

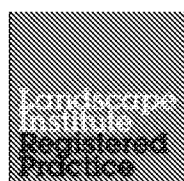


Tree Survey & Arboricultural Impact Assessment

Land at SRC Recycling,
Eastergate

October 2021 | Project Ref 06369

HCUK Group is a multi-disciplinary environmental practice offering expert advice in archaeology, heritage, landscape, arboriculture, and planning. It began life in 2010 as Heritage Collective LLP, before becoming Heritage Collective UK Limited in 2014. In the coming years diversification saw the addition of Archaeology Collective, Landscape Collective and Planning Collective, before all strands came together to be branded under a single umbrella: HCUK Group, based on the acronym for the original company. A home working company since the beginning, we are pleased to employ a talented workforce of consultants and support staff, who are on hand to advise our clients.



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Contents

1. Introduction	4
2. Tree Survey Summary.....	7
3. Preliminary Tree Constraints	13
4. Arb Impact Assessment (AIA)	15
5. Outline Arboricultural Method Statement(AMS).....	21
6. Summary and Conclusions	22

Appendices

Appendix 1 – Site Location Plan

Appendix 2 - Tree Survey Schedule

Appendix 3 - Tree Survey Plan

Appendix 4 – Tree Retention/Loss and Protection Plan (Demolition)

Appendix 5 – Tree Protection Plan (Construction)

Appendix 6 - Arboricultural Impact Schedule

Appendix 7 - Methodology

Appendix 8 - Tree Protection Fencing

1. Introduction

- 1.1 HCUK Group were instructed by SRC Recycling Limited to carry out a tree survey, and Arboricultural Impact Assessment in accordance with BS: 5837:2012 on land at SRC Recycling, Fontwell Avenue, Eastergate and hereafter referred to as 'the site'.
- 1.2 The scope of this assessment was to assess the site's tree resource and future capacity in relation to the proposed development in accordance with BS5837:2012 *'Trees in relation to design, demolition and construction – recommendations.'*
- 1.3 The following information is therefore contained within this report:
- ✦ Tree survey summary.
 - ✦ Schedule of tree survey data; and
 - ✦ Tree Survey Plan showing preliminary tree constraints.
 - ✦ Arboricultural Impact Assessment.
 - ✦ Outline Arboricultural Method Statement.
- 1.4 For the purposes of carrying out the assessment, HCUK Group were provided with the following information:
- ✦ J. Brotherton & Partners –Topographical Land Survey (DWG) - REF: 20141, 10/6/2020.
 - ✦ Received from client: – Proposed Site Plan (DWG) – REF: 7334, 05/10/2021

The Study Area

- 1.5 The site is located on a roughly rectilinear piece of land to the west of Fontwell Avenue (A29) and to the north of the B2233 Barnham Road. The Site is currently accessed from Fontwell Avenue. The site is very gently sloping from north-west to south-east.
- 1.6 The site mainly comprises a large recycling yard with a rough grass field with areas of scrap/spares and brambles. There are undermanaged scrubby hedgerows and trees along the boundaries. There are few open grown trees within the Site with the majority of the vegetation around the perimeter. The western boundary is fairly open, although there is one large good quality oak near the boundary. There are a number of industrial sheds and workshops, mainly located at the central/eastern end of the Site.

Development Proposals (summary)

- 1.7 The proposed development comprises the removal of the recycling centre and storage areas and the construction of 80No residential units with access roads, landscaped open space and parking.
- 1.8 The retained hedgerows are mostly under managed. Within the proposals they will be strengthened with additional planting, and pruned back where necessary to remove dead and dying branches and to create a tidier more manageable profile.

Site Visit

- 1.9 Landscape Collective visited the site on 12th November 2020. Individuals present on site: Stuart Hocking CMLI, DipLA, HND(For).
- 1.10 All trees were surveyed in accordance with BS: 5837:2012 (Appendix 5 – Methodology).

Planning Status

Statutory Tree Protection

- 1.11 The local authority Arun District Council (ADC) website was accessed on 20th November 2020 to establish Tree Protection information.
<https://www1.arun.gov.uk/webapps/wml/>
- 1.12 The information showed that the site is not within a Conservation Area. The TPO information suggested that no trees were covered by TPO within the Site and one property to the south of the Site may have had a TPO associated with it. However it appears that recent developments in that area have caused the removal of the TPO. The planning team at ADC were emailed to enquire as to the validity of the TPO information on 20th November 2020.
- 1.13 The following is for information purposes only.

Statutory Wildlife Protection

- 1.14 Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and if required we will be undertaken by a suitably qualified ecologist.
- 1.15 Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for bats in addition to birds and small mammals. It is recommended that in line with any accompanying specialist advice, any tree works should only be carried

out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the project manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by a Statutory Nature Conservation organisation such as Natural England.

- 1.16 It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. Ideally, operations should be avoided during this period. Any necessary work should only be carried out following a preliminary check of the vegetation.
- 1.17 For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in Britain.

2. Tree Survey Summary

2.1 A summary of the survey findings is shown below:

2.2 In total 17 items were surveyed.

- ✦ One survey item was considered to be good quality (Category A), with a useful life expectancy of in the region of 40+ years.
- ✦ Five survey items were considered to be moderate quality (Category B) with an anticipated useful life expectancy of in the region of 20+ years.
- ✦ Eleven survey items were considered to be low quality (Category C) with an anticipated useful life expectancy of in the region of 10-20+ years.

2.3 The site vegetation understorey is rough grass field, with brambles and scrub.

2.4 Tree species include: cypress, sycamore, cherry, oak, and field maple.

2.5 Most of the trees (apart from a large oak and a few small trees) are located near the existing access road and weighbridge leading into the Site. A small group of *Cupressus macrocarpa* are located near the weighbridge. The *Cupressus* group includes a monolith stump. Adjacent to an industrial shed is a small group of mature trees, possibly self-sown (cherry and sycamore). Hedge and tree vegetation along the access road is variable in form and species but generally in fairly poor condition.

2.6 The oak tree adjacent to the Site entrance off Fontwell Avenue, has a rather asymmetrical crown, but is a large tree with good amenity value.

2.7 The hedges are generally in poor condition. The southern and northern boundary hedge comprise mainly native species. They are very undermanaged, with a lot of dead wood and gaps. One internal hedgerow was surveyed as a group. All the hedgerows include areas of bramble. Swathes of brambles and scrub extend throughout the recycling yard and scrap storage areas. The eastern boundary hedge is mainly comprised of a cypress tree screen, between the Site and a neighbouring private property.

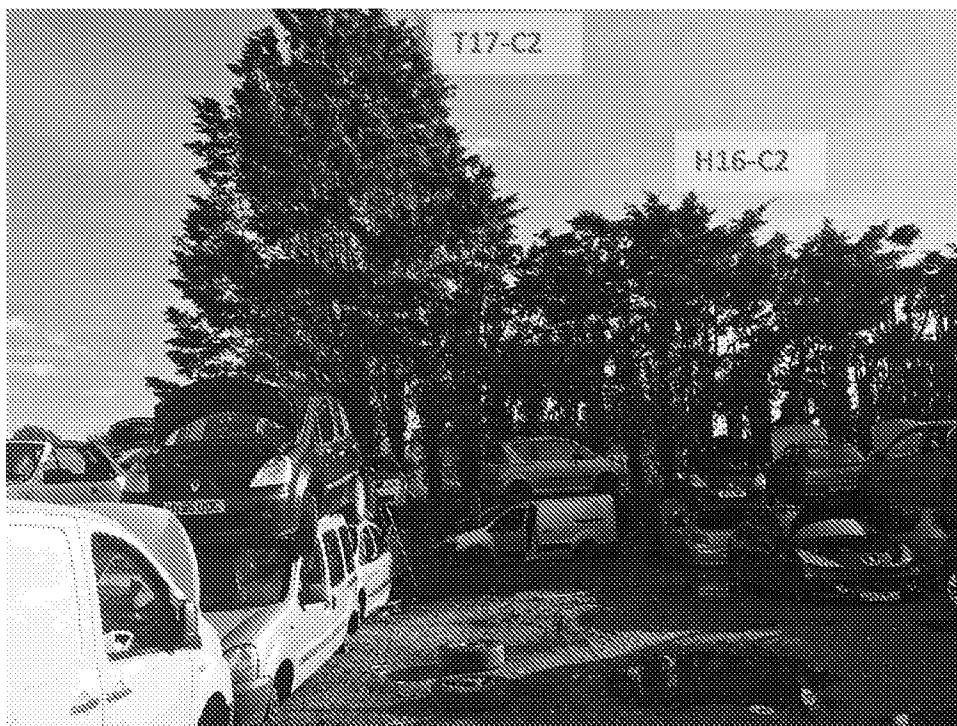
2.8 Any future management must include careful monitoring of the health of any retained trees within the site

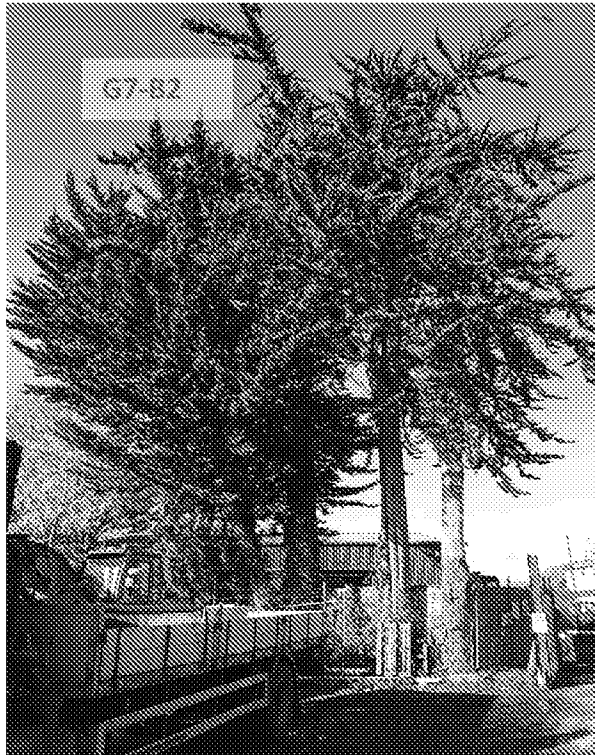
2.9 Selected photographs of the site are shown below:



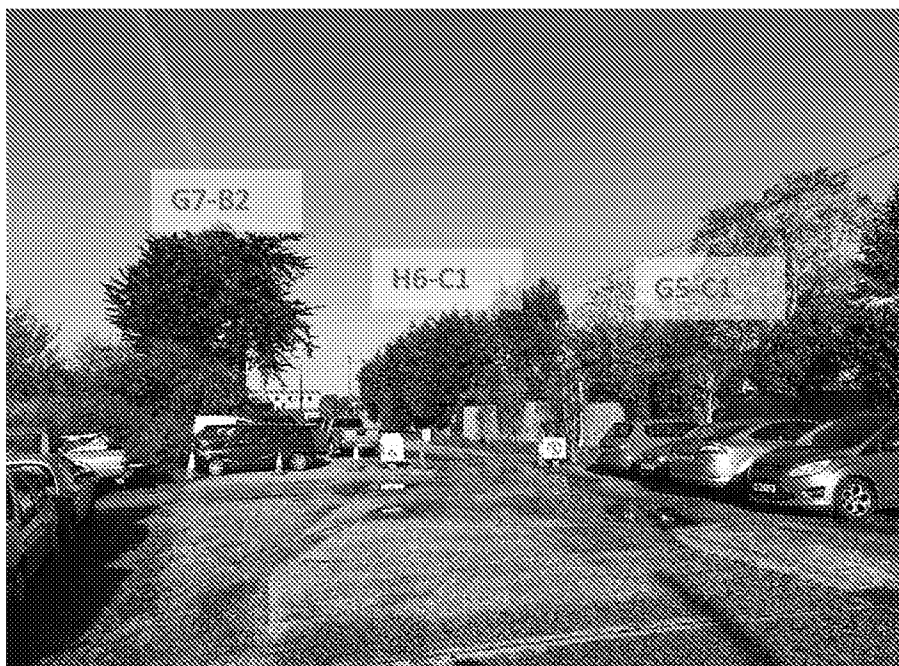
(Above) View looking east, towards the Site access and Fontwell Avenue

(Below) View looking east, towards the eastern Site boundary and the cypress screen.



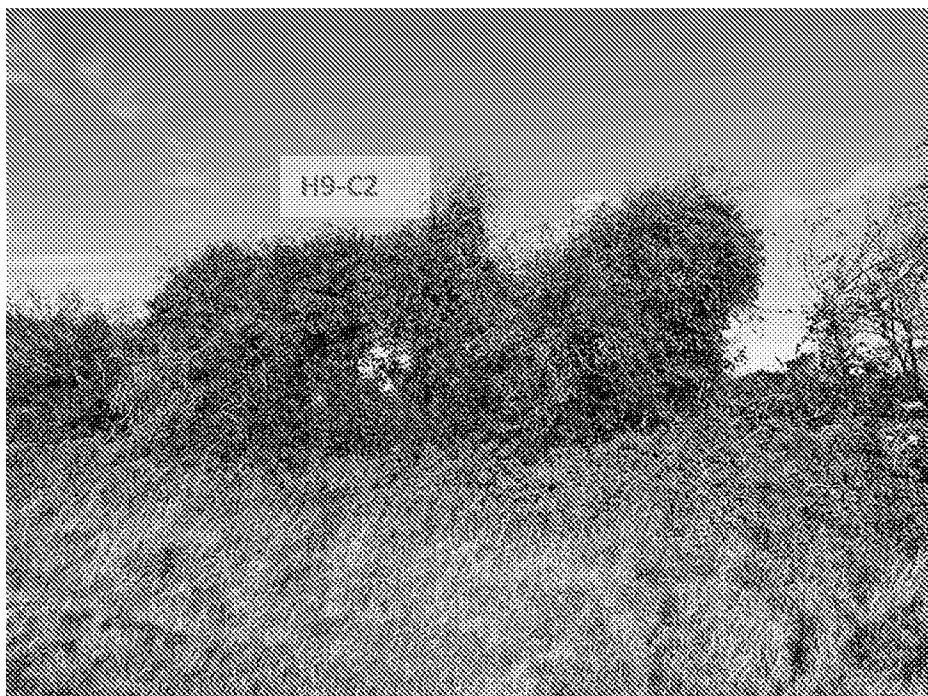


(Above) View looking west from the Site access road, towards the small group of cypress
(Below) View looking west, from the Site access road, showing the cypress screen adjacent to the boundary fence, with heavily pruned small trees





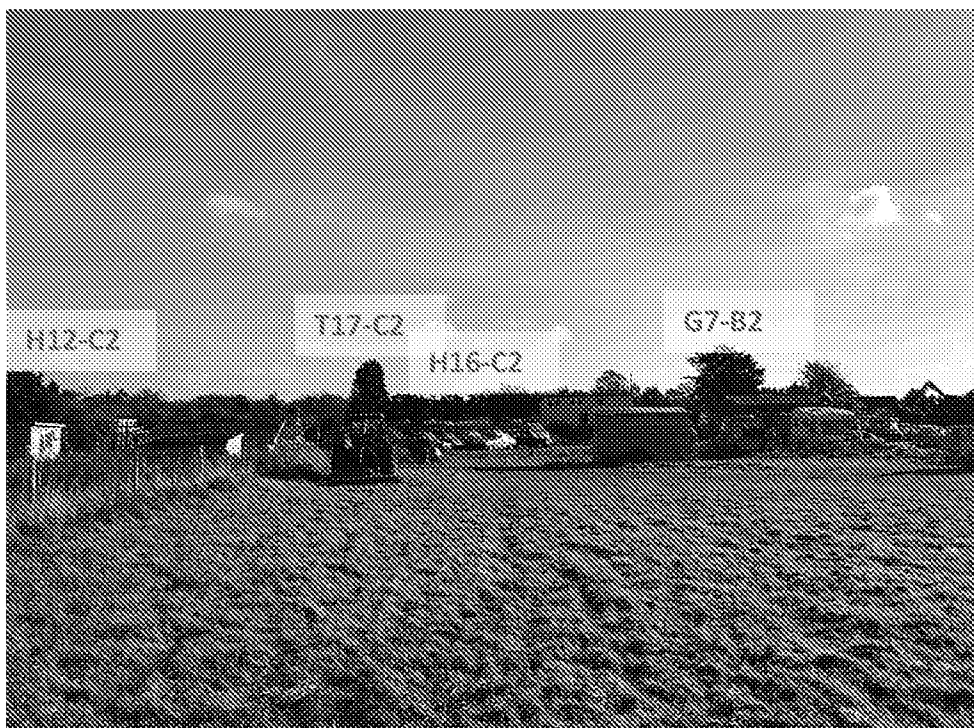
(Above) View looking north-west, towards the northern Site boundary
(Below) View looking north, towards the southern Site boundary hedgerow

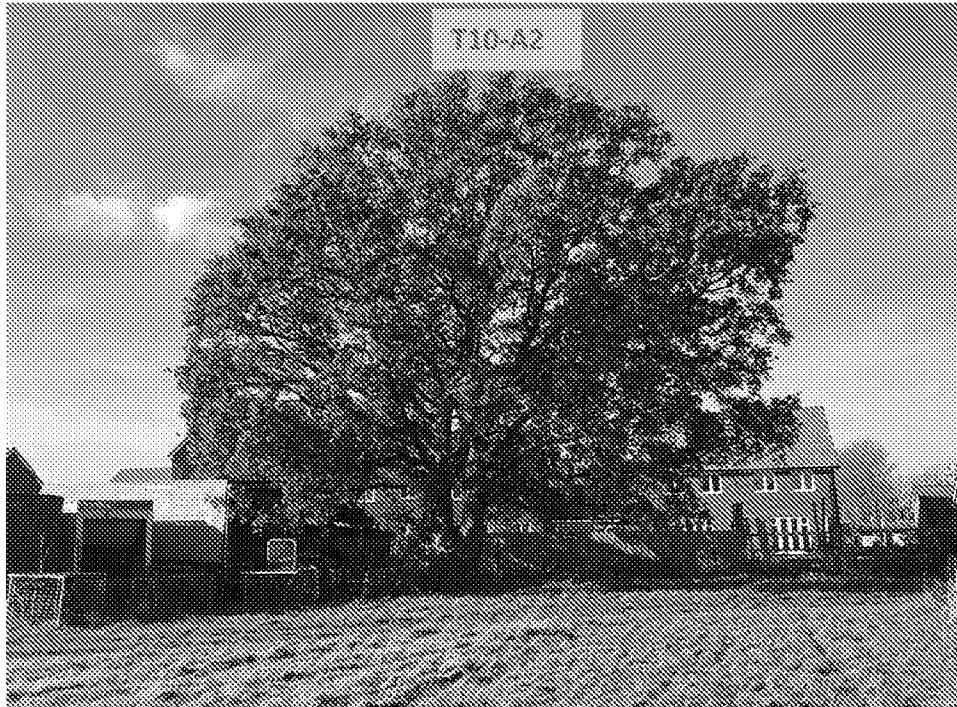




(Above) View looking north-east, towards the south-eastern Site boundary.

(Below) View looking east, towards the recycling yard, from near the western boundary





(Above) View looking west, towards the good quality oak near the western Site boundary.

3. Preliminary Tree Constraints

3.1 In accordance with BS5837:2012, below ground constraints, or root protection areas (RPAs), for the surveyed items have been plotted onto the tree survey plan for the site. These are represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level.

3.2 With reference to BS5837:2012, a root protection area (RPA) is defined as a 'layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority' (BS:5837:2012 p.4 para. 3.7). The default position, when considering design layout in relation to RPAs, should be that structures are located outside the RPAs of trees to be retained.

3.3 BS5837:2012 states (p.11 para. 4.6.2) that, 'Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced'. The BS goes on to state that 'Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution'. Any deviation from the original circular plot should consider:

- morphology and disposition of roots;
- topography and drainage;
- soil type and structure; and
- the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management (BS: 5837:2012 p 11, para 4.6.3).

3.4 Root systems can be damaged in several ways as follows:

- Severance of a root will destroy all parts of the root beyond that point. The larger the root severed, the greater the impact on the tree. If roots are damaged close to the trunk, the anchorage and stability of the tree can be affected;
- The root bark protects the root from decay and is also essential for further root growth. If damage to the bark extends around the whole circumference, the root beyond that point will be killed;
- Soil compaction, which may occur from storage of material or passage of heavy equipment over the root area, can restrict and even prevent gaseous

diffusion through the soil, and thereby asphyxiate the roots. The roots must have oxygen for survival, growth and effective functioning;

- Lowering the soil level will strip out the mass of roots near the surface;
- Raising soil levels will have the same effect as soil compaction;
- Incorrect selection and application of herbicide; and
- Spillage of oils or other harmful materials.

3.5

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

3.6

The colour-coded categorisation of tree quality is also shown on the tree survey plan.

4. Arb Impact Assessment (AIA)

- 4.1 The AIA will identify which survey items are to be removed due to existing structural and physiological condition, that are to be removed due to the development proposals, and which survey items will be retained.
- 4.2 With reference to BS5 837:2012 'Trees in relation to design, demolition and construction', this AIA evaluates the direct and indirect effects of the proposed design on the site's arboricultural resource.
- 4.3 The AIA considers the effects of any tree loss required to implement the proposals as well as any potentially damaging activities proposed in the vicinity of retained trees. BS5837:2012 suggests that such activities might include:
- ✦ Removal of existing structures and hard surfacing;
 - ✦ Installation of new hard surfacing;
 - ✦ Installation of services;
 - ✦ Location and dimensions of all proposed excavations, (including below the gardens area), and changes in ground level (including those that might arise from the implementation of recommended mitigation measures); and
 - ✦ The 'buildability' of the scheme in terms of access, adequate working space, provision for storage of materials including topsoil.
- 4.4 With reference to BS5837:2012, the AIA includes the following information:
- ✦ Tree Retention/Removal and Protection plan for Demolition (Appendix 4).
 - ✦ Tree Protection Plan for Construction (Appendix 5)
- 4.5 An arboricultural impacts assessment schedule is included at Appendix 6. This provides a tree-by-tree assessment of the potential impacts of the proposals. It also evaluates the degree of impact and sets out mitigation measures as may be necessary.
- 4.6 This overall assessment is expanded on below:

Evaluation of effects of proposed tree losses

- 4.7 The tables and comments below summarise the tree retention from development across the site (see Proposed Site Plan (DWG) – REF: 7334, 02/09/2021).

	Total	Number loss	Number Partial loss	Number retained
Category A	1	0	-	1
Category B	5	2	0	3
Category C	11	4	1	6
Total	17	6	1	10

Impact of proposed development on surveyed items

- 4.8 Of the 17 items that were surveyed, ten of the items will be fully retained, and one item partially retained within the development proposals. The 2No Category B trees within the 'Number Loss' column in the above table refer to a short length of beech hedge to be removed (H3-B2) and a small group of trees that have been removed since the tree survey was undertaken (G7-B2).
- 4.9 Proposed tree and shrub planting will provide mitigation for the loss of any existing shrubs within the site. The proposed planting will blend with the existing retained vegetation and further strengthen the vegetation cover, increasing the biodiversity in and around the development site.

Tree Protection

- 4.10 The protection of the retained survey items within the site will rely to a large extent on site operatives being briefed in advance of construction works.
- 4.11 Tree protection in the form of BS5837:2012 approved tree protection fencing will be required to protect the retained existing tree and hedge resource. In two instances, ground protection mats will be required.
- 4.12 Heras panels will be used for tree protection fencing or other suitable BS3857: 2112 recommended type.

Demolition of existing structures and hard surfacing

Anticipated Impacts

- 4.13 There are potential impacts to surveyed items due to demolition within the site. These would include damage to tree stems and canopy as well as damage to the tree roots when removing adjacent foundations.

Mitigation/Avoidance

- 4.14 Tree protection fencing (to BS3857:2012 specification) will be erected to keep construction work and vehicles away from the retained trees (G8 and H16). (as shown on the Tree Protection Plan (Demolition) within Appendix 4).
- 4.15 A suitably qualified arboriculturist will need to be present during the demolition works in these areas. Once the buildings, foundations and surfacing are removed the exposed sections of RPA are to be immediately covered with topsoil and or temporary hoarding erected to contain the soil. The works are to be covered by a prescribed method statement.

Site Construction Access

Anticipated Impacts

- 4.16 The construction access to the site will be via the existing entrance off Fontwell Avenue in the east of the Site. Impacts could include damage to tree canopy and stems from construction vehicles as well as soil compaction.

Mitigation/Avoidance

- 4.17 Tree protection fencing (to BS3857:2012 specification) will be erected to keep construction work and vehicles away from the retained tree (T1) and RPA adjacent to the site entrance as shown on the Tree Protection Plan (Appendix 5 and 6).

Delivery and Storage of materials

Anticipated Impacts

- 4.18 The proposals for the site will include the delivery of construction materials. No storage of materials will take place within the RPA of the retained trees. There are not anticipated to be any impacts to surveyed items relating to storage of materials.

Construction of buildings and other structures

Anticipated Impacts

- 4.19** Generally, the construction work will be located outside the RPA of retained trees. However there may be damage to canopies and soil compaction during construction.
- 4.20** In the case of G8 regarding footpath construction and garden wall construction, there may be root severance during construction, as well as canopy damage and soil compaction within RPAs.
- 4.21** Regarding construction near to G11, there may also be root severance during construction, as well as canopy damage and soil compaction within the RPAs

Mitigation/Avoidance

- 4.22** Damage to tree canopies and soil compaction resulting from construction vehicles running within RPAs, and construction personnel, will be avoided with the installation of tree protection fencing (to BS5837:2112 recommendations) as shown in Appendix 4.
- 4.23** Facilitation pruning (by a qualified arboriculturist) to the retained the canopy and root system following BS 3998:2010 recommendations, may be required for T9 and T11.
- 4.24** Ground protection matting (such as ground-guards Euromatt or Litematt (<https://www.ground-guards.co.uk/compare-products/>) will be used within the RPA of T9 and T11 before construction commences.

Construction of road and hard standing areas

Anticipated Impacts

- 4.25** The road construction and parking areas construction will be almost entirely outside the RPA of any retained trees. However the parking area in the north-east corner could cause direct damage to the roots of H15.

Mitigation/Avoidance

- 4.26** Tree protection fencing (to BS5837:2112 recommendations) will be installed, as shown in Appendix 4 before demolition and construction work begins on site.
- 4.27** Tree protection fencing moved to the secondary location immediately prior to the construction of the parking area adjacent to H15 (see TPP (Construction) in Appendix 5). This will be a No-Dig construction solution.

Service Requirements

Anticipated Impacts

- 4.28 Services information is not available at time of writing. However drainage and services will need to be installed as part of the proposed development. Potential impacts are root compaction and root severance due to the installation of pipework and trenching.

Excavations and site gradients

Anticipated Impacts

- 4.29 There will be very limited level changes within the site.
- 4.30 Increased level changes within an RPA can reduce oxygenation and water uptake for the tree roots and lead to root death. Reducing soil levels within an RPA will lead to root severance.

Mitigation/Avoidance

- 4.31 If level changes are proposed within future design, within the RPA of retained trees, the work will require a detailed Arboricultural Method Statement, to minimise any impacts on the retained items.

'Buildability'

- 4.32 Based on the proposals, provided that tree protection measures are put in place prior to the commencement of works on the site, and any required engineering solutions are fit for purpose in terms of minimising damage occurring to retained surveyed items, it is considered that there is adequate space to enable the development.

Briefing for site operatives

- 4.33 An important element of the protection measures that form part of this report are that site operatives be properly briefed in advance of site works commencing. The operatives will be briefed on the importance and function of sensitive site demolition and construction and that tree RPA are sacrosanct and fencing should not be altered once installed. The site operatives will also be fully briefed before site clearance and landscaping begins.

Tree Protection Plan

- 4.34 The Tree Retention/Loss and Protection Plan is attached in Appendices 4 respectively.
- 4.35 In accordance with BS5837:2012 the TPP is superimposed onto the proposed site layout plan. Any hard surfacing and structures within the RPAs of trees or hedges to be retained are shown on the TPP.
- 4.36 The preparation of the TPP has considered the following factors where relevant:-
- ✦ Site construction access;
 - ✦ intensity and nature of construction activity;
 - ✦ phasing of construction works;
 - ✦ availability of special construction techniques;
 - ✦ spatial requirements for:
 - a) temporary and permanent apparatus and service runs;
 - b) foundation excavations and construction work;
 - c) plant scaffolding and access during works;
 - d) site huts, toilets (including drainage) and other temporary structures;
 - e) storage (either temporary or long-term) of materials, spoil, fuel and mixing of concrete.
 - ✦ All changes in ground levels including location of retaining walls, steps and adequate allowance for foundations of such walls and backfilling.
- 4.37 The tree protection measures shown on the Tree Protection Plan demonstrate the feasibility of the proposed development in relation to the retained trees.

5. Outline Arboricultural Method Statement(AMS)

- 5.1 BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following on from the approval of the feasibility of a scheme by the relevant regulatory body.
- 5.2 Annex B and Table B.1 of BS5837:2012, an informative, advises that arboricultural method statement heads of terms are a sufficient level of information to deliver tree-related information into the planning system. The table also advises that a detailed arboricultural method statement might reasonably be required as a 'reserved matter' or planning condition.
- 5.3 In relation to the above site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A draft, 'heads of terms' is set out below:
- ✦ Pre-commencement site meeting (s) – site briefing.
 - ✦ Tree removal as per drawing 06369 03.
 - ✦ Installation of tree protection measures.
 - ✦ Main construction phase - schedule of monitoring and supervision, as necessary.
 - ✦ Tree protection measures adjusted where required for localised construction.
 - ✦ Removal of tree protection measures.

6. Summary and Conclusions

- 6.1 Ten of the seventeen surveyed items will be fully retained, and one item partially retained within the development proposals.
- 6.2 The majority of the tree protection measures will include the positioning of tree protection fencing only. However during demolition it is recommended that an arboriculturist is on-site to monitor the demolition of buildings and hard surfacing adjacent to retained survey items. During construction there will also be a requirement for localised areas of no-dig construction and/or ground protection. A prescribed method statement will be required to provide suitable guidelines for the continued survival of surveyed items adjacent to demolition or where construction is to be undertaken within RPAs.
- 6.3 The items recommended for removal are mainly C quality, and not in particularly good condition.
- 6.4 The B Category item to be removed is a short length of beech hedge near the entrance to the Site. (G7 -B2 has been removed since the Tree Survey was undertaken).
- 6.5 The retained hedge sections will be strengthened with additional planting and managed to create more coherent and visually pleasing hedgerows.
- 6.6 The proposed planting will mitigate for the loss of some existing planting, and further strengthen the vegetation cover, increasing the biodiversity in and around the development site.
- 6.7 The open grown oak tree near the western boundary of the site (Area B) will not have disturbance to the canopy or RPA as construction will be kept out of the RPA.

Appendix 1 – Site Location Plan



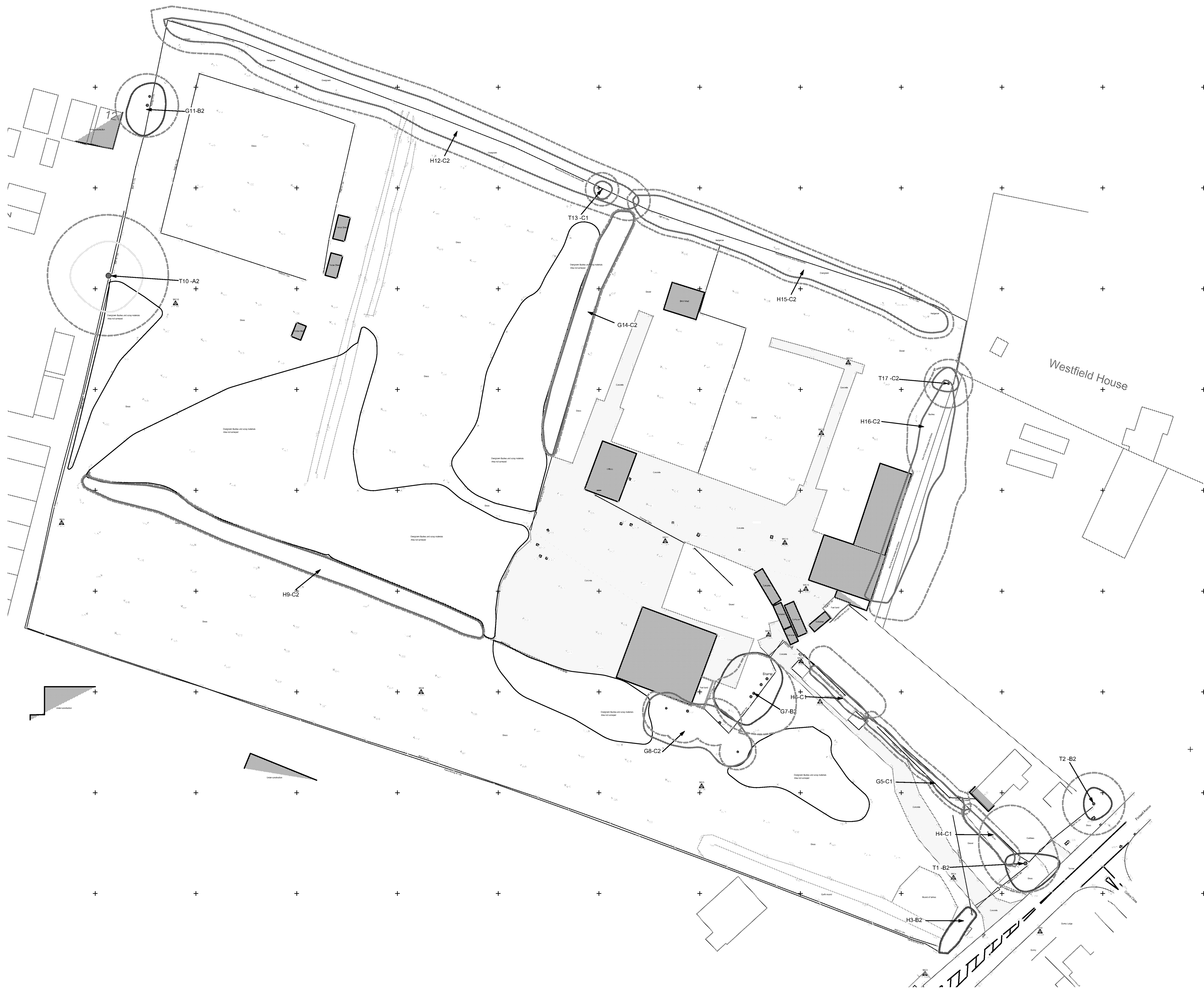
Appendix 2 – Tree Survey Schedule

Ref.no.	Species	Ht. (m)	Stem		RPA radius	RPA area	Category Grading	Crown Spread (m)								Life stage	ULE	Physiological Condition	Structural Condition and Notes
			Stem Count	Stem dia. (mm)				N	E	S	W	Ht. 1st Br. (m)	Est	1st Br. Direction	Ht. Can. (m)				
T1	Oak	16.0	1	850	10.2	327	B2	2.5	8.5	7.0	5.0	1.5	-	South west	4.5	M	20+	Fair	Ivy up the stem and into crown. Asymmetrical canopy, light on the northern side. Adjacent to boundary closeboard fence. Minor deadwood in crown. Lower laterals pruned in the past.
T2	Sycamore	13.5	1	640	7.7	185	B2	4.0	4.5	4.0	2.5	3.0	-	North east	2.5	M	20+	Fair	Off site. Crown heavy on south side. Rough-pruned lower laterals. Forked at 2.5m. Minor ivy up stem
H3	Beech	3.0	1	150	1.8	10	B2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Good	Short boundary hedge section. Adjacent to services manholes and telegraph pole.
H4	Cypress	3.5	1	180	2.2	15	C1	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Poor	Short hedge section as screen to adjacent property, gappy, rough looking. Little amenity value.
G5	Cypress, elder, sycamore, field maple	3.0	1	200	2.4	18	C1	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Linear group of heavily pruned short trees adjacent to fence. Little amenity value. Some dead ivy clad stumps as well.
H6	Cypress	5.0	1	300	3.6	41	C1	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Short cypress hedge section. Very close to telegraph wires and pole. Adjacent to boundary fence.
G7	Cypress	16.5	1	850	10.2	327	B2	3.5	3.5	3.5	3.0	0.0	-	-	3.0	M	20+	Fair	Small group of cypress. Dbh range from 650 - 950. One monolith stump on northern end. Adjacent to fencing and clutter. Some pruned lower laterals. Good landscape feature. Some damage to stem of large item probably limb breakage.
G8	Cherry, sycamore	9.5	1	450	5.4	92	C2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Loose group within scrub and piles of clutter. Close to a large barn. Possibly self sown, with some natural regeneration. Adjacent to fence. Ht from 5m rot 9.5m
H9	Hawthorn, bramble, oak	4.0	1	200	2.4	18	C2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Poor	Under managed, gappy, deteriorating native hedge. Scrub in places. A lot of dead wood. But still a fairly intact native hedge. Has scrap and soil piled against the northern side in places. Needs management.
T10	Oak	21.0	1	1300	15.6	765	A2	8.5	8.5	9.0	9.5	1.5	#	South	2.5	M	40+	Good	Lovely spreading crown shape. Adjacent to boundary fence. Forked at 2m. Broken lower lateral on east side. Dbh is estimated because of access problem.
G11	Hawthorn	6.0	1	650	7.8	191	B2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Off site Small group of hawthorn . Ok landscape feature
H12	Hawthorn, elder, bramble,	5.5	1	470	5.6	100	C2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Poor	Very gappy undermanaged hedge adjacent wire fence. Quite overgrown.Plenty of deadwood. Eastern end very gappy mostly bramble.
T13	Cypress	8.5	1	340	4.1	52	C1	2.0	2.5	2.5	2.0	1.0	-	South	1.5	M	20+	Poor	Lean to east. Damage to lower branching on south side. Little amenity value
G14	Elder, bramble, hawthorn	4.5	1	200	2.4	18	C1	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Poor	Mainly bramble some scrubby plants. In very bad shape.
H15	Cherry, hawthorn, elder, bramble, blackthorn, ivy	7.5	1	370	4.4	62	C2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Undermanaged, but more intact than the western end of this boundary hedge line. Some gaps. Lots of scrap piled adjacent to it.
H16	Cypress	10.0	1	300	3.6	41	C2	0.0	0.0	0.0	0.0	0.0	-	-	0.0	M	20+	Fair	Heavily pruned rather ragged looking hedge/screen along boundary.on slightly raised ground.
T17	Cypress	17.0	1	500	6.0	113	C2	4.0	2.5	2.0	4.0	0.0	-	-	3.5	M	20+	Fair	Multistemmed. End of hedge line landscape feature. Poorly pruned lower lateral on north side.

Appendix 3 – Tree Survey Plan

KEY - BS 5837 : 2012 Categories

- Tree Category A - High Quality
- A Category - Hedgerow, Group, Woodland
- Tree Category B - Moderate Quality
- B Category - Hedgerow, Group, Woodland
- Tree Category C - Low Quality
- C Category - Hedgerow, Group, Woodland
- Tree Category U - Unsuitable for Retention
- Root Protection Area to BS:5837:2012
- Shrub Mass / Offsite Tree



Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Revision	Description	Date
-	First Issue	20/11/20
A	Amendment to RPA in relation to existing buildings and surfacing	6/10/20



W: www.hcukgroup.co.uk

Client:
SRC Recycling Limited
Project:
Land at SRC Recycling, Eastergate
Description:
Tree Survey

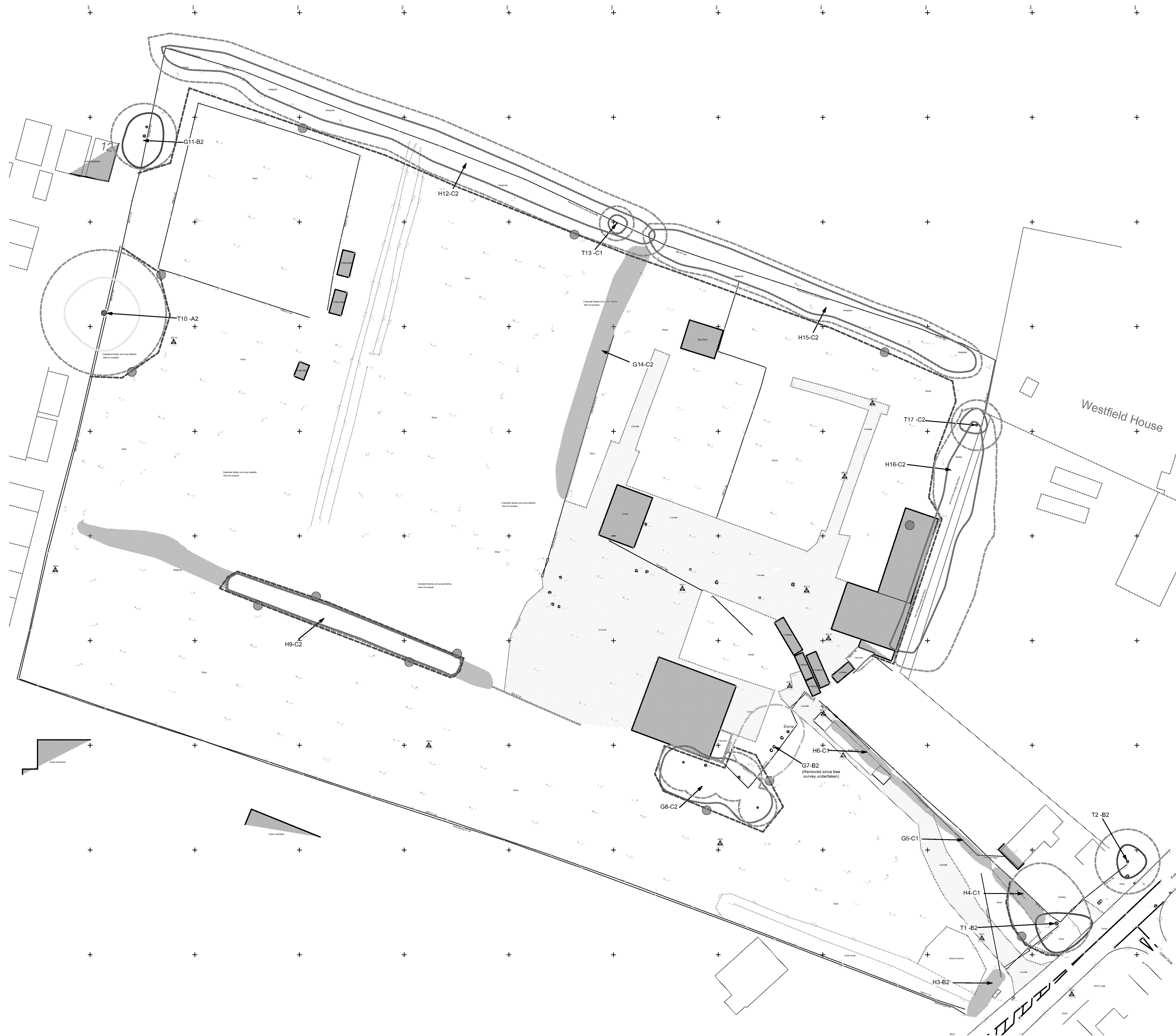
Status:
For Planning

Scale: 1:500	Drawn I SH	Checked CB	Date: 6/10/2021
Job Number: 06368	Drawing Number: 01	Revision: A	



Appendix 4

Tree Retention/Loss & Protection Plan (Demolition)



KEY - BS 5837 : 2012 Categories

- Tree Category A - High Quality
- A Category - Hedgerow, Group, Woodland
- Tree Category B - Moderate Quality
- B Category - Hedgerow, Group, Woodland
- Tree Category C - Low Quality
- C Category - Hedgerow, Group, Woodland
- Tree Category U - Unsuitable for Retention
- Root Protection Area to BS:5837:2012
- Shrub Mass / Offsite Tree
- Survey Item to be Removed
- Tree Protection Barrier to BS:5837:2012
- Tree Protection Secondary Barrier to BS:5837:2012
- All weather information notices to read 'Construction Exclusion Zone - Keep out' A2 in size. To be attached to tree protection barriers

Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Revision	Description	Date
-	First issue	9/10/21
A	Amendment to retained trees	9/10/21

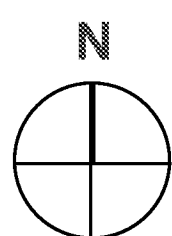


W: www.hcukgroup.co.uk

Client:
SRC Recycling Limited
Project:
Land at SRC Recycling, Eastergate
Description:
Tree Removals/Retention and Protection Plan (Demolition Phase)
Status:
For Planning

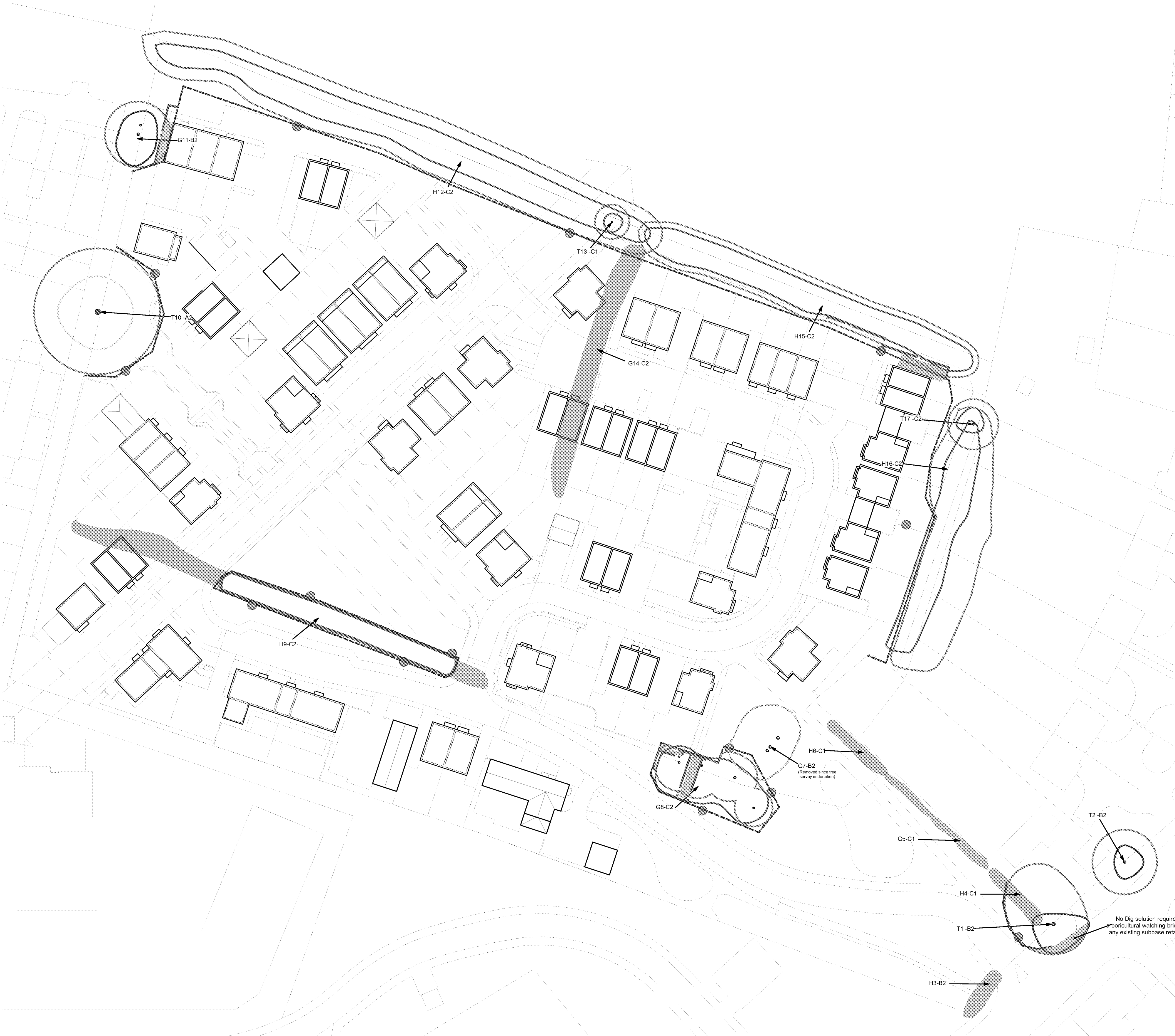
Scale: 1:500@A1	Drawn I Checked SH CB	Date: 9/10/2021
Job Number: 06368	Drawing Number: 03	Revision: A

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Appendix 5

Tree Protection Plan (Construction)



KEY - BS 5837 : 2012 Categories

- Tree Category A - High Quality
- A Category - Hedgerow, Group, Woodland
- Tree Category B - Moderate Quality
- B Category - Hedgerow, Group, Woodland
- Tree Category C - Low Quality
- C Category - Hedgerow, Group, Woodland
- Tree Category U - Unsuitable for Retention
- Root Protection Area to BS:5837:2012
- Shrub Mass / Offsite Tree
- Survey Item to be Removed
- Tree Protection Barrier to BS:5837:2012
- Tree Protection Secondary Barrier to BS:5837:2012
- Temporary Ground Protection to BS:5837:2012
- Area of 'No Dig' Construction to BS:5837:2012
- All weather information notices to read 'Construction Exclusion Zone - Keep out' A2 in size. To be attached to tree protection barriers

Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Revision	Description	Date
-	First issue	6/10/21
A	Amendment to site entrance alignment	14/10/21
B	Amendment to retained trees	21/3/22



W: www.hcukgroup.co.uk

Client:
SRC Recycling Limited
Project:
Land at SRC Recycling, Eastergate
Description:
Tree Removals/Retention and Protection Plan (Demolition Phase)
Status:
For Planning

Scale: 1:500@A1	Drawn I SH	Checked CB	Date: 21/3/2022
Job Number: 06368	Drawing Number: 03	Revision: B	



Appendix 6

Arboricultural Impact Schedule

No.	Species	Quality	Arboricultural effects (direct and indirect) of proposed design - description	Unadjusted degree of arboricultural impact on the tree	Unadjusted significance of arboricultural impact	Recommended mitigation	Adjusted degree of arboricultural impact on tree/ site's arboricultural resource	Adjusted significance of arboricultural impact	Tree removal required
T1	Oak	B2	- Potential damage to the stem and canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Moderate	Installation of temporary tree protection barrier to BS 5837:2012.	Slight	Insignificant	No
T2	Sycamore	B2	No predicted impacts.	None	None	None	None	None	No
H3	Beech	B2	Removal to facilitate the construction of the development	High	Major	Mitigation planting of native tree and hedge plants within the development design	Slight	Insignificant	Yes
H4	Cypress	C1	Removal to facilitate the construction of the development	High	Moderate	Mitigation planting of native tree and hedge plants within the development design	Slight	Insignificