

ARBORICULTURAL DEVELOPMENT REPORT

**ON TREES LOCATED ON AND ADJACENT TO
TRACK OF PROPOSED NEW DRIVE TO PROPOSED RETREAT CENTRE
AT STONYHURST COLLEGE.**

(Ammended Drive location)

FOR

Stonyhurst College

(Via Lawrence McBurney of Cassidy and Ashton)

November 2016

**TREE CHECK LTD
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TEL: 01772 621435

CLIENT: The Trustees of Stonyhurst Christian Heritage Centre Trust via Cassidy and Ashton Architects.

SITE: Stonyhurst College, Clitheroe, Lancashire

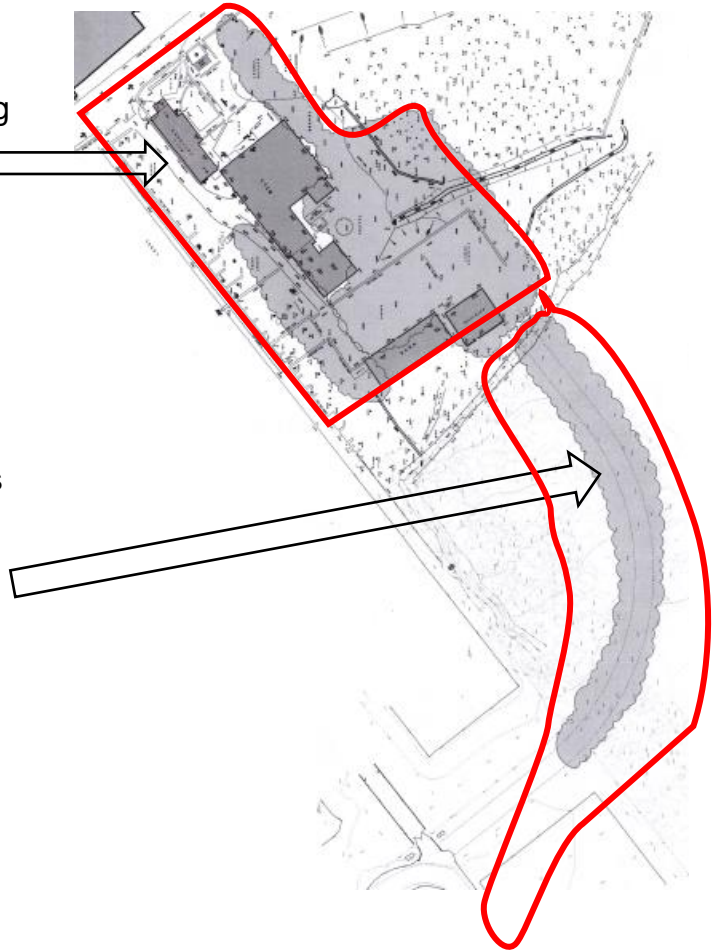
REMIT

1. The report concentrates on the tree retention/removal issues arising from proposals to construct a new access road through existing woodland Area B below to the Proposed Retreat Centre and associated facilities.
2. We are advised that the form of road construction will involve the removal of spoil, the provision of a drained and stable conventional road surface and retention kerb and surfacing in tarmac to be able to accommodate heavy construction plant, visitor vehicles and bus transport as the retreat facilities develop over time. The width of the road will be 5.5m and the retained grass verges to be 2m giving a total construction width of 9.5m. The overall road length through the woodland from P1 to P14 will be 125m and cover a construction area of 1,187.5m²
3. The Report should be read in conjunction with the attached Outline Tree Survey Schedule and Constraints Plan which identifies those trees and tree species to be removed, or pruned and retained. The Tree Survey has been completed in the context of BS 5837 (2012) Trees in Relation to Design, Demolition and Construction.
4. The subsequent detailed report will identify where required, the ways that any retained trees can be protected during the construction process and will indicate the method statements required to cover tree protection work during the build phase. If required these more detailed guides will be prepared later for use by the contractor and as a condition of the Planning Permission.

SITE AND SUMMARY

1. The overall site layout is as below:

- Area A. Close to buildings existing within the site,
- Area B, (Part of Fox Fall Wood) is primarily deciduous woodland through which the access road is proposed



2. All trees meet the size requirements for consideration and have been graded under the British standard rating referred to in BS 5837 (2012). Some of the trees have a root location and canopy spread which are directly within the proposed road and verge width and others have a root protection zone which extends into the road development area.

3. The overall conclusion of the report is that:

- The woodland areas impacted by the proposed road development are already in need of Woodland management, drainage improvements and compensatory woodland edge planting has been recommended
- The proposed roadway will be screened by the mature planting along the woodland edge to the North and west against the ornamental lake
- While several grade A and B trees will be lost within the wood as part of the road construction the amenity loss when seen from the main drive will not be great.

REPORT REMIT AND SUPPLIED DATA.

1. The purpose of the survey was to report on the implications for continued existing tree growth bearing in mind the proposed building developments on site and to report on the impact of the proposed development on the treescape. All tree locations have been plotted on a plan provided by the client. Individual Trees have been referred to by species and a tag number on the plan and the schedule.
2. We are advised that the trees are not covered by a Tree Preservation Order or a Conservation Area Order but a part of the proposed drive area has been designated as Parks and Gardens and as a part of a historic garden. No doubt a valuation of amenity loss would be part of the planning process and a Forestry Commission Felling licence may be required in the event of significant tree removal. A woodland management plan for Fox Fall Wood has been prepared and presented as part of the development proposal
3. The Survey and report should be seen within the context of the wider planning process. Other specialisms including ecological and highways advice may also inform a final constraints plan. We understand that the Bat Survey will use the tag numbered tree plan to identify potential bat roosts and feeding zones
4. Subject to the clients and Planning Authorities requirements the development may involve the Consulting Arborist beyond the planning permission stage to the build and Tree protection process. The attached appendix (Fig 1. The Design and Construction process and tree care) shows the likely points of involvement.

THE SURVEYOR

I am Ken Linford, a consulting arborist, trained in Quantified Tree Risk Assessment, application of BS 5837 (2012) and Tree Defect identification. I have experience as a treecare contractor for more than 25 years and have been providing a consulting service for Local Councils, private persons and architects for 15 years. My CPD record is open to inspection if required. I am covered by PI insurance by AXA Insurance Brokers.

TREE SURVEY CONDITIONS

Because of changes in the remit and drive location several site visits were carried in May, June and October 2016. Conditions were dry and clear but intermittent wet weather demonstrated the water holding capacity of the ground and the lack of adequate drainage. The trees were in full leaf and later in a dormant state. The trees were not climbed but the situation was viewed from ground level. Visual Tree Assessment Techniques was used throughout and hammer tests and fine drill tests were used where required to determine trunk integrity and the extent of any decay.

TREE SURVEY OF AREA B

1. The attached schedule lists and rates the trees. We are not aware if any further tree protection measures beyond that already known have been enacted by the Local Authority.
2. The Trees are rated as per BS 5837 (2012). The trees are identified by numbers on the plan and on the schedule. Tag numbers have been placed on the trees 283-345. The plan also shows the locations of Posts 1-14 giving the rough centre line of the road to enable easier tree location identification at this development evaluation stage.
3. The trees selected for survey are located both within the Black dashed line on the plan being the width of the road and verge and those between the black dashed line and the outer zone within the red dashed line. This second group of trees are those whose size and root protection zone would act as a constraint to the development and where tree protection fencing will be appropriate or where tree loss cannot be avoided because of the collateral root zone damage caused by the road construction system.
4. In the circumstances it was deemed **inappropriate** to attempt adjust the line of the road to avoid the removal of trees as the line of the road has to be straight or a regular curve for traffic to negotiate. Any changing of the road angle would only bring the loss of different trees into question.
5. There is evidence of past crop planting of Norwegian Spruce and larch but much evidence of incipient windthrow and no evidence of ongoing woodland management.
6. The dominant species within the woodland is alder followed by young ash and birch. The alder has readily developed coppice and basal growth and has responded to the wet conditions. The area is scattered with windthrows of spruce, alder and birch with shallow root plates uplifted and with the exposed water table showing below.

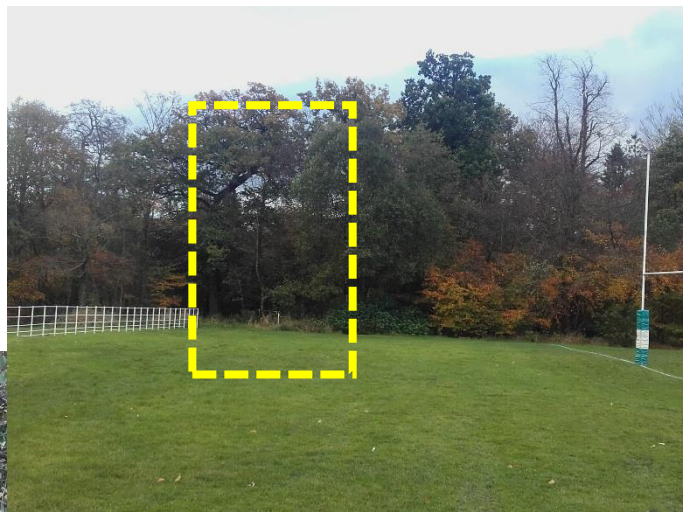


7. Fox Fall Wood appears to have a 20m deep margin of mature deciduous trees which will act as a screen to the proposed roadway.



8. The ground level of the woodland drops by 2m from the road entrance into the woodland towards the drainage stream shown on the plan and where ground conditions further deteriorate. A stagnant pond was identified to the south east which was fed by a stream coming from the mill complex possibly acting as a relief for excess water in the bunded canals on either side of the main drive.
9. The following Photographs show the views in close proximity to some of the Marker posts P1-14

P1 Entrance of road into woodland and as viewed from existing drive:



P2/3/4 Showing young regrowth and old windthrow to left



P8/9 showing young regrowth close to past windthrows



P10 Showing ground dropping away towards stream



P11/12/13 showing young ash and beech regrowth



P9 showing open ground and windthrow gaps before stream

P14 Showing last post with stream side trees and existing building beyond



TREE CONDITION REPORT
ON TREES AT STONYHURST COLLEGE RETREAT DRIVE

DATE: October 2016 **WEATHER CONDITIONS:** Wet and clear **INSPECTOR CODE:** KL
TREE No. RANGE: 283-345

TREE No.	SPECIES	HGT (M)	DBH mm	CANOPY SPREAD n s e w	CANOPY CLEARANCE	AGE Y, EM,M LM	GENERAL CONDITION	VIG G/F/P	WORK RECC FOR MANAGEMENT	S U L E	RPA RADIUS (m)	BS 5837 RATING
283	Birch (5)	7	140x5	2	1	EM	Poor , some dieback, suppressed	F	Remove to facilitate road	20	4 72m ²	C
284	Birch	6	140	5	-	EM	Poor. Squirrel damage, some dieback.	P	Remove to facilitate road	20	1.8 10m ²	C
285	Sycamore	15	380	3	6	M	Poor	P	Remove to facilitate road	40		U
286	Birch	8	150	3	4	EM	Poor form, Suppressed	F	Remove to facilitate road	40	1.8 10m ²	C
288	Goat Willow	16	460	2	2	M	Vigorous, suppressed on one side	G	Remove to facilitate road	20	5.5 94m ²	C
289	Alder	15	170	3	5	EM	Good. suppressed	G	Retain and Protect rootzone	30	2 12m ²	C
291	Oak	20	490	6	3	M	Good, slight dieback and lower ext growth. Co dom forks	F	Remove to facilitate road	40	6 113m ²	B
292	Alder	15	180	3	1	EM	Fair. Suppressed under 291	G	Remove to facilitate road	30	2.15 15m ²	C

TREE No.	SPECIES	HGT (M)	DBH mm	CANOPY SPREAD n s e w	CANOPY CLEARANCE	AGE Y, EM, M LM	GENERAL CONDITION	VIG G/F/P	WORK RECC FOR MANAGEMENT	S U L E	RPA RADIUS (m)	BS 5837 RATING
295	Sycamore	10	170	4	3	EM	Squirrel damage	G	Retain and Protect rootzone	30	2 13m ²	C
296	Oak	18	680	7	3	M	Good, butt and root plate sound, slight dieback. Stem twist and slight lean to east	G	Remove to facilitate Road	40	8.2 210m ²	A
297	Copper Beech	14	240	5	1	EM	Good but suppressed. Slight squirrel damage	G	Remove to facilitate road	20	3 28m ²	C
298	Beech	11	200	3	-	EM	Good but suppressed. Slight squirrel damage	G	Retain and Protect rootzone	30	2.4 18m ²	C
299	Alder	18	360	3	2	M	Good	G	Remove to facilitate road	30	4.3 60m ²	C
300	Beech	10	240	5	-	EM	Fair, damaged leader. Squirrel damage	G	Retain and Protect rootzone	30	3 28m ²	C
301	Birch	12	150	4	5	M	Fair, poor form	G	Remove to facilitate road	20	1.8 10m ²	C
302	Alder	20	510	5	2	LM	Good old coppice with regrowth	G	Protect rootzone and retain	30	6.1 117m ²	B
303	Ash	18	320	5	5	M	Good, slight sup. from alder	G	Protect rootzone and retain	40	3.8 45m ²	B
304	Alder	18	200	2	2	EM	Poor, thin canopy, spruce wind throw	F	Remove to facilitate road	20		U
305	Alder	20	400	4	5	M	Fair, sparce canopy	F	Remove to facilitate road	30	4.8 72m ²	C
306	Alder	18	290	3	2	M/EM	Good	G	Protect rootzone	30	3.5 38m ²	B
307	Birch	18	330	5	7	M	Good, some stress reiteration growth	G	Remove to facilitate road	20	4 50m ²	B

