Tree Survey and Constraints Analysis Arboricultural Impact Assessment and Tree Protection Plan for the purposes of development at:

White Rock Phase 2

Client:	c/o Stride Treglown
Reference:	0377-TSE
Date of report:	31 January 2017 Amended 01-18
Surveyed by:	Paul Hughes
Prepared by:	Tim Scott-Ellis

We have been instructed to provide a Tree Survey, Constraints Analysis with Plan and Arboricultural Impact Assessment to assess the potential for development and to provide comment on the proposals.

We have undertaken both survey and report to accord with the recommendations in British Standard 5837:2012 Trees in relation to design, demolition & construction - Recommendations (BS 5837). To that end we have assessed the trees on and adjacent to the site for their quality and benefits within the context of proposed development.

Though health and safety is a consideration for each survey this report does not provide an assessment of the risk presented by trees. Neither does assessment relate to risks associated with subsidence, heave or other forms of disturbance associated with tree root growth or removal.

evolve TREE CONSULTANCY plan•develop•grow

7-9 Old Bridge Street,
Truro TR1 2AQ
t: 01872 276099
office@evolvetrees.co.uk

Directors:
Tim Scott-Ellis F Arbor A, MICFor, MRICS
Mark Nankervis MICFor, Tech Arbor A.

Arboricultural ASSOCIATION Fellow Member

RICS

Institute of Chartered Foresters Registered Consultant

QTRA Licensed User

1 METHODOLOGY & STATUTORY DESIGNATIONS

1.1 Our drawings, conclusions and reports are based on the documents provided as listed below:

Title of Document / Plan:	Originator / Prepared by:	Drawing / Report Reference No:
Topographic Survey	Combined survey by Benchmark Surveys Ltd.	BS2062/12.16/01.DR Rev A dated December 2016.

1.2 Table 1 below provides the information regarding the protected status of the trees on and adjacent to the site.

Table 1. STAUTORY PROTECTION AND LANDSCAPE DESIGNATIONS	
Statutory Protection: We have used the information provided by the Torbay Council Interactive Map on the assumption this is a true and accurate record.	
TPOs & CAs	None of the trees on or adjacent to the site are protected by a Tree Preservation Order (TPO) and the site is not in a Conservation Area (CA).
There is potential for the local planning authority (Cornwall Council) to change the status of the trees on the site may change once it becomes aware of any potential development but I consider this very unlikely in this case.	
Planning Conditions / Covenants	I did not investigate whether any planning conditions or legal covenants relevant to the trees are in place.
Felling Licence	The site is likely to be subject to the provisions of the Forestry Act. Please see Appendix C for more details.

2 THE TREES

2.1 Appendix C contains the factual data collected during the site survey including comments regarding health, condition and amenity value.

2.2 The trees comprise a typical species mix for the local area. All species surveyed are native or naturalised excepting the cherry laurel and this is only a minor component. The hedges themselves contain a significant number of young trees that are excluded from the BS survey methodology but are included in the groupings. These include the natural regeneration within the hedges.

2.3 The trees are typical specimens for the local landscape. Those along the road boundary form the most significant arboricultural feature despite that very few trees within this group are of any particular individual merit.

2.4 Some of the larger trees, the ash trees in G5 for example, appear to be lapsed coppice trees with extended boles and extensive decay within these areas. This is a typical and common occurrence for this species. These trees may have an enhanced nature conservation value due to the increased habitat provision commonly associated with veteran trees. However, the retention of these trees adjacent to residential dwellings needs careful consideration.

2.5 There is a small presence of bacterial canker (*Pseudomonas savastanoi pv. fraxini*) on some of the ash trees. This is not a particular issue in most cases but can result in limb loss, and very occasionally whole tree loss but this is only in advanced cases. This should be monitored.

2.6 The groups categorised as A grade (G9, T12 and G13) are those larger trees with a long-life expectancy that have the potential to make a significant local contribution to the local area for many years. Their condition is good though there is a presence of ivy. Though this has some nature conservation benefits as a habitat this is not in short supply. Where appropriate, e.g. where the trees are next to roads or new dwellings, this ivy should be severed to allow a condition assessment of the trees.

2.7 **Species and Age-class Distribution of Trees:** This is difficult to assess in such a small population (given BS 5837 does not require us to account for the youngest trees) but it seems a reasonable age-class distribution and there was evidence of many self-seeded trees throughout the site.

3 CONSTRAINTS ANALYSIS

3.1 The constraints presented by the trees are presented both in the report and on the appended Tree Constraints Plan. Generic considerations relevant to arboricultural constraints are included at Tree Constraints Appendix.

3.2 The council take an unfavourable view of any incursion into the RPA of the retained trees. Should this be required it will need to be supported by a strong planning and/or design argument. It will also need to be supported by special engineering measures with the resultant increases in costs. A brief overview of root growth is at Appendix D.

3.3 As recommended in paragraph 6.6.3 of the BS [1] we have made changes to the shape and/or size of the root protection areas of the tree T4. This is to reflect the presence of the buildings. Tree roots will not extend far into these areas as the soil conditions are not suitable for growth due to soil compaction.

3.4 I have not amended the root protection areas (RPAs) of the remaining trees as they represent a fair estimation of the likely rooting area.

3.5 I have presented the indicative shade arcs on the tree constraints plan only where they impinge on the site or are relevant to the potential for development. They show the arc of shade during the day and provide an indication of how the trees might influence the reasonable enjoyment of a property.

3.6 **Services:** At the time of writing no details on proposed services were available. However new service runs will need to be outside the root protection areas of retained trees. Should these encroach into these areas they are likely to significantly affect the ability of the trees to function or survive.

---

[1] **4.6.3** Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:
a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
b) topography and drainage;
c) the soil type and structure;
d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

4 IMPACTS ON TREES

4.1 Several of the hedges will be removed though in all places there is compensation planted adjacent. There is further planting to the south of the site resulting in an overall gain. The landscaping scheme has been presented under separate cover and the details of species, numbers, sizes etc. are supplied.

4.2 Trees are often severely damaged on construction sites due to poor planning and ignoring tree protection measures and principles.

4.3 Mitigation planting may have a role to play but planting new trees is only very rarely considered a suitable course of action following removal of large, established trees. The amenity presented by the trees is closely correlated to its size and therefore the replacement of large trees will always be a reduction in visual amenity though may well constitute reasonable, long-term management.

4.3.1 The most common activities associated with root damage include soil compaction from pedestrian and machinery passage, open trench excavations, and site cuts or fills to achieve level changes. All can harm the health and stability of trees and consequently, a RPA should be established around each tree.

4.3.2 Thus, the most important activity, after determining which trees will be retained, is to identify the Construction Exclusion Zone (CEZ). The intention of the CEZ is to:

- provide a safe tree resource,
- provide adequate root space to sustain tree health, aesthetics and stability,
- minimise changes to the tree's growing environment,
- minimise physical damage and loss to the trees root system, crown and trunk.

5 DESIGN CONSIDERATIONS

5.1 One of the most common reasons for refusing consent is the range of issues grouped under the title of Post Development Pressure. The main of these are explained in the table below.

Post Development Pressure	
Direct light access (shading).	Shade can be addressed by the siting of dwellings outside the shade arcs. Should buildings have to enter the shade arcs then the internal layout design should reflect this by, for example, putting 'non-liveable' rooms in these areas. It can also be addressed by fenestration, roof lights etc.
General light access.	This can be the result of retaining trees close to a building where it prevents light diffusion but not direct access. This should be considered though an analysis of ambient light though this is outside the remit of this report.
Tree growth.	The future of the trees' growth needs to be considered both in terms of shade and the physical proximity to the new structures. The red lines on the shade plan show our estimation of these extended shade patterns because of the future growth.
Overbearing.	This is where the current or future growth of the tree will dominate the space to the disadvantage, whether perceived or real, of the future occupiers.
Seasonal nuisance.	Trees are naturally growing and shedding organisms. Leaves of some species can cause problems particularly in the autumn by blocking gullies and gutters. Fruit can cause slippery patches and accumulation of honeydew can be damaging to surfaces and vehicles. These issues can be designed out using proprietary gutter covers or similar.
Services	The installation of services, especially the layout of drainage, will need to be considered before the final layouts are agreed. New service runs will need to be outside the root protection areas of retained trees. Should these encroach into these areas they are likely to affect the ability of the trees to function or survive. If these trees are protected this may result in the local planning authority initiating enforcement action. All routes for overhead services must avoid the crowns of the trees and to include for their future growth.

