them to successfully establish and, over the long term, grow to maturity.

5. GENERAL TREE MANAGEMENT COMMENTS

- 5.1 During the course of the survey, it was noted that the canopies of a number of the trees border Clitheroe Road and the associated footway. In this respect it is generally accepted that the minimum clearances should be approximately 2.5 metres over a footpath and 5.05 metres over a road carriageway which, in turn, should give sufficient clearance for a person with a raised umbrella to walk unimpeded along a footpath and for a double-decker bus to travel along a road without striking any overhanging branches. Furthermore, adequate clearance should be maintained to visibility splays from junctions and accesses and also to road signs and street lights.
- 5.2 Additionally, it was noted that the canopies of various trees overhang the footpaths within the burial ground and site entrance. As such, it is recommended that general periodic maintenance pruning should be undertaken as and when necessary to ensure adequate canopy clearances are maintained to roads, footways and internal accesses and any overhead utilities such as overhead telephone lines.

6. TREE RISK MANAGEMENT STRATEGY RECOMMENDATIONS

- 6.1 In consideration of the moderate usage of the adjacent Clitheroe Road, and the proximity of the trees to various items of property, and the associated identified targets such as parked and moving vehicles and pedestrians, it is subsequently recommended that all of the trees be re-inspected on a cyclical programme of roughly every 18 months, so that they can be alternately viewed whilst both in and out of leaf in order to monitor both their structural and physiological condition and, consequently, for the site occupiers to meet their duty of care. In this respect it is therefore recommended that the trees be re-inspected during winter 2026/27.
- 6.2 Additionally, it is strongly recommended that the client undertakes a walkover check of trees around the site following any inclement weather events, and observes the trees during their day to day activities and routines. This is recommended to identify any obvious risk features, such as broken, split or hanging branches, root-plate heave, the apparition of fungal fruiting bodies etc. that could have occurred following inclement weather, and, if subsequently identified as necessary, to then seek appropriate advice from a tree contractor or tree consultant.

DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are viewed from ground level using non-invasive techniques. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or in areas of ground vegetation, cannot therefore be expected. All obvious defects, however, are reported. Where the QTRA Risk Index is calculated as Tolerable or Broadly Acceptable, but the tree(s) have not been adequately inspected (e.g. due to the presence of ivy and/or ground vegetation which impeded the inspection), then it is essential to follow the recommendations made in the Management Recommendations column and to have the applicable tree(s) re-inspected as recommended.

Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only. The level of detail of the survey is as per the brief detailed on the Tree Survey Schedule and as per the specifics set out in the associated fee estimate for the project.

Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regards tree structural integrity and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potentially unacceptable risk to persons and/or property has been identified during our survey. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will first attempt to inform the site occupier of the issues and, if not possible, then inform the relevant Council. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

The potential influence of trees upon existing or proposed buildings or other structures, resulting from the effects of their roots abstracting water from shrinkable load-bearing soils, is not considered herein.

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Statutory Tree Protection: It is the client's responsibility to check for the presence of any statutory tree protection measures, such as the site's location within a Conservation Area and/or the presence of any Tree Preservation Orders, directly with the applicable Council's planning department prior to scheduling or carrying out any tree works. In turn, it is also the client's responsibility to check for the need for a felling licence with the Forestry Commission prior to scheduling or carrying out any tree works. Bowland Tree Consultancy Ltd cannot be held responsible for any decisions made by the client to prune or remove trees where any such statutory protection exists.

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Validity: The findings and recommendations contained within this report are, providing its recommendations are observed and the site conditions are retained as per the date(s) of the survey, valid for a period of twelve months from the last survey date. This period of validity may be reduced should there be any changes in factors affecting both the surrounding environment and/or built structures in relative proximity to the trees. The condition of trees should be re-appraised directly, through a site survey, following major weather events such as storms, changes undertaken to the site's conditions, inclusive of demolition and/or ground works, or the removal of existing site vegetation, including trees.

Site:	Whalley Wiswell & Barrow Cemetery, Clitheroe Road, Whalley, Lancashire, BB7 9AD	Surveyor:	Dan Brown FdSc MArborA	Page: 1 of 7
Client:	Whalley, Wiswell & Barrow Joint Burial Committee	Survey Dates:	17 & 21 July 2025	
Brief:	Carry out an individual tree survey within area specified by client, report on projected risk posed to persons and property, and make management recommendations where appropriate	Viewing Conditions:	Bright conditions	
		Job Reference:	BTC3282	

No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
T1	Common Horse Chestnut	M	19	1450	20	G	- Located next to cemetery entrance and boundary. - Tree has previously been colonised by Horse Chestnut Bleeding Canker indicated by wounds present on stem typical of the infection. Wound wood present by all wounds, indicating a good response. - Small volume of deadwood to approximately 50mm diameter within lower stem adjacent to footpath. - Canopy encroaching into driveway which leads to cemetery.	Tree contractor to prune tree to remove deadwood >35mm diameter due to identified increased risk of failure, as part of schedule with other recommended tree works on site.	P = Deadwood up to approximately 50mm diameter. T = Persons using footpath.	3	4	3	50%	<1M	L
T2	Common Horse Chestnut	M	19	1450	14	M	- Located next to cemetery entrance and boundary. - Tree has previously been colonised by Horse Chestnut Bleeding Canker indicated by wounds present on stem with poor response to wound as evident from lack of wound wood present. - Significant area of active white rot decay present from ground level to 3m height of approximately 500mm wide on south east side of stem. - Thinning canopy with approximately 10% dieback.	Tree contractor to remove due to physiological decline an identified increased risk of stem failure and subsequent increased risk of damage to property.	P = Stems above union approximately 500mm diameter. T = Adjacent fencing, graves and trees	3	P	3	N/A	30K	H
T3	Pissards Plum	M	8	310	6	G	- Wound present at base of tree with good response indicated by presence of wound wood along wound extent. - Small fruiting body suspected to be of white rot decay causing <i>Ganoderma</i> sp. at base of tree to the east. - Stem leaning east. - Cracks present on stem likely due to pressure from weighted canopy and stem lean, with one crack relatively recent on north side of stem.	Tree contractor to prune tree to reduce canopy by 1m to reduce static and dynamic loading on defective stems and subsequently reduce risk of stem failure.	P = Upper canopy with branches of up to approximately 100mm diameter. T = Pedestrians using footpath/road.	5	2	3	N/A	<1M	L