TREE No.	SPECIES	HGT (M)	DBH mm	CANOPY SPREAD n s e w	CANOPY CLEARANCE	AGE Y, EM, M LM	GENERAL CONDITION	VIG G/F/P	WORK RECC FOR MANAGEMENT	S U L E	RPA RADIUS (m)	BS 5837 RATING
308	Beech	15	200	5	2	EM	Good but with squirrel damage and Spruce hang up	G	Protect rootzone	20	2.4 18m ²	C
309	Beech	16	200	5	1	EM	Good but with squirrel damage	G	Protect rootzone	25	2.4 18m ²	C
310	Beech	15	150	4	3	EM	Good but with squirrel damage	G	Protect rootzone	25	1.8 10m ²	C
311	N Spruce	22	430	5	10	M	Good	G	Protect rootzone	20	5.15 85m ²	B
312	N Spruce	22	480	4	4	M	Good	G	Protect rootzone	20	5.8 106m ²	B
313	N Spruce	20	340	4	6	M	Good	G	Protect rootzone	20	4 50m ²	B
314	N Spruce	22	490	3	5	M	Good	G	Remove to facilitate road	20	6 113m ²	B
315	Sycamore	16	310	4	2	EM	Good, slight squirrel damage	F	Remove to facilitate road	25	3.7 42m ²	C
316	Oak	18	500	7	2	M	Good, stem internal decay at 5m Past damage to blown out leader	G	Protect rootzone	40	6 113m ²	B
317	N Spruce	22	410	3	5	M	Good but compromising 216 and 318	G	Remove to facilitate road	20	4.95 76m ²	C
318	Ash	20	180	5	5	EM	Fair/good	G	Remove to facilitate road	30	2.2 15m ²	C
319	Alder	20	320	4	6	M	Good	G	Remove to facilitate road	30	3.85 47m ²	B

TREE No.	SPECIES	HGT (M)	DBH mm	CANOPY SPREAD n s e w	CANOPY CLEARANCE	AGE Y, EM,M LM	GENERAL CONDITION	VIG G/F/P	WORK RECC FOR MANAGEMENT	S U L E	RPA RADIUS (m)	BS 5837 RATING
320	Birch	18	200	4	4	EM	Significant squirrel damage Leader lost	F	Remove to facilitate road	15		U
321	Sycamore	20	560	5	4	M	Good but slight RPL. Risk of WT to East, Past wind damage	F	Protect rootzone	30	6.7 140m2	C
322	Sycamore	15	210	4	4	EM	Good	G	Protect rootzone	40	2.5 20m2	A
323	Alder	18	400	5	6	M	Good	G	Protect rootzone	30	4.8 72m2	A
324	Alder	18	590	5	4	M/LM	Good, Large epicormic	G	Protect rootzone	30	7 160m2	A
325	Alder	16	480	4	5	M	Good, epicormic	G	Protect rootzone	30	5.8 106m2	B
326	Alder	18	490	3	3	LM	Good, epicormics, lean to east	G	Remove to facilitate road	30	7 160m2	B
327	Alder	18	370	4	7	LM	Fair, past windthrow damage	G	Protect rootzone	30	4.4 62m2	B
328	Alder	18	450	4	7	LM	Good	G	Remove to facilitate road	30	5.4 92m2	B
329	Oak	14	180	8	6	EM	Fair, poor form. Bifocated fork. Branch failure over road line expected	G	Remove to facilitate road	10	2.2 15m2	C
330	Sycamore	15	320+ 220	4	3	M	Good twin stemmed from.5m	G	Protect rootzone	30	6 113	A
331	Oak	13	160	3	2	EM	Good. Fastigiated. Lost leader	G	Protect rootzone	30	1.9 12m2	B

TREE No.	SPECIES	HGT (M)	DBH mm	CANOPY SPREAD n s e w	CANOPY CLEARANCE	AGE Y, EM, M LM	GENERAL CONDITION	VIG G/F/P	WORK RECC FOR MANAGEMENT	S U L E	RPA RADIUS (m)	BS 5837 RATING
332	Ash	16	210	3	6	EM	Good, Fastigate, slight stem canker	G	Protect rootzone	30	2.5 20m2	B
333	Alder	18	320+ 310+ 250	5	5	LM	Good triple stem, On stream bank	G	Protect rootzone	30	10 310m2	B
334	Sycamore	12	260	4	6	EM	Fair, leader dieback	F	Remove to facilitate road	20	3 28m2	C
335	Alder	18	260	4	6	M	Good Twin stem from .5m	G	Remove to facilitate road	30	3 28m2	B
336	Sycamore	12	150	4	2	EM	Poor, bark damage and leader loss	F	Remove to facilitate road	10		U
337	Sycamore	16	230	4	3	EM	Good. Co-dom fork at 3m. Past branch loss	G	Remove to facilitate road	20	2.75 24m2	C
338	Oak	15	260	6	3	EM	Good, suppressed to north	G	Remove to facilitate road	20	3 28m2	C
339	Oak	13	330	4	4	EM	Fair, past stem fracture	F	Remove to facilitate road	20	4 50m2	C
340	N. Spruce	22	540	3	4	M	Good	G	Protect rootzone	20	6.5 130m2	B
341	N. Spruce	22	510	4	4	M	Good	G	Protect rootzone	20	6 113m2	B
342	Sycamore	16	180	3	2	EM	Fair, co-dom stems	G	Remove to facilitate road	20		U
343	Alder	18	310	4	8	M	Fair. Long stem poor HD ratio		Remove to facilitate road	20	3.75 45m2	C
344	Oak	18	210	2	5	EM	Long stem, suppressed		Remove to facilitate road	20	2.5 20m2	C
345	Oak	20	270	5	7	EM	Long stem, suppressed. Bark damage from windthrow		Remove to facilitate road	20	3.2 32m2	C

Analysis of Tree grade and actual loss by species: (Trees lost within road track)

Species	No.	Mature/ LM	EM/Y	Grade A	Grade B	Grade C	Grade U
<i>Alder</i>	5	4	1		1	4	
<i>Oak</i>	4	1	3	1		3	
<i>Sycamore</i>	5	1	4	1		3	1
<i>Beech</i>	1		1			1	
<i>Spruce</i>	1	1			1		
<i>Birch</i>	4	2	2		1	3	
<i>Total</i>	20	9	11	2	3	14	1

The appendix Table1 shows a Cascade chart used for Tree Quality Assessment.

Analysis of Tree grade and potential loss by species: (Peripheral trees root damaged by conventional road construction)

Species	No.	Mature/ LM	EM/Y	Grade A	Grade B	Grade C	Grade U
<i>Alder</i>	4	2	2		2	1	1
<i>Oak</i>	3	1	2		1	2	
<i>Sycamore</i>	2		2			2	1
<i>Beech</i>	1		1			1	
<i>Spruce</i>	1	1				1	
<i>Ash</i>	1		1			1	
<i>Birch</i>	6		6			5	1
<i>Goat Willow</i>	1	1				1	
<i>Total</i>	19	5	14		3	13	3

Interpretation of species breakdown and potential tree losses

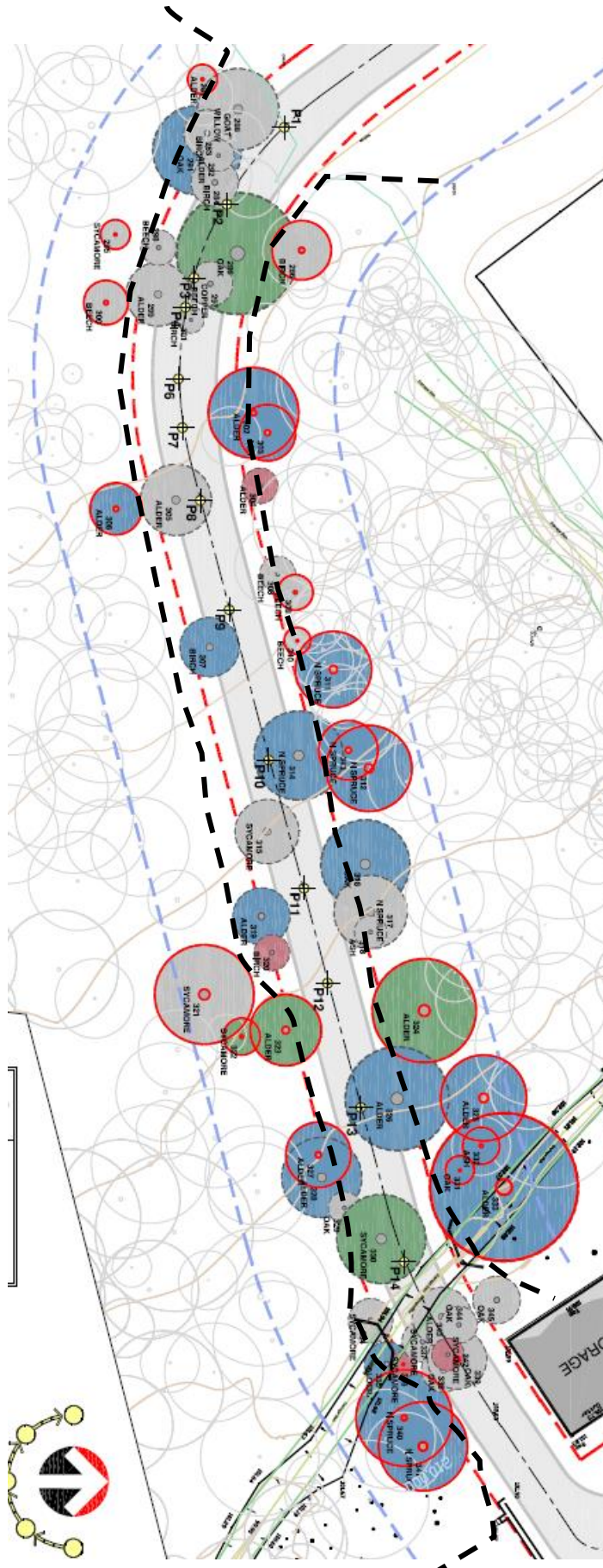
1. The first distribution sheet above shows the trees growing in the track of the road and verge the loss of which is inevitable. The dominant species is alder with some oak. Only a quarter of the trees lost are grade A and B rated. As the site plan shows (Attached Pdf) the road passes through some open section of the wood coinciding with poor ground and past windthrows.
2. The second distribution sheet shows the tree losses by expected collateral damage by conventional systems of road construction which will involve removal of soil and subsoil down to 700mm, culvert work to provide for existing drains to be improved and concrete kerbs set with concrete haunchings. Material movement in and out of site may exceed 2,000 tons of spoil and imported material involving the use of a tracked machine with a wide swing, dumpers and compaction rollers. The calculated tree loss is of trees shown within the red dashed line on the plan and some larger trees where the construction work will impact on the root zone areas.
3. A mitigation of this loss could be achieved by the individual protection of some of the larger trees furthest from the road and shown on the plan as being protected by RPA fencing and the retention where possible of young trees often with less than 75mm girth diameter which will contribute to the regeneration of the new proposed woodland edge.

Initial consideration has been given to the use of a protected surface road using a product such as Celweb by Geosynthetics Ltd.

- *This type of road construction involves a minimal excavation, far less material movement and the retention of existing and occupied root zones*
- *This is protected by a load spreading surface above which the road surface is run.*
- *A meeting of their structural engineer and the architects has taken place and further data including CBR values may be gathered. Large parts of the proposed line of construction shows standing water and the view has been taken that the existing CBR ratio will be very low.*
- *Subject to the Protected Surface solution being viable in this environment the collateral damage to trees might be reduced.*

TREE LOCATIONS AND ROOT PROTECTION ZONES (Also See attached Pdf Plan)

Proposed line of protection fencing as below in DASHED black



REMOVAL/RETENTION PROPOSALS AND COMPENSATORY PLANTING

1. The removal of the trees in the line of the road and to the sides will expose remaining trees to wind and they will lack the canopy support of other trees as prior to the works.
2. To reduce the likelihood of wind damage a verge and woodland edge planting extending back from the road edge by 7m should be developed retaining young trees which have not been root damaged plus a planting of further shrubs and small trees.
3. The woodland edge will also have a high ecological value and bio-diversity encouraged wildlife
4. **Cell grown stock** should be planted within Tree Shelters at 2m centres with the species used being able to be coppiced on a cycle basis once mature. Hazel, Buddlia, Blackthorn, Dog Rose, Goat Willow, Holly, Sweet Chestnut and Dogwood should form part of the species mix.
5. The woodland edge planting should take place in the November to March period and checked and maintained and gapped up over the following three years with selective coppicing after 10 years.
6. Given the open spaces within Fox Fall Wood some improvements to drainage outfalls and woodland replanting should take place as part of a woodland management scheme. This might involve the draining of the collection pond in the southern section of the woodland. A Continuous Cover Forestry style approach has been detailed in the already prepared Woodland management Plan as requested by the Local Authority Tree Officer. The Woodland Management plan notes the potential to create a walking route within the woodland consistent with the ethos of the Retreat Centre

TREE PROTECTION DURING THE BUILD

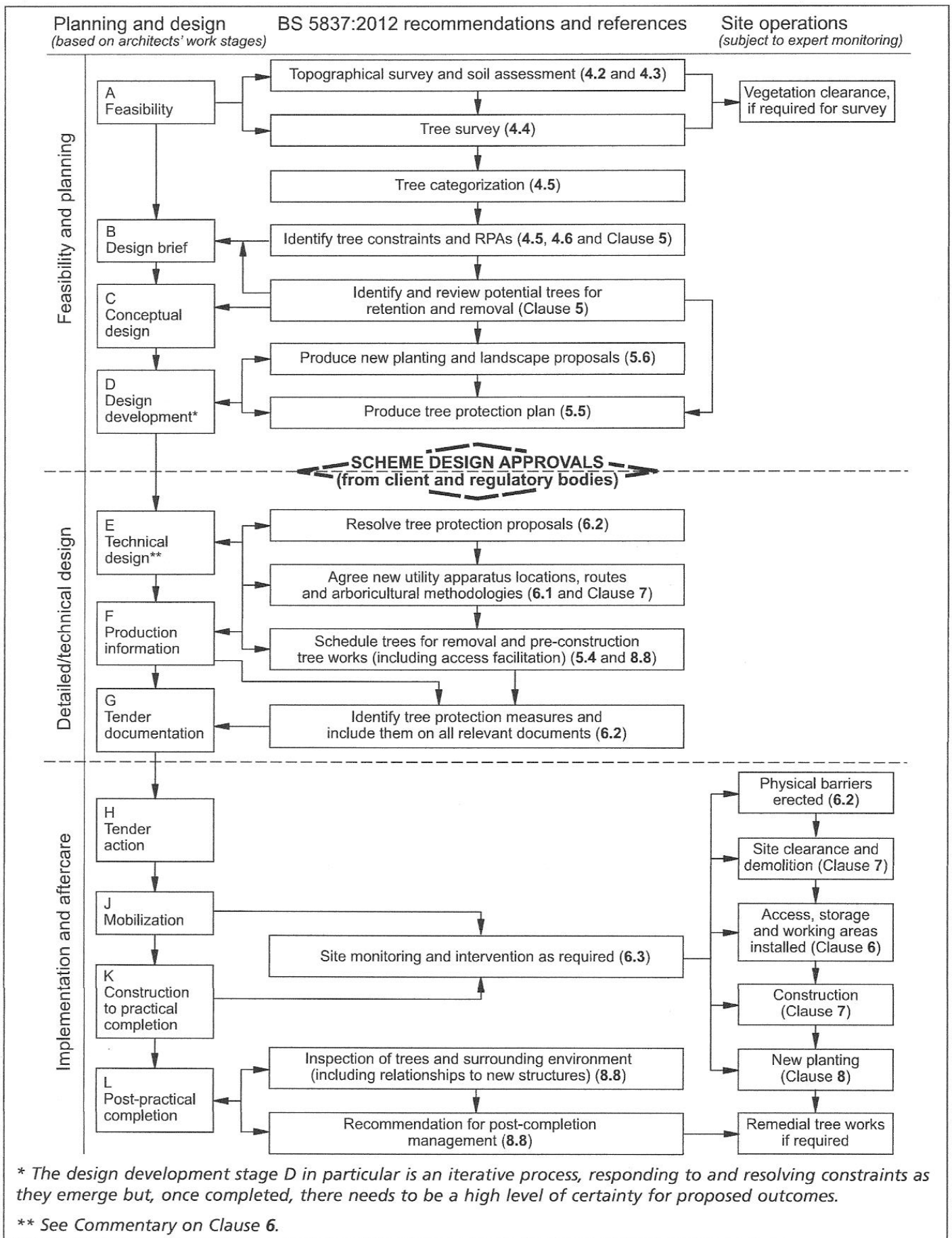
The builder will adhere to a code of practice and a Method Statement for Tree Protection will be prepared prior to contract commencement if required by the planning Authority.

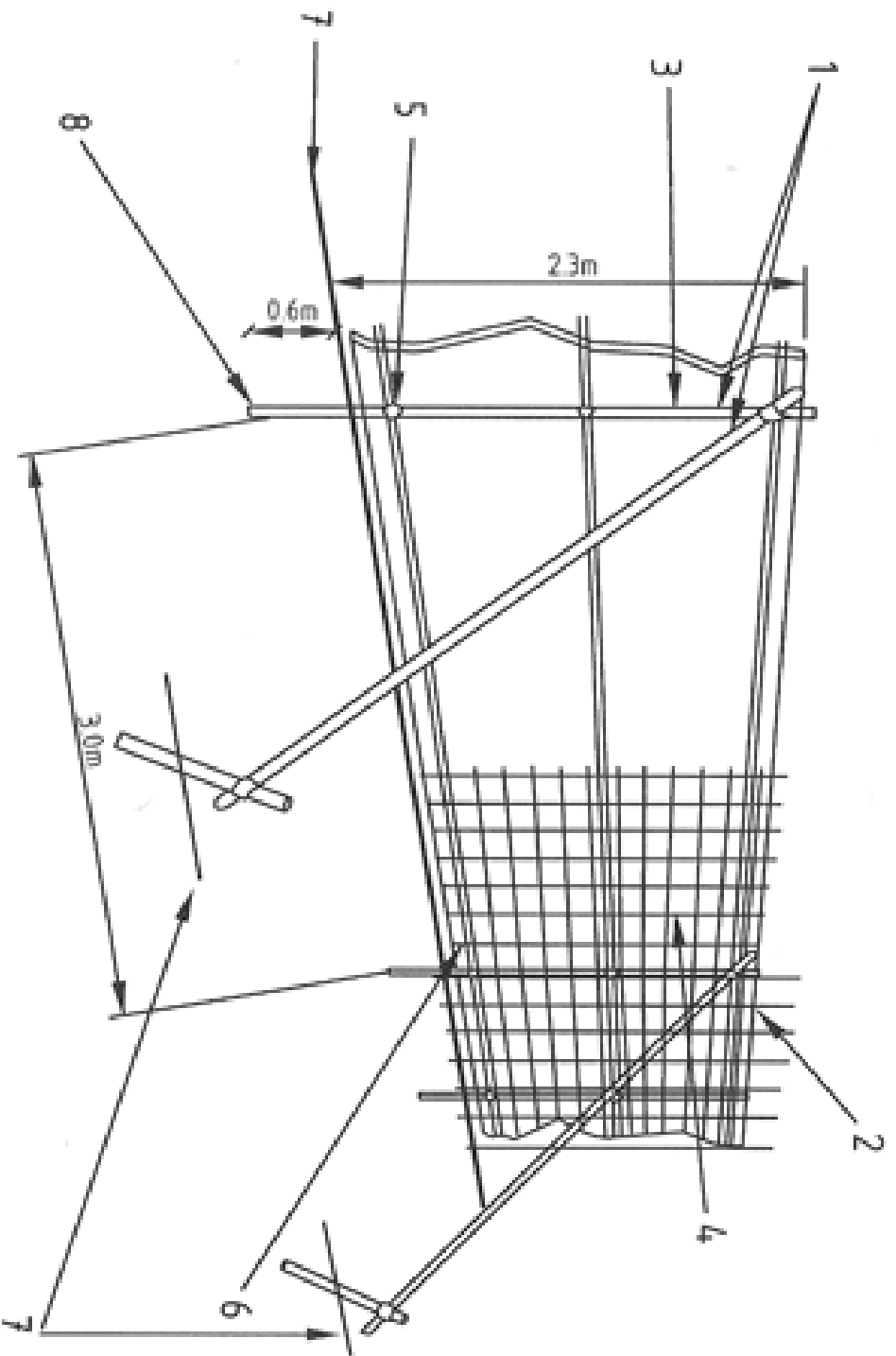
1. Tree Protection in Hares fencing mounted on fixed posts or scaffold to ensure that the protection area is not breached or used for material storage. This style of fencing will be required to encompass the Root Protection zones of the trees to be retained on either side of the Access Drive construction through the northern part of Fox Fall Wood. (See the fencing design as attached)
2. Full tree root zone protection should be implemented after the initial tree removal and **before** any ground work and foundation work commences. (A useful technique is to require the tree removal crew to install the protection fencing to the correct BS specification prior to the start of construction work)
3. No storage of materials or mixing of concrete shall take place within the root protection areas or any runoff permitted into the tree planting areas.
4. The tree protection fencing will remain in place until the construction work has been completed and the final landscaping and tree planting stage is reached.
5. **Subject to Local Authority requirements the tree protection aspects of the work can be supervised by a Consulting Arborist at key stages of the process and monitored with reports sent to the Contractor, the Client and the LPA. (see Design and Construction process 6.3)**

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Consulting Arborist

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Figure 1 The design and construction process and tree care





- 1 Standard scaffold poles
- 2 Uprights to be driven into the ground
- 3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps
- 4 Weldmesh wired to the uprights and horizontals
- 5 Standard clamps
- 6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
- 7 Ground level
- 8 Approx. 0.6 m driven into the ground

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>	See Table 2
Trees to be considered for retention		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	1 Mainly arboricultural qualities Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	3 Mainly cultural values, including conservation Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	2 Mainly landscape qualities Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees with no material conservation or other cultural value See Table 2