6 CONCLUSIONS

6.1 There is clearly room (in arboricultural terms) for the development of this area.

6.2 There is significant opportunity to enhance the tree cover through a mix of developing the existing provision and new planting.

6.3 The B Grade sycamore T4 and part of the B grade hedge group G3 (11 trees) will be lost to the new access.

6.4 I have assessed that a maximum of 100 metres of unclassified hedgerow will be removed. Approximately 700 metres of new hedging is proposed not accounting for the considerable amount of group and copse planting or the street trees and avenues. The existing hedgerows, where retained, will be enhanced by new planting.

I have considered the relevant site factors and the information provided to reach the conclusions above. If the issues I have detailed are properly considered I am confident an acceptable scheme in arboricultural terms can be developed.

I am a Fellow of the Arboricultural Association, a Chartered Arboriculturist and a Chartered Surveyor. I hold an honours degree in Forestry and the Royal Forestry Society Professional Diploma in Arboriculture. I have been working as a full-time, professional arboriculturist since 1999.

Tim Scott-Ellis BSc Hons (For), Dip Arb (RFS), F Arbor A, MICFor, MRICS
Evolve Tree Consultancy

The authority of this Report ceases when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the Subject Tree(s). The statements made in this Report do not take into account the effects of extremes of climate, vandalism or accident, whether physical, chemical of fire. Evolve Tree Consultancy cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice.

The recommendations within this report remain valid for the period stated for re-inspection or twelve months from the date of survey.

The limit of Evolve Tree Consultancy' indemnity over any matter arising out of this report extends only to the instructing client; Evolve Tree Consultancy cannot be held liable for any third-party claim that arises following or out of this report. This report remains the intellectual property of Evolve Tree Consultancy.

APPENDIX A - TREE SCHEDULE EXPLANATORY NOTES

Sequential Tree, Group or Woodland Reference Number.

Species: Scientific name (Common name in brackets).

Height: Recorded in metres by inclinometer in each discrete area and estimated from the measured tree.

Stem diameter: Tree stem diameter in millimetres at 1.5 metres above adjacent ground level rounded up to nearest 50 millimetres. For multi-stemmed trees a cumulative diameter is calculated (in accordance with BS 5837:2012 Annex C).

Branch Spread in metres taken at four cardinal points.

Existing height in metres above ground level (agl) of first significant branch with direction of growth (if available).

Life stage	**Y**	**Young**	Recently planted or establishing tree.
	SM	Semi-mature	Age less than one-third life completed. Established tree but one that has not reached its potential ultimate height and has significant growth potential.
	EM	Early-mature	One-third to two-thirds life completed. A tree reaching its ultimate potential height, whose growth rate is slowing down but will still increase in stem diameter and crown spread.
	M	Mature	Two thirds plus life completed. Specimen with limited potential for any significant increase in size but with a reasonable life expectancy.
	LM	Late-mature (called Over-mature in the BS)	Two-thirds plus life completed and declining. A tree that has passed its optimum growth rate and may require specialist management. These trees may offer significant benefits in terms of nature conservation. May also contain significant structural defects with attendant safety and/or duty of care implications.
	V	Veteran	A tree that shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Comments: General observations e.g. collapsing, the presence of any decay and physical defect and including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat.

Physiological condition.	**G**	**Good**	Tree that appears to be in good condition and healthy without significant defects.
	F	**Fair**	Tree that appears to be structurally sound but due to minor defects is downgraded from good.
	P	**Poor**	Tree which shows signs of poor health, in decline and/or with significant defects.
	D	**Dead**	Tree which is moribund or has died.

Life Expectancy: Estimated remaining contribution in years in terms of amenity (<10, 10+, 20+, 40+). This is assessed by examining the current situation of the tree.

Recommendations. Preliminary management recommendations based on the site as surveyed and for any likely pruning likely to be required should any development proceed.

RPA-R (m) - Root Protection Area (RPA) Radius - The radius of an indicative circle of the RPA.

RPA (m^2) - RPA Area in metres squared.

Category In accordance BS 5837:2012 - Tree Categories (see copy of Table 1 from BS 5837:2012 below).

Red – trees to be removed. Orange – trees to be pruned/managed. Black – No works or works not required for the purposes of planning.
Trees listed in bold text are protected by a Tree preservation order (TPO) or are in a Conservation Area.

Tag	Name	Ht (lwr crn ht)	Trunk dia. (stems)	N	E	S	W	1st Sig branch (brg)	Life Stage	Cat	Comments	Life Exp	Cond	Recommendations	RPA R	RPA A
G1	Ash, Goat Willow, Hawthorn, Beech, Wild Cherry ()	6 (0)	160 (MS)	2	2	1	2	0.5	Y	C2	Small group and hedge with interspersed planting of standards. Group is situated by a pool of water. Sprawling growth and canker on ash.	40+	F		2	12
T2	Sessile Oak (QuPe)	10 (2)	800 (1)	6	6	6	6	1	SM	B2	Heavily pruned with medium and large deadwood and sparse upper crown. Understory of ash grown out of hedge included in G1.	40+	F		10	290
G3	Sessile Oak, Ash, Sycamore, Hawthorn, Blackthorn, Holly, Hazel, Hornbeam, English Elm ()	8 (2)	300 (1)	2	7	4	4	2	SM	B2	Hedgeline adjacent to road A3022. Mixed species of trees maintained by farmer. Ivy on stems of larger trees. Larger oak in middle of hedge is in poor condition with large cavities and sparse crown; a cankered ash is close by. Appears to be a fallen stem next to white gas supply post. Attractive larger hawthorn trees.	40+	F	Remove in part for formation of new access.	4	41
T4	Sycamore (AcPs)	12 (2)	1300 (MS)	6	6	6	6	2	EM	B2	Larger tree of Group 3. Large ascending trunks with bark damage to bole possible fungal activity. Co-joined at base. Medium deadwood in crown.	40+	F	Remove for access.		

Red – trees to be removed. Orange – trees to be pruned/managed. Black – No works or works not required for the purposes of planning.
Trees listed in bold text are protected by a Tree preservation order (TPO) or are in a Conservation Area.

Tag	Name	Ht (lwr crn ht)	Trunk dia. (stems)	N	E	S	W	1st Sig branch (brg)	Life Stage	Cat	Comments	Life Exp	Cond	Recommendations	RPAR	RPAA
G5	Hawthorn, Ash ()	12 (2)	700 (2)	8	7	1	8	2	SM	B2	Hedgeline with mixed species. Semi mature ash, poor habit and major deadwood with cavities and King Alfred cakes. Epicormic growth throughout crown and at branch ends from pruning. Ivy in crown of ash and dominating crowns of larger hawthorn.	40+	F		12	443
G6	Goat Willow (SaCa)	7 (1)	450 (2)	3	3	5	3	0	SM	C2	Group of trees away from hedgeline with pond for cattle. Poor habit and cavities on ash with fruiting body in cavity.	40+	F		8	183
G7	Sycamore, Hawthorn, Hazel, Holly, Ash, Elder ()	14 (2)	450 (1)	4	6	6	7	2	SM	B2	Hedgeline with semi mature hawthorn with ivy in crown. Larger ash trees have poor habit and ivy on stems. Medium hanging deadwood and torn limbs; crossing limbs and dangling branches over field. Epicormic growth throughout crown.	40+	F		5	92
G8	Sycamore, Scots Pine, English Elm, Beech, Ash, Holm Oak ()	15 (1)	900 (1)	8	6	10	3	1	EM	B2	Copse of maturing trees of various species. Partly managed group by farmer. Hanging large deadwood in many bordering the adjacent field.	40+	F		11	366

Red – trees to be removed. Orange – trees to be pruned/managed. Black – No works or works not required for the purposes of planning.
Trees listed in bold text are protected by a Tree preservation order (TPO) or are in a Conservation Area.

Tag	Name	Ht (lwr crn ht)	Trunk dia. (stems)	N	E	S	W	1st Sig branch (brg)	Life Stage	Cat	Comments	Life Exp	Cond	Recommendations	RPAR	RPAA
G9	Sessile Oak, Ash ()	8 (3)	600 (1)	7	7	6	6	3	SM	A2	Group of 3 oaks in hedgeline. Medium and minor deadwood in crown as common. Some old wind torn limb stubs and moderate die back in upper crown of one tree on one limb. Included are 2 small u grade hedgerow ash at 3 m high. These have been allowed to grow out of cut hedge but are immaterial to planning.	40+	F		7	163
G10	Ash (FrEx)	3 (2)	170 (1)	2	2	2	2	2	Y	U	Small linear group of ash trees with ivy on stems in hedgeline.	40+	G		2	13
G11	Ash, Sessile Oak, Hawthorn, Holly, English Elm, Blackthorn, Elder, Cherry Laurel ()	8 (2)	700 (2)	6	8	6	5	2	SM	B2	Linear group of trees along boundary hedge. Ivy on stems and minor deadwood and epicormic growth in larger ash. Ivy dominating crowns of some trees. Medium deadwood and hanging branch in one ash. A further ash has branches extending into the building area and touching scaffolding.^.	40+	F		12	443
T12	Ash (FrEx)	14 (2)	1100 (1)	7	7	7	7	4	EM	A2	Large ash, ivy on stems medium and minor deadwood in crown and low limbs over development site.	40+	G		13	547

Red – trees to be removed. Orange – trees to be pruned/managed. Black – No works or works not required for the purposes of planning.
Trees listed in bold text are protected by a Tree preservation order (TPO) or are in a Conservation Area.

Tag	Name	Ht (lwr crn ht)	Trunk dia. (stems)	N	E	S	W	1st Sig branch (brg)	Life Stage	Cat	Comments	Life Exp	Cond	Recommendations	RPAR	RPAA
G13	Ash, Beech ()	15 (2)	900 (1)	7	7	7	7	4	M	A2	Fairly squat mature beech with well-shaped crowns. Ivy on stems. One tree has a very large Ganoderma at base and cavity to base. Larger ash trees are in poor habit and large oak is dominated by ivy. Wind damage to oak and diseased beech. Oak has enormous cavity at base that downgrades group and ash has been heavily pruned with epicormic growth forming majority of canopy.	40+	G		11	366

Table 1 from BS 5837:2012 Trees in relation to design, demolition & construction – Recommendations.

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	• 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.*			RED
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	GREEN
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	BLUE
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 present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

Tag	Name	Ht (lwr crn ht)	Trunk dia. (stems)	N	E	S	W	1st Sig branch (brg)	Life Stage	Cat	Comments	Life Exp	Cond	RPA R	RPA A
G1	Ash, Goat Willow, Hawthorn, Beech, Wild Cherry ()	6 (0)	160 (MS)	2	2	1	2	0.5 Y		C2	Small group and hedge with interspersed planting of standards. Group is situated by a pool of water. Sprawling growth and canker on ash.	40+	F	2	12
T2	Sessile Oak (QuPe)	10 (2)	800 (1)	6	6	6	6	1 SM		B2	Heavily pruned with medium and large deadwood and sparse upper crown. Understory of ash grown out of hedge included in G1.	40+	F	10	290
G3	Sessile Oak, Ash, Sycamore, Hawthorn, Blackthorn, Holly, Hazel, Hornbeam, English Elm ()	8 (2)	300 (1)	2	7	4	4	2 SM		B2	Hedgeline adjacent to road A3022. Mixed species of trees maintained by farmer. Ivy on stems of larger trees.Larger oak in middle of hedge is in poor condition with large cavities and sparse crown; a cankered ash is close by. Appears to be a fallen stem next to white gas supply post.^.Attractive larger hawthorn trees.	40+	F	4	41
T4	Sycamore (AcPs)	12 (2)	1300 (MS)	6	6	6	6	2 EM		B2	Larger tree of Group 3. Large ascending trunks with bark damage to bole possible fungal activity. Cojoined at base. Medium deadwood in crown.	40+	F	15	707
G5	Hawthorn, Ash ()	12 (2)	700 (2)	8	7	1	8	2 SM		B2	Hedgeline with mixed species. Semi mature ash have poor habit and major deadwood with cavities and king alfred cakes. Epicormic growth throughout crown and at branch ends from pruning. Ivy in crown of ash and dominating crowns of laarger hawthorn.	40+	F	12	443
G6	Goat Willow (SaCa)	7 (1)	450 (2)	3	3	5	3	0 SM		C2	Group of trees away from hedgeline with pond for cattle. Poor habit and cavities on ash with fruiting body in cavity.	40+	F	8	183
G7	Sycamore, Hawthorn, Hazel, Holly, Ash, Elder ()	14 (2)	450 (1)	4	6	6	7	2 SM		B2	Hedgeline with semi mature hawthorn with ivy in crown. Larger ash trees have poor habit and ivy on stems. Medium hanging deadwood and torn limbs; crossing limbs and dangling branches over field. Epicormic growth throughout crown.	40+	F	5	92
G8	Sycamore, Scots Pine, English Elm, Beech, Ash, Holm Oak ()	15 (1)	900 (1)	8	6	10	3	1 EM		B2	Copse of maturing trees of various species. Partly managed group by farmer. Hanging large deadwood in many bordering the adjacent field.	40+	F	11	366
G9	Sessile Oak, Ash ()	8 (3)	600 (1)	7	7	6	6	3 SM		A2	Group of 3 oaks in hedgeline. Medium and minor deadwood in crown as common. Some old wind torn limb stubs and moderate die back in upper crown of one tree on one limb. Included are 2 small u grade hedgrow ash at 3m high. These have been allowed to grow out of cut hedge but are immaterial to planning.	40+	F	7	163
G10	Ash (FrEx)	3 (2)	170 (1)	2	2	2	2	2 Y		U	Small linear group of ash trees with ivy on stems in hedgeline.	40+	G	2	13
G11	Ash, Sessile Oak, Hawthorn, Holly, English Elm, Blackthorn, Elder, Cherry Laurel ()	8 (2)	700 (2)	6	8	6	5	2 SM		B2	Linear group of trees along boundary hedge.Ivy on stems and minor deadwood and epicormic growth in larger ash.Ivy dominating crowns of some trees. Medium deadwood and hanging branch in one ash. A further ash has a branches extending into the building area and touching scaffolding.^.	40+	F	12	443
T12	Ash (FrEx)	14 (2)	1100 (1)	7	7	7	7	4 EM		A2	Large ash, ivy on stems medium and minor deadwood in crown and low limbs over development site.	40+	G	13	547
G13	Ash, Beech ()	15 (2)	900 (1)	7	7	7	7	4 M		A2	Fairly squat mature beech with well shaped crowns. Ivy on stems. One tree has a very large ganoderma at base and cavity to base. Larger ash trees are in poor habit and large oak is dominated by ivy. Wind damage to oak and diseased beech. Oak has enormous cavity at base that downgrades group and ash has been heavily pruned with epicormic growth forming majority of canopy.	40+	G	11	366

Table 1: SURVEY METHODOLOGY

Site Visit date:.		We visited the site on the 14 January. The visibility was satisfactory.
Tree Plotting:		The trees have been plotted onto the locations as identified on the topographical plan. Only where there is a clear discrepancy between the site and the plan have we changed these points. I have plotted the trees by eye and their locations are indicative only.
	Individual trees:	Form an open grown nature not influenced by other trees
	Groups of trees:	Form clear and discrete formations either by species of physical proximity..
	Notable small trees:	Only trees with a diameter greater than 75 millimetres at 1.5 metres above ground level have been included in the survey unless we have assessed them as being of particularly high value in terms of amenity.
	Shrubs:	Small groups of shrubs have not been included in this report is not relevant in terms of this planning assesment due to their size.
BS 5837:		We have undertaken both survey and report in accordance with the recommendations in British Standard 5837:2012 Trees in relation to design, demolition & construction - Recommendations (BS 5837).
Survey/ Inspection:		The trees were inspected using the Visual Tree Assessment method as described by Mattheck and Breloer (The body language of trees, DoE booklet Research for Amenity Trees No. 4, 1994). All trees have been visually surveyed from ground level without climbing, boring or core sampling undertaken. Binoculars were used to assess areas of the crown as appropriate.
Safety/Risk:		Though health and safety is a consideration for each survey this report does not provide an assessment of the risk presented by trees. Neither does assessment relate to risks associated with subsidence, heave or other forms of disturbance associated with tree root growth or removal.AccessWe did not have access to trees outside the boundaries or on other private properties and have confined observations of them to what was visible from within the property.

Institute of Chartered Foresters Registered Consultant
We have undertaken the survey in accordance with the recommendations in British Standard 5837:2012 Trees in relation to design, demolition & construction - Recommendations (BS 5837).
7-9 Old Bridge Street, Truro TR1 2AQ 01872 276099 office@evolvetrees.co.uk

Tree Constraints Plan
White Rock Phase 2

RICS Arboricultural Association Approved Member

evolve TREE CONSULTANCY plan • develop • grow
7-9 Old Bridge Street, Truro TR1 2AQ 01872 276099 office@evolvetrees.co.uk

Client: c/o Stride Treglown
Ref: 0377-TSE
Date: Jan 2017
Scale: 1:1000 at A0

Important: Please note that this plan is to be viewed in colour and at the scale and size presented. It is likely to be misleading if viewed in black and white, at a different scale, or if sections of the plan are colour-edited and the data processed, and conclusions drawn, may be difficult to source if presented in black and white.

The dimensions, spreads and root protection areas of groups are based on the largest trees within any group surveyed.

APPENDIX C - TREE CONSTRAINTS PLAN

Some legal considerations	
Below are links to the detailed and accessible advice government guidance regarding TPOs and CAs.	
Tree Preservation Orders	http://planningguidance.communities.gov.uk/blog/guidance/tree-preservation-orders/tree-preservation-orders-general/
Conservation Areas	http://planningguidance.communities.gov.uk/blog/guidance/tree-preservation-orders/protecting-trees-in-conservation-areas/
IMPORTANT: Exceptions for tree work relating to planning permission and permitted development.	The authority's consent is not required for carrying out work on trees subject to an Order so far as such work is necessary to implement a full planning permission. For example, the Order is overridden if a tree has to be removed to make way for a new building for which full planning permission has been granted. Conditions or information attached to the permission may clarify what work is exempt. However, the authority's consent is required for work on trees subject to an Order if: • development under a planning permission has not been commenced within the relevant time limit (i.e. the permission has 'expired'); • only outline planning permission has been granted; and • it is not necessary to carry out works on protected trees in order to implement a full planning permission. The authority's consent is also required, for example, for work on trees protected by an Order that is necessary to implement permitted development rights under the Town and Country Planning (General Permitted Development) Order 2015 " Our interpretation of the Regulations and the above guidance is that despite the grant of full planning permission it is acceptable to remove only those trees that are physically required to be removed in order to implement that permission. This would include any trees that are, for example, within the footprint of any building, extension or access route etc that is permitted by that permission. Any other trees that you wish to remove but are not directly required to be removed *in order to implement the planning permission* would need a separate consent. *Consequently, our advice is should you wish to remove any trees that are not directly required in order to implement the planning permission you must submit an application for those works.*

Some legal considerations (cont.)	
Trees outside the site / property.	Every landowner and manager has a duty of care not to damage trees on neighbouring land. The common causes of damage (root damage, compaction, physical damage and inexpert pruning) must be avoided through good planning and site management. However, branches and roots from trees on adjacent properties that extend over boundaries can be pruned back to the boundary line without the permission of the owners. However, the branch material belongs to the tree owner and should be returned where appropriate.
Statutory wildlife obligations:	The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 provides statutory protection to birds bats and other species that inhabit trees. All wild birds are protected by law under the Wildlife & Countryside Act 1981 and it is an offence to intentionally disturb injure or kill a nesting bird or to take damage or destroy an occupied nest or egg. If nesting birds are discovered works on the trees should be deferred until the nests are abandoned. Care should be taken during any felling operation or surgery works to trees to avoid damage or disturbance to birds during the nesting season. It is also an offence to kill, injure or take a bat or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection. Under the Habitat Regulations it is an offence to damage or destroy a breeding site or resting place of any bat.
All tree work operations are covered by these provisions and appropriate advice must be obtained before undertaking any works that might constitute an offence.	

Managing Construction within Root Protection Areas (RPA)

Any incursion into the RPA will be unfavourably viewed by the LPA and will need to be supported by a strong argument. The closer to the stem the greater the risk to the trees and the greater the likelihood of the proposals being deemed unacceptable.

Where it is not possible to avoid the RPAs, we can provide further advice as to how this can be achieved. Some generic considerations are below.

Changes in ground level in the RPAs. In general changes of levels within the RPAs must be avoided. If levels are to be raised it is essential to ensure that adequate supplies of water and oxygen are still able to reach the trees' roots.

Root Investigations	It may be possible to clarify the situation by exploring for roots using hand tools or an air spade if appropriate and expedient.	However, should these be required particular care will be needed where excavations close to tree roots greater than 50 mm diameter) are likely to be encountered to avoid damage. Excavation in these areas will need to be undertaken by hand or using an air spade, avoiding any damage to the bark with the consequential increase in costs.
Proposed Surfaces	All new surfaces will be of a suitable specification to allow moisture and gaseous exchange and a suitable soil structure that will allow root growth.	
Drainage	Drainage of the site will need to be considered when designing the layout. The alteration of the existing patterns can have adverse effects on the health and condition of retained trees and shrubs.	
Removal of the Existing Structures	The and hard surfacing, or the installation of new hard surfacing within the RPAs of the retained trees, may require special engineering measures.	
Foundations	Suitable solutions may involve piling, pad and beam or cantilever foundations. Should a piling rig be required to create piles the size of rig should be carefully considered and any ground protection, access facilitation pruning or felling necessary to allow access must be considered. If it is shown that the construction of a boundary wall or dwelling encroaches within the RPA of a retained tree the foundations of the wall or dwelling will need to be designed so as not to damage the tree's roots. Permanent fencing can be erected within the RPA of retained trees but only if the fence posts are secured by post fence post spikes or similar. This will keep the disturbance to a minimum and reduce the potential of damage of the roots.	

Felling License	
In any calendar quarter*, you may fell up to 5 cubic metres on your property without a licence if no more than two cubic metres are sold. Contact your local Forestry Commission office if you not certain whether these exemptions apply. (*1 Jan to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December.)	
Exemptions: Certain types of felling do not need permission from the Forestry Commission. The Forestry Act 1967, as amended, and related regulations gives these exceptions in full. The main categories are listed below:	
1.	Lopping and topping (which usually includes tree surgery, pruning and pollarding).
2.	Felling included in an approved Dedication plan.
3.	Felling fruit trees, or trees growing in a garden, orchard, churchyard or designated public open space (e. g. under the Commons Act 1899).
4.	Felling trees which, when measured at a height of 1.3 metres from the ground: • have a diameter 8 centimetres or less; or • if thinnings, have a diameter of 10 centimetres or less; or • if coppice (i. e. managed by cutting to promote multi-stemmed growth arising at or near ground level) or underwood, have a diameter of 15 centimetres or less.
5.	Felling trees immediately required for carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990) or for work carried out by certain providers of gas, electricity and water services and which is essential for the provision of these services.
6.	Felling necessary for the prevention of danger or the prevention or abatement of a nuisance (e. g. which may involve threat of danger to a third party). This exemption will only apply if there is a real rather than a perceived danger. We may be able to give you advice that would minimise the danger without felling the trees. We strongly recommend that you contact us if you are considering felling a tree or trees in these circumstances. You may be prosecuted for illegal felling if it is shown that the tree did not present a real or immediate danger.
7.	Felling necessary to prevent the spread of a quarantine pest or disease and done in accordance with a notice served by a Forestry Commission Plant Health Officer (under the Plant Health (Forestry) (Great Britain) Order 1993, as amended).
8.	The felling is done in compliance with any obligation imposed by or under an Act of Parliament.
More detailed advice can be found at: http://www.forestry.gov.uk/pdf/treefellingaugust.pdf/$FILE/treefellingaugust.pdf	

APPENDIX D - TREE ROOT GROWTH

People often assume that tree roots extend deep underground and out to the crown dripline. In most cases tree roots are shallower and can extend well beyond the crown dripline. Thus, tree roots are vulnerable to surface disturbances during development projects.

Diagram 1 – Typical tree root growth for open grown trees.

Tree root growth is opportunistic and occurs where the essentials for growth are present and is not always symmetrical in form and depth. Fine absorbing roots that collect water and nutrients are located primarily within the top 150-300 mm of the soil. The roots and the soil in this surface layer (the topsoil) must be protected from injury.

Tree roots tend not to grow under hard surfaces especially roads as they are compacted to a degree that roots cannot physically grow into them. In very restricted sites the tree must exploit areas considerably deeper than shown here; this is typical for urban sites.

A balance between roots and shoots is needed to support each other. If shoots or roots are suddenly cut it places stress upon the trees energy system. If tree reserves are depleted over several years, the tree finds it increasingly difficult to get over any new stress placed upon it putting it into a spiral of decline and mortality.

The most common activities associated with root damage include soil compaction from pedestrian and machinery passage, open trench excavations, and site cuts or fills to achieve level changes. All can theoretically harm the health and stability of trees and consequently, a RPA should be established around each tree within the construction/development area.