HEADINGS & ABBREVIATIONS

NO.	TREE/GROUP REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE
SPECIES:	COMMON NAME
AGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	APPROXIMATELY 80% OF TREES ARE MEASURED USING AN ELECTRONIC CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
DIAMETER:	STEM DIAMETER MEASURED OR ESTIMATED AT A HEIGHT OF APPROXIMATELY 1.3 METRES
CROWN SPREAD:	MEASURED OR ESTIMATED DIAMETER OF CROWN(S) AT THE WIDEST POINT
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION WHEREBY D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
MANAGEMENT:	SUFFIXES: (M) = FOR GENERAL ARBORICULTURAL OR SILVICULTURAL MANAGEMENT; (S) = TO REMOVE OR REDUCE THE RISK OF DIRECT DAMAGE TO A FIXED STRUCTURE BY MEANS OF CIRCUMFERENTIAL ROOT, STEM OR BRANCH GROWTH; (I) = TO ENABLE THE TREE(S) TO BE INSPECTED FURTHER FOR RISK ASSESSMENT PURPOSES
TARGET RANGE:	HIGHEST VALUE TARGET THAT THE MOST SIGNIFICANT PART LIKELY TO FAIL COULD STRIKE. RANGES 1-6. 1 = HIGH, 6 = LOW VALUE/OCCUPANCY
RISK ASSESSMENT DESCRIPTION:	DESCRIPTION OF PART IDENTIFIED AS MOST LIKELY TO FAIL AND ASSOCIATED TARGET, ASSESSED IN ACCORDANCE WITH QTRA SYSTEM
SIZE RANGE:	SIZE CATEGORY OF MOST SIGNIFICANT PART CONSIDERED LIKELY TO FAIL. - RANGES 1-4 WHEREBY 1 = LARGE, 4 = SMALL, P = PROPERTY
P.O.F:	PROBABILITY OF FAILURE WITHIN 12 MONTHS. RANGES 1-7. 1 = HIGH, 7 = LOW
REDUCED MASS %:	WHERE THE MASS OF A TREE OR BRANCH IS REDUCED BY DEGRADATION THE RISK INDEX IS MULTIPLIED TO REFLECT THE PERCENTAGE OF MASS REDUCTION
RISK INDEX:	E.G. RISK INDEX 20 = RISK OF SIGNIFICANT HARM 1 IN 20,000. AN ADDITIONAL FIGURE, IN BRACKETS, MAY BE SUFFIXED 'T' REPRESENTING THE RATE OF MULTIPLE OCCUPATION OVER THE YEAR, E.G. 10(10T) REPRESENTS A RISK OF HARM 1/10,000 TO 10 OCCUPANTS OR AN EQUIVALENT MONETARY VALUE. SEE QTRA PRACTICE NOTE FOR MORE INFORMATION REGARDING COLOURS USED TO SIGNIFY RISK INDEX
WORK PRIORITY:	H (HIGH) = TREE WORKS TO BE GIVEN IMMEDIATE CONSIDERATION. M (MODERATE) = TREE WORKS TO BE CARRIED OUT WITHIN 12 MONTHS OF SURVEY (TIMING MAY BE SPECIFIED IN MANAGEMENT RECOMMENDATIONS). L (LOW) = TREE WORKS THAT ARE NOT CONSIDERED ESSENTIAL FOR RISK MANAGEMENT PURPOSES, BUT ARE RECOMMENDED IN ACCORDANCE WITH PRUDENT ARBORICULTURAL MANAGEMENT (TO BE REVIEWED IN 12 MONTHS, OR SPECIFIED TIME, IF APPLICABLE). N/A = NOT APPLICABLE

Site:	Whalley Wiswell & Barrow Cemetery, Clitheroe Road, Whalley, Lancashire, BB7 9AD
Client:	Whalley, Wiswell & Barrow Joint Burial Committee
Brief:	Carry out an individual tree survey within area specified by client, report on projected risk posed to persons and property, and make management recommendations where appropriate

Surveyor:	Dan Brown FdSc MArborA
Survey Dates:	17 & 21 July 2025
Viewing Conditions:	Bright conditions
Job Reference:	BTC3282

No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
T4	Sycamore	M	20	860	20	G	- Slight stem lean east towards road. - Evidence of historical decay present at base of tree on west side of stem, evidently not active due to hardening of wood from test with sounding nylon mallet. - Canopy displaying good vitality with exception of slightly smaller leaves, which is considered likely due to allocation of resources to adapting growth around previous decay. - Deadwood up to approximately 110mm diameter over adjacent footpath. - Ivy at base of stem restricting visual inspection.	- Tree contractor to prune tree to remove deadwood >35mm diameter over adjacent footpath due to identified increased risk of failure and subsequent increased risk of harm to persons. - Client to ensure tree/grounds contractor is instructed to sever and remove ivy 2m up stem immediately prior to next cyclical inspection (I).	P = Deadwood up to approximately 110mm diameter. T = Persons using footpath.	3	3	3	N/A	500 K	H
T5	Common Ash	M	24	1050	12	M	- Prominent tree within woodland adjacent to watercourse. - Slightly thinning canopy with a small number of dead branches. - Suspected colonisation minor colonisation by Ash Dieback Disease (ADD) but appears to be relatively minor, with the tree responding well.	Tree consultant to review group during Summer 2026 (i.e. when next in full leaf) to re-appraise physiological condition and make subsequent recommendations where appropriate.	P = Branches up to approximately 400mm diameter. T = Persons using footpath.	4	2	5	N/A	<1M	L
T6	Goat Willow	Y	6	150	4	M	- Fallen tree resting in canopy of adjacent tree. - Overhanging the trodden path which leads to detritus pile.	Tree contractor to remove tree due to identified risk of failure.	P = Stem of up to 150mm diameter. T = Persons using trodden path.	4	3	5	N/A	<1M	L

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T7	Sycamore	EM	17	520	8	M	- Tree located adjacent to woodland footpath and memorial stones - Bodies of soft rot decay causing <i>Kretzschmaria deusta</i> at teleomorphic and anamorphic stages across majority of base. - Crown bias and stem leaning west towards adjacent road, although concluded to not be in falling distance of road - Slight leaf discolouration with approximately 5% dieback in canopy.	Tree contractor to reduce tree to a standing stem of 6m similar to adjacent decayed stem due to identified increased risk of failure and subsequent increased risk of damage to property.	P = Stem up to 520mm diameter. T = Memorial stones and adjacent trees.	3	P	3	N/A	30K	M
T8	Whitebeam	SM	6	190	5	G	Canopy encroaching onto footpath.	Tree contractor to prune tree canopy to attain approximately 2.5m ground clearance over footpath (M).	P = Tertiary branches up to approximately 35mm diameter T = Persons using footpath	3	4	7	N/A	<1M	L
T9	Grey Alder	M	16	600	12	G	- Located next to northwest corner of grass area to cemetery. - Dense epicormic growth around base restricting visual inspection.	Client to ensure tree/grounds contractor is instructed to sever and remove epicormic growth immediately prior to next cyclical inspection (I).	P = Stem of approximately 600mm diameter. T = Persons using adjacent grassed area.	4	1	6	N/A	<1M	L
T10	Grey Alder	EM	16	400	10	M	- Located adjacent to footpath - Thinning of upper canopy but still retaining colour in the remaining leaves.	Tree consultant to monitor any changes in physiological decline during next inspection.	P = Branches up to approximately 100mm stem diameter. T = Persons using footpath.	4	P	5	N/A	<1M	N/A
T11	Common Oak	M	16	720	14	G	- Fruiting bodies of white rot decay causing <i>Ceriporus squamosus</i> present on lower stem approximately 4.5m above ground level. - No decline in canopy with mutual shelter from adjacent trees. - Canopy beginning to encroach over adjacent footpath.	Tree consultant to monitor for presence of further fruiting bodies of decay fungi during ongoing cyclical inspections.	P = Branches up to approximately 300mm diameter. T = Persons using footpath.	3	4	6	N/A	<1M	L

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Job Reference:	BTC3282

No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
T12	Grey Alder	M	18	600	10	G	- Grey alder tree in Woodland adjacent to footpath and grassed area. - Ivy clad stem restricting visual inspection	Client to ensure tree/grounds contractor is instructed to sever and remove ivy 2m up stem immediately prior to next cyclical inspection (I).	P = Stem of 600mm diameter. T = Persons using footpath.	4	3	6	N/A	<1M	L
T13	Common Oak	EM	14	500	10	G	- Located along north boundary with canopy overhanging graves - Hedgerow restricting access for visual inspection of stem. - First significant branch has bark included union with gap approximately 20mm diameter present	Tree contractor to prune tree to laterally reduce first primary branch arising to south by approximately 0.5m to reduce static and dynamic loading due to identified increased risk of failure and subsequent increased risk of damage to property.	P = Primary branches approximately 250mm diameter. T = Gravestones.	4	P	3	N/A	300 K	M
G1	2no. Wych Elm, 2no. Field Maple, 2no. Hawthorn 1no. Common Horse Chestnut, 1no. Small Leaved Lime, 1no. Sycamore	SM	≤ 14	≤ 500	≤ 14	D-G	- Group of trees along raised bed within cemetery with canopies overhanging adjacent footpath - One Hawthorn is a dead stem leaning towards footpath.	- Tree contractor to prune tree canopy to attain approximately 2.5m ground clearance over footpath (M). - Tree contractor to remove dead Hawthorn stem leaning towards footpath due to increased risk of failure.	P=Tertiary branches up to approximately 35mm diameter T = Persons using footpath	3	4	7	N/A	<1M	L
G2	2no. Common Horse Chestnut	M	≤ 18	≤ 850	≤ 18	G	- Located adjacent to woodland footpath and memorial stones. - Both trees with bleeding canker present and active. - Some slight discolouration of leaves in both canopies. - Deadwood up to 150mm diameter over path and memorials	Tree contractor to prune group to remove deadwood >35mm diameter over memorial stones due to identified increased risk of failure and subsequent increased risk of damage to property.	P = Deadwood up to approximately 150mm diameter T = Persons using footpath	3	P	3	N/A	30K	M

Site:	Whalley Wiswell & Barrow Cemetery, Clitheroe Road, Whalley, Lancashire, BB7 9AD
Client:	Whalley, Wiswell & Barrow Joint Burial Committee
Brief:	Carry out an individual tree survey within area specified by client, report on projected risk posed to persons and property, and make management recommendations where appropriate

Surveyor:	Dan Brown FdSc MArborA
Survey Dates:	17 & 21 July 2025
Viewing Conditions:	Bright conditions
Job Reference:	BTC3282

No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
G3	2no. Rowan	SM	≤ 4.5	≤ 150	≤ 5	M	- Located adjacent to footpath. - Slight dieback in canopy. - Both stems being constricted by rubber ties attached to tree stakes	Grounds maintenance staff to remove redundant tree stakes and ties around stems to prevent long term damage to stems.	P=Primary branches up to approximately 50mm diameter T = Persons using footpath	3	4	5	N/A	<1M	H
G4	4no. Common Hawthorn, 4no. Paper Birch, 1no. Mountain Ash	M	≤ 14	≤ 200	≤ 10	G	- Located adjacent to cemetery footpath - Canopies encroaching onto adjacent path	Tree contractor to prune applicable tree canopies to attain approximately 2.5m ground clearance over footpath (M).	P=Tertiary branches up to approximately 35mm diameter T = Persons using footpath	3	4	7	N/A	<1M	L
G5	6no. Sargent Cherry, 5no. Mountain Ash	EM	≤ 6	≤ 230	≤ 7	M	- Located on either side of cemetery footpath - Mountain Ash SE of group in moderate decline with significant bark stripping present. - Canopies of trees encroaching into footpath.	Tree contractor to prune applicable tree canopies to attain approximately 2.5m ground clearance over footpath (M).	P=Tertiary branches up to approximately 35mm diameter T = Persons using footpath	3	4	7	N/A	<1M	L
G6	3no. Wild Cherry	SM	≤ 15	≤ 250	≤ 5	G	- Three trees within woodland area adjacent to grassland and gravestones - Slender stems due to competition for light.	Tree contractor to prune group to reduce height of all three trees by approximately 3m to reduce risk of future stem failure over long term due to increasing loading on attenuated tree stems from top of stem.	P = Upper stem up to approximately 200mm stem diameter. T = Gravestones.	4	P	6	N/A	<1M	L

Site:	Whalley Wiswell & Barrow Cemetery, Clitheroe Road, Whalley, Lancashire, BB7 9AD
Client:	Whalley, Wiswell & Barrow Joint Burial Committee
Brief:	Carry out an individual tree survey within area specified by client, report on projected risk posed to persons and property, and make management recommendations where appropriate

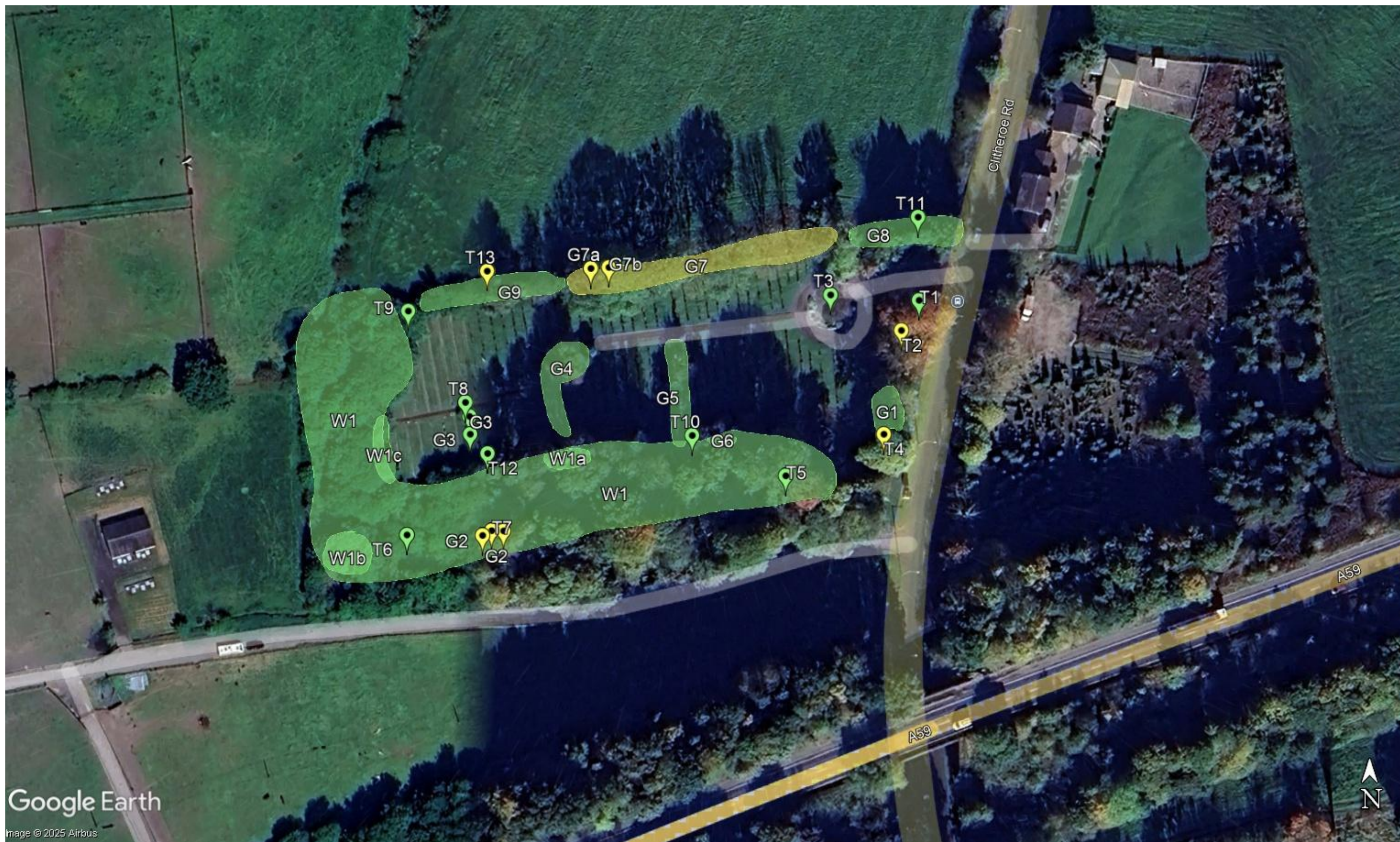
Surveyor:	Dan Brown FdSc MArborA
Survey Dates:	17 & 21 July 2025
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No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
G7	9no. Common Ash	M	≤ 18	≤ 650	≤ 22	G	- Group of trees along north boundary with canopies overhanging graves - Hedgerow restricting access for visual inspection of stems - Most trees showing signs of a reduction in vitality due to colonisation by ADD, with remaining canopy cover predominantly falling into Class 2. Stem shown as G7a - First tree along line of ash from west end. - Ash showing signs of a reduction in vitality due to colonisation by ADD, with remaining canopy cover falling into Class 3 Stem shown as G7b - Second tree along line of trees from west end. - First significant branch south has bark inclusion in Union to stem with gap showing. - Bark inclusion present at union of codominant stems at approximately 4m, with exudation of residue present at gap near bottom of crack.	- Tree contractor to prune tree to remove deadwood >35mm diameter over graves due to identified increased risk of failure and subsequent increased risk of damage to property. G7a – Remove tree due to increased risk of failure due to evident physiological decline. G7b - Remove tree, leaving standing stem of stem 2m due to increased risk of stem union failures. - Tree consultant to review group during Summer 2026 (i.e. when next in full leaf) to re-appraise physiological condition and make subsequent recommendations where appropriate.	P=Stem of tree up to approximately 450mm diameter. T = Gravestones.	4	P	3	N/A	300 K	M
G8	Lawson Cypress, Common Hawthorn, Common Ash, Common Horse Chestnut	M	≤ 18.5	≤ 650	≤ 12	G	- Located adjacent to cemetery entrance. - All stems covered in ivy, restricting visual inspection. - Canopies of trees along west extent overhanging into site leaving approximately 2m ground clearance.	Tree contractor to prune tree canopy to west to attain approximately 2.5m ground clearance over footpath (M).	P=Tertiary branches up to approximately 50mm diameter T = Persons using footpath and gate by entrance	3	4	6	N/A	<1M	L

Site:	Whalley Wiswell & Barrow Cemetery, Clitheroe Road, Whalley, Lancashire, BB7 9AD
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No.	Species	Age	Height (m)	Stem Diam. (mm)	Crown Spread (m)	Vitality	Comments	Management Recommendations	Risk Assessment Description (Part/Target)	Target	Size	P.O.F	Reduced Mass %	Risk Index	Work Priority
G9	Wild Cherry, Silver Birch	EM	≤ 14	≤ 500	≤ 10	G	- Trees along north boundary within hedgerow - Stems not accessible for visual inspection due to hedgerow - Canopies encroaching into site area	None.	P = Primary branches approximately 250mm diameter. T = Gravestones.	4	P	7	N/A	<1M	N/A
W1	Sycamore, Wild Cherry, Grey Alder, Common Ash, English Yew, Common Horse Chestnut	M	≤ 18	≤ 600	≤ 10	G	- Woodland area alongside beck. - Deadwood up to 50mm diameter over woodland path. - Pile of built up mown grass and debris around base of trees. - Large area of soil pile smothering stems of trees along extent of woodland Area shown as W1a- Deadwood up to 50mm diameter over bench and grassed area by graves. Area shown as W1b - Pile of built up mown grass and detritus around base of trees Area shown as W1c- Large area of soil pile smothering stems of trees along extent of woodland	- Tree contractor to prune applicable trees to remove deadwood >35mm diameter due to identified increased risk of failure, as part of schedule with other recommended tree works on site. W1a - Remove deadwood over 35mm diameter over bench and grassed area adjacent. W1b - Remove detritus build up from around tree stems to avoid build up of moisture and soil compaction. W1c - Remove spoil build up from around tree stems to avoid build up of soil compaction.	P = Deadwood up to approximately 50mm diameter T = Persons using footpath	3	4	3	50%	<1M	L



T = Individual Tree G = Group of Trees W = Woodland

- (Red) = Tree/Group/Woodland with Risk of Harm of 1/1,000 or greater
- (Orange) = Tree/Group/Woodland with Risk of Harm between 1/1,000 and 1/10,000
- (Yellow) = Tree/Group/Woodland with Risk of Harm between 1/10,000 and 1/1,000,000
- (Green) = Tree/Group/Woodland with Risk of Harm less than 1/1,000,000

* See QTRA Methodology Overview and Application in Management Decisions Section of Report for details regarding Risk of Harm

Site: Whalley, Wiswell and Barrow Cemetery, Whalley

Job No. BTC3282

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TREE SURVEY PLAN

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Quantified Tree Risk Assessment
Simply Balancing Risks With Benefits



Quantified Tree Risk Assessment **PRACTICE NOTE**

VERSION 5

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Quantified Tree Risk Assessment Practice Note

"When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind"

William Thomson, Lord Kelvin, Popular Lectures and Addresses [1891-1894]

1. INTRODUCTION

Every day we encounter risks in all of our activities, and the way we manage those risks is to make choices. We weigh up the costs and benefits of the risk to determine whether it is acceptable, unacceptable, or tolerable. For example, if you want to travel by car you must accept that even with all the extensive risk control measures, such as seat-belts, speed limits, airbags, and crash barriers, there is still a significant risk of death. This is an everyday risk that is taken for granted and tolerated by millions of people in return for the benefits of convenient travel. Managing trees should take a similarly balanced approach.

A risk from falling trees exists only if there is both potential for tree failure and potential for harm to result. The job of the risk assessor is to consider the likelihood and consequences of tree failure. The outcome of this assessment can then inform consideration of the risk by the tree manager, who may also be the owner.

Using a comprehensive range of values¹, Quantified Tree Risk Assessment (QTRA) enables the tree assessor to identify and analyse the risk from tree failure in three key stages. 1) to consider land-use in terms of vulnerability to impact and likelihood of occupation, 2) to consider the consequences of an impact, taking account of the size of the tree or branch concerned, and 3) to estimate the probability that the tree or branch will fail onto the land-use in question. Estimating the values of these components, the assessor can use the QTRA manual calculator or software application to calculate an annual Risk of Harm from a particular tree. To inform management decisions, the risks from different hazards can then be both ranked and compared, and considered against broadly acceptable and tolerable levels of risk.

A Proportionate Approach to Risks from Trees

The risks from falling trees are usually very low and high risks will usually be encountered only in areas with either high levels of human occupation or with valuable property. Where levels of human occupation and value of property are sufficiently low, the

assessment of trees for structural weakness will not usually be necessary. Even when land-use indicates that the assessment of trees is appropriate, it is seldom proportionate to assess and evaluate the risk for each individual tree in a population. Often, all that is required is a brief consideration of the trees to identify gross signs of structural weakness or declining health. Doing all that is reasonably practicable does not mean that all trees have to be individually examined on a regular basis (HSE 2013).

The QTRA method enables a range of approaches from the broad assessment of large collections of trees to, where necessary, the detailed assessment of an individual tree.

Risk of Harm

The QTRA output is termed the Risk of Harm and is a combined measure of the likelihood and consequences of tree failure, considered against the baseline of a lost human life within the coming year.

ALARP (As Low As Reasonably Practicable)

Determining that risks have been reduced to As Low As Reasonably Practicable (HSE 2001) involves an evaluation of both the risk and the sacrifice or cost involved in reducing that risk. If it can be demonstrated that there is gross disproportion between them, the risk being insignificant in relation to the sacrifice or cost, then to reduce the risk further is not 'reasonably practicable'.

Costs and Benefits of Risk Control

Trees confer many benefits to people and the wider environment. When managing any risk, it is essential to maintain a balance between the costs and benefits of risk reduction, which should be considered in the determination of ALARP. It is not only the financial cost of controlling the risk that should be considered, but also the loss of tree-related benefits, and the risk to workers and the public from the risk control measure itself.

When considering risks from falling trees, the cost of risk control will usually be too high when it is clearly 'disproportionate' to the reduction in risk. In the

¹ See Tables 1, 2 & 3.

context of QTRA, the issue of ‘gross disproportion’², where decisions are heavily biased in favour of safety, is only likely to be considered where there are risks of 1/10 000 or greater.

Acceptable and Tolerable Risks

The Tolerability of Risk framework (ToR) (HSE 2001) is a widely accepted approach to reaching decisions on whether risks are broadly acceptable, unacceptable, or tolerable. Graphically represented in Figure 1, ToR can be summarised as having a Broadly Acceptable Region where the upper limit is an annual risk of death 1/1 000 000, an Unacceptable Region for which the lower limit is 1/1 000, and between these a Tolerable Region within which the tolerability of a risk will be dependent upon the costs and benefits of risk reduction. In the Tolerable Region, we must ask whether the benefits of risk control are sufficient to justify their cost.

In respect of trees, some risks cross the Broadly Acceptable 1/1 000 000 boundary, but remain tolerable. This is because any further reduction would involve a disproportionate cost in terms of the lost environmental, visual, and other benefits, in addition to the financial cost of controlling the risk.

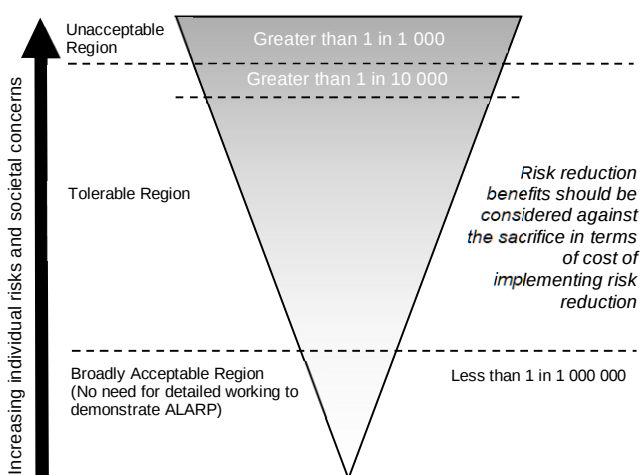


Figure 1. Adapted from the Tolerability of Risk framework (HSE 2001).

Value of Statistical Life

The Value of Statistical Life (VOSL), is a widely applied risk management device, which uses the value of a hypothetical life to guide the proportionate allocation of resources to risk reduction. In the UK, this value is currently in the region of £2 000 000, and this is the value adopted in the QTRA method.

In QTRA, placing a statistical value on a human life has two particular uses. Firstly, QTRA uses VOSL to

enable damage to property to be compared with the loss of life, allowing the comparison of risks to people and property. Secondly, the proportionate allocation of financial resources to risk reduction can be informed by VOSL. *“A value of statistical life of £1 000 000 is just another way of saying that a reduction in risk of death of 1/100 000 per year has a value of £10 per year”* (HSE 1996).

Internationally, there is variation in VOSL, but to provide consistency in QTRA outputs, it is suggested that VOSL of £2 000 000 should be applied internationally. This is ultimately a decision for the tree manager.

2. OWNERSHIP OF RISK

Where many people are exposed to a risk, it is shared between them. Where only one person is exposed, that individual is the recipient of all of the risk and if they have control over it, they are also the owner of the risk. An individual may choose to accept or reject any particular risk to themselves, when that risk is under their control. When risks that are imposed upon others become elevated, societal concern will usually require risk controls, which ultimately are imposed by the courts or government regulators.

Although QTRA outputs might occasionally relate to an individual recipient, this is seldom the case. More often, calculation of the Risk of Harm is based on a cumulative occupation – i.e. the number of people per hour or vehicles per day, without attempting to identify the individuals who share the risk.

Where the risk of harm relates to a specific individual or a known group of people, the risk manager might consider the views of those who are exposed to the risk when making management decisions. Where a risk is imposed on the wider community, the principles set out in the ToR framework can be used as a reasonable approach to determine whether the risk is ALARP.

3. THE QTRA METHOD - VERSION 5

The input values for the three components of the QTRA calculation are set out in broad ranges³ of Target, Size, and Probability of Failure. The assessor estimates values for these three components and inputs them on either the manual calculator or software application to calculate the Risk of Harm.

² Discussed further on page 5.

³ See Tables 1, 2 & 3.

Assessing Land-use (Targets)

The nature of the land-use beneath or adjacent to a tree will usually inform the level and extent of risk assessment to be carried out. In the assessment of Targets, six ranges of value are available. Table 2 sets out these ranges for vehicular frequency, human occupation and the monetary value of damage to property.

Human Occupation

The probability of pedestrian occupation at a particular location is calculated on the basis that an average pedestrian will spend five seconds walking beneath an average tree. For example, an average occupation of ten pedestrians per day, each occupying the Target for five seconds is a daily occupation of fifty seconds, giving a likelihood of occupation 1/1,728. Where a longer occupation is likely, as with a habitable building, outdoor café, or park bench, the period of occupation can be measured, or estimated as a proportion of a given unit of time, e.g. six hours per day (1/4). The Target is recorded as a range (Table 2).

Weather Affected Targets

Often the nature of a structural weakness in a tree is such that the probability of failure is greatest during windy weather, while the probability of the site being occupied by people during such weather is often low. This applies particularly to outdoor recreational areas. When estimating human Targets, the risk assessor must answer the question 'in the weather conditions that I expect the likelihood of failure of the tree to be initiated, what is my estimate of human occupation?' Taking this approach, rather than using the average occupation, ensures that the assessor considers the relationship between weather, people, and trees, along with the nature of the average person with their ability to recognise and avoid unnecessary risks.

Vehicles on the Highway

In the case of vehicles, likelihood of occupation may relate to either the falling tree or branch striking the vehicle or the vehicle striking the fallen tree. Both types of impact are influenced by vehicle speed; the faster the vehicle travels the less likely it is to be struck by the falling tree, but the more likely it is to strike a fallen tree. The probability of a vehicle occupying any particular point in the road is the ratio of the time it is occupied - including a safe stopping distance - to the total time. The average vehicle on a UK road is occupied by 1.6 people (DfT 2010). To account for the substantial protection that the average vehicle provides against most tree impacts and in particular, frontal collisions, QTRA values the substantially

protected 1.6 occupants in addition to the value of the vehicle as equivalent to one exposed human life.

Property

Table 1. Size

Size Range	Size of tree or branch	Range of Probability
1	> 450mm (>18") dia.	1/1 - >1/2
2	260mm (10½") dia. - 450mm (18") dia.	1/2 - >1/8.6
3	110mm (4½") dia. - 250mm (10") dia.	1/8.6 - >1/82
4	25mm (1") dia. - 100mm (4") dia.	1/82 - 1/2 500

* Range 1 is based on a diameter of 600mm.

Property can be anything that could be damaged by a falling tree, from a dwelling, to livestock, parked car, or fence. When evaluating the exposure of property to tree failure, the QTRA assessment considers the cost of repair or replacement that might result from failure of the tree. Ranges of value are presented in Table 2 and the assessor's estimate need only be sufficient to determine which of the six ranges the cost to select.

In Table 2, the ranges of property value are based on a VOSL of £2 000 000, e.g. where a building with a replacement cost of £20 000 would be valued at 0.01 (1/100) of a life (Target Range 2).

When assessing risks in relation to buildings, the Target to be considered might be the building, the occupants, or both. Occupants of a building could be protected from harm by the structure or substantially exposed to the impact from a falling tree if the structure is not sufficiently robust, and this will determine how the assessor categorises the Target.

Multiple Targets

A Target might be constantly occupied by more than one person and QTRA can account for this. For example, if it is projected that the average occupation will be constant by 10 people, the Risk of Harm is calculated in relation to one person constantly occupying the Target before going on to identify that the average occupation is 10 people. This is expressed as Target 1(10T)/1, where 10T represents the Multiple Targets. In respect of property, a Risk of Harm 1(10T)/1 would be equivalent to a risk of losing £20 000 000 as opposed to £2 000 000.

Tree or Branch Size

A small dead branch of less than 25mm diameter is not likely to cause significant harm even in the case of direct contact with a Target, while a falling branch with a diameter greater than 450mm is likely to cause some harm in the event of contact with all but the most robust Target. The QTRA method categorises

Size by the diameter of tree stems and branches (measured beyond any basal taper). An equation derived from weight measurements of trees of different stem diameters is used to produce a data set of comparative weights of trees and branches ranging from 25mm to 600mm diameter, from which Table 1 is compiled. The size of dead branches might be

discounted where they have undergone a significant reduction in weight because of degradation and shedding of subordinate branches. This discounting, referred to as 'Reduced Mass', reflects an estimated reduction in the mass of a dead branch.

Table 2. Targets

Target Range	Property (repair or replacement cost)	Human (not in vehicles)	Vehicle Traffic (number per day)	Ranges of Value (probability of occupation or fraction of £2 000 000)
1	£2 000 000 – >£200 000	Occupation: Constant – 2.5 hours/day Pedestrians & cyclists: 720/hour – 73/hour	26 000 – 2 700 @ 110kph (68mph) 32 000 – 3 300 @ 80kph (50mph) 47 000 – 4 800 @ 50kph (32mph)	1/1 – >1/10
2	£200 000 – >£20 000	Occupation: 2.4 hours/day – 15 min/day Pedestrians & cyclists: 72/hour – 8/hour	2 600 – 270 @ 110kph (68mph) 3 200 – 330 @ 80kph (50mph) 4 700 – 480 @ 50kph (32mph)	1/10 – >1/100
3	£20 000 – >£2 000	Occupation: 14 min/day – 2 min/day Pedestrians & cyclists: 7/hour – 2/hour	260 – 27 @ 110kph (68mph) 320 – 33 @ 80kph (50mph) 470 – 48 @ 50kph (32mph)	1/100 – >1/1 000
4	£2 000 – >£200	Occupation: 1 min/day – 2 min/week Pedestrians & cyclists: 1/hour – 3/day	26 – 4 @ 110kph (68mph) 32 – 4 @ 80kph (50mph) 47 – 6 @ 50kph (32mph)	1/1 000 – >1/10 000
5	£200 – >£20	Occupation: 1 min/week – 1 min/month Pedestrians & cyclists: 2/day – 2/week	3 – 1 @ 110kph (68mph) 3 – 1 @ 80kph (50mph) 5 – 1 @ 50kph (32mph)	1/10 000 – >1/100 000
6	£20 – £2	Occupation: <1 min/month – 0.5 min/year Pedestrians & cyclists: 1/week – 6/year	None	1/100 000 – 1/1 000 000

Vehicle, pedestrian and property Targets are categorised by their frequency of use or their monetary value. The probability of a vehicle or pedestrian occupying a Target area in Target Range 4 is between the upper and lower limits of 1/1 000 and >1/10 000 (column 5). Using the VOSL £2 000 000, the property repair or replacement value for Target Range 4 is £2 000 - >200.

Probability of Failure

In the QTRA assessment, the probability of tree or branch failure within the coming year is estimated and recorded as a range of value (Ranges 1 – 7, Table 3).

Selecting a Probability of Failure (PoF) Range requires the assessor to compare their assessment of the tree or branch against a benchmark of either a non-compromised tree at Probability of Failure Range 7, or a tree or branch that we expect to fail within the year, which can be described as having a 1/1 probability of failure.

During QTRA training, Registered Users go through a number of field exercises in order to calibrate their estimates of Probability of Failure.

Table 3. Probability of Failure

Probability of Failure Range	Probability
1	1/1 - >1/10
2	1/10 - >1/100
3	1/100 - >1/1 000
4	1/1 000 - >1/10 000
5	1/10 000 - >1/100 000
6	1/100 000 - >1/1 000 000
7	1/1 000 000 - 1/10 000 000

The probability that the tree or branch will fail within the coming year.

The QTRA Calculation

The assessor selects a Range of values for each of the three input components of Target, Size and Probability of Failure. The Ranges are entered on either the manual calculator or software application to calculate a Risk of Harm.

The Risk of Harm is expressed as a probability and is rounded, to one significant figure. Any Risk of Harm

that is lower than 1/1 000 000 is represented as <1/1 000 000. As a visual aid, the Risk of Harm is colour coded using the traffic light system illustrated in Table 4 (page 7).

Risk of Harm - Monte Carlo Simulations

The Risk of Harm for all combinations of Target, Size and Probability of Failure Ranges has been calculated using Monte Carlo simulations⁴. The QTRA Risk of Harm is the mean value from each set of Monte Carlo results.

In QTRA Version 5, the Risk of Harm should not be calculated without the manual calculator or software application.

Assessing Groups and Populations of Trees

When assessing populations or groups of trees, the highest risk in the group is quantified and if that risk is tolerable, it follows that risks from the remaining trees will also be tolerable, and further calculations are unnecessary. Where the risk is intolerable, the next highest risk will be quantified, and so on until a tolerable risk is established. This process requires prior knowledge of the tree manager's risk tolerance.

Accuracy of Outputs

The purpose of QTRA is not necessarily to provide high degrees of accuracy, but to provide for the quantification of risks from falling trees in a way that risks are categorised within broad ranges (Table 4).

4. INFORMING MANAGEMENT DECISIONS

Balancing Costs and Benefits of Risk Control

When controlling risks from falling trees, the benefit of reduced risk is obvious, but the costs of risk control are all too often neglected. For every risk reduced there will be costs, and the most obvious of these is the financial cost of implementing the control measure. Frequently overlooked is the transfer of risks to workers and the public who might be directly affected by the removal or pruning of trees. Perhaps more importantly, most trees confer benefits, the loss of which should be considered as a cost when balancing the costs and benefits of risk control.

When balancing risk management decisions using QTRA, consideration of the benefits from trees will usually be of a very general nature and not require detailed consideration. The tree manager can consider, in simple terms, whether the overall cost of risk control is a proportionate one. Where risks are

approaching 1/10 000, this may be a straightforward balancing of cost and benefits. Where risks are 1/10 000 or greater, it will usually be appropriate to implement risk controls unless the costs are grossly disproportionate to the benefits rather than simply disproportionate. In other words, the balance being weighted more on the side of risk control with higher associated costs.

Considering the Value of Trees

It is necessary to consider the benefits provided by trees, but they cannot easily be monetised and it is often difficult to place a value on those attributes such as habitat, shading and visual amenity that might be lost to risk control.

A simple approach to considering the value of a tree asset is suggested here, using the concept of 'average benefits'. When considered against other similar trees, a tree providing 'average benefits' will usually present a range of benefits that are typical for the species, age and situation. Viewed in this way, a tree providing 'average benefits' might appear to be low when compared with particularly important trees – such as in Figure 2, but should nonetheless be sufficient to offset a Risk of Harm of less than 1/10 000. Without having to consider the benefits of risk controls, we might reasonably assume that below 1/10 000, the risk from a tree that provides 'average benefits' is ALARP.

In contrast, if it can be said that the tree provides lower than average benefits because, for example, it is declining and in poor physiological condition, it may be necessary to consider two further elements. Firstly, is the Risk of Harm in the upper part of the Tolerable Region, and secondly, is the Risk of Harm likely to increase before the next review because of an increased Probability of Failure. If both these conditions apply then it might be appropriate to consider the balance of costs and benefits of risk reduction in order to determine whether the risk is ALARP. This balance requires the tree manager to take a view of both the reduction in risk and the costs of that reduction.

⁴ For further information on the Monte Carlo simulation method, refer to http://en.wikipedia.org/wiki/Monte_Carlo_method



Lower Than Average Benefits from Trees

Usually, the benefits provided by a tree will only be significantly reduced below the 'average benefits' that are typical for the species, age and situation, if the life of the benefits is likely to be shortened, perhaps because the tree is declining or dead. That is not to say that a disbenefit, such as undesirable shading, lifting of a footpath, or restricting the growth of other trees, should not also be considered in the balance of costs and benefits.

The horse chestnut tree in Figure 3 has recently died, and over the next few years, may provide valuable habitats. However, for this tree species and the relatively fast rate at which its wood decays, the lifetime of these benefits is likely to be limited to only a few years. This tree has an already reduced value that will continue to reduce rapidly over the coming five to ten years at the same time as the Risk of Harm is expected to increase. There will be changes in the benefits provided by the tree as it degrades. Visual qualities are likely to reduce while the decaying wood provides habitats for a range of species, for a short while at least. There are no hard and fast measures of these benefits and it is for the tree manager to decide what is locally important and how it might be balanced with the risks.

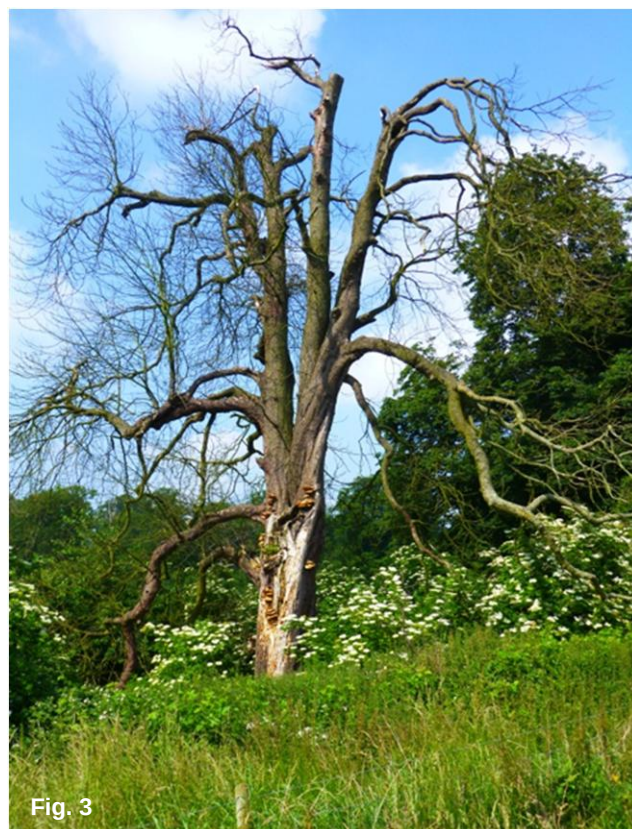
Where a risk is within the Tolerable Region and the tree confers lower than average benefits, it might be appropriate to consider implementing risk control while taking account of the financial cost. Here, VOSL can be used to inform a decision on whether the cost of risk control is proportionate. Example 3 below puts this evaluation into a tree management context.

There will be occasions when a tree is of such minimal value and the monetary cost of risk reduction so low that it might be reasonable to further reduce an

already relatively low risk. Conversely, a tree might be of such considerable value that an annual risk of death greater than 1/10 000 would be deemed tolerable.

Occasionally, decisions will be made to retain elevated risks because the benefits from the tree are particularly high or important to stakeholders, and in these situations, it might be appropriate to assess and document the benefits in some detail. If detailed assessment of benefits is required, there are several methodologies and sources of information (Forest Research 2010).

Delegating Risk Management Decisions



Understanding of the costs with which risk reduction is balanced can be informed by the risk assessor's knowledge, experience and on-site observations, but the risk management decisions should be made by the tree manager. That is not to say that the tree manager should review and agree every risk control measure, but when delegating decisions to surveyors and other staff or advisors, tree managers should set out in a policy, statement or contract, the principles and perhaps thresholds to which trees and their associated risks will ordinarily be managed.

Based on the tree manager accepting the principles set out in the QTRA Practice Note and or any other specific instructions, the risk assessor can take account of the cost/benefit balance and for most situations will

be able to determine whether the risk is ALARP when providing management recommendations.

Table 4. QTRA Advisory Risk Thresholds

Thresholds	Description	Action
1/1,000	Unacceptable Risks will not ordinarily be tolerated	Control the risk
	Unacceptable (where imposed on others) Risks will not ordinarily be tolerated	- Control the risk - Review the risk
	Tolerable (by agreement) Risks may be tolerated if those exposed to the risk accept it, or the tree has exceptional value	- Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value - Review the risk
1/10 000	Tolerable (where imposed on others) Risks are tolerable if ALARP	- Assess costs and benefits of risk control - Control the risk only where a significant benefit might be achieved at reasonable cost - Review the risk
1/1 000 000	Broadly Acceptable Risk is already ALARP	- No action currently required - Review the risk

QTRA Informative Risk Thresholds

The QTRA advisory thresholds in Table 4 are proposed as a reasonable approach to balancing safety from falling trees with the costs of risk reduction. This approach takes account of the widely applied principles of ALARP and ToR, but does not dictate how these principles should be applied. While the thresholds can be the foundation of a robust policy for tree risk management, tree managers should make decisions based on their own situation, values and resources. Importantly, to enable tree assessors to provide appropriate management guidance, it is helpful for them to have some understanding of the tree owner’s management preferences prior to assessing the trees.

A Risk of Harm that is less than 1 / 1 000 000 is Broadly Acceptable and is already ALARP. A Risk of Harm 1/1 000 or greater is unacceptable and will not ordinarily be tolerated. Between these two values, the Risk of Harm is in the Tolerable Region of ToR and will be tolerable if it is ALARP. In the Tolerable Region, management decisions are informed by

consideration of the costs and benefits of risk control, including the nature and extent of those benefits provided by trees, which would be lost to risk control measures.

For the purpose of managing risks from falling trees, the Tolerable Region can be further broken down into two sections. From 1 / 1 000 000 to less than 1 / 10 000, the Risk of Harm will usually be tolerable providing that the tree confers ‘average benefits’ as discussed above. As the Risk of Harm approaches 1 / 10 000 it will be necessary for the tree manager to consider in more detail the benefits provided by the tree and the overall cost of mitigating the risk.

A Risk of Harm in the Tolerable Region but 1 / 10 000 or greater will not usually be tolerable where it is imposed on others, such as the public, and if retained, will require a more detailed consideration of ALARP. In exceptional circumstances a tree owner might choose to retain a Risk of Harm that is 1 / 10 000 or greater. Such a decision might be based on the agreement of those who are exposed to the risk, or perhaps that the tree is of great importance. In these circumstances, the prudent tree manager will consult with the appropriate stakeholders whenever possible.

5. EXAMPLE QTRA CALCULATIONS AND RISK MANAGEMENT DECISIONS

Below are three examples of QTRA calculations and application of the QTRA Advisory Thresholds.

Example 1.

	Target		Size		Probability of Failure		Risk of Harm
Range	6	x	1	x	3	=	<1 / 1 000 000

Example 1 is the assessment of a large (Size 1), unstable tree with a probability of failure of between 1 / 100 and >1 / 1 000 (PoF 3). The Target is a footpath with less than one pedestrian passing the tree each week (Target 6). The Risk of Harm is calculated as less than 1 / 1 000 000 (green). This is an example of where the Target is so low consideration of the structural condition of even a large tree would not usually be necessary.

Example 2.

	Target	Size	Probability of Failure	Risk of Harm
Range	1	x	4	x
			3	=
				1(2T)/50 000

In Example 2, a recently dead branch (Size 4) overhangs a busy urban high street that is on average occupied constantly by two people, and here Multiple Target occupation is considered.

Having an average occupancy of two people, the Risk of Harm 1(2T)/50 000 (yellow) represents a twofold increase in the magnitude of the consequence and is therefore equivalent to a Risk of Harm 1/20 000 (yellow). This risk does not exceed 1/10 000, but being a dead branch at the upper end of the Tolerable Region it is appropriate to consider the balance of costs and benefits of risk control. Dead branches can be expected to degrade over time with the probability of failure increasing as a result. Because it is dead, some of the usual benefits from the branch have been lost and it will be appropriate to consider whether the financial cost of risk control would be proportionate.

Example 3.

	Target	Size	Probability of Failure	Risk of Harm
Range	3	x	3	x
			3	=
				1/500 000

In Example 3, a 200mm diameter defective branch overhangs a country road along which travel between 470 and 48 vehicles each day at an average speed of 50kph (32mph) (Target Range 3). The branch is split and is assessed as having a probability of failure for the coming year of between 1/100 and 1/1 000 (PoF Range 3). The Risk of Harm is calculated as 1/500 000 (yellow) and it needs to be considered whether the risk is ALARP. The cost of removing the branch and reducing the risk to Broadly Acceptable (1/1 000 000) is estimated at £350. To establish whether this is a proportionate cost of risk control, the following equation is applied. £2 000 000 (VOSL) x 1/500 000 = £4 indicating that the projected cost of £350 would be disproportionate to the benefit. Taking account of the financial cost, risk transfer to arborists and passers-by, the cost could be described as being grossly disproportionate, even if accrued benefits over say ten years were taken into account.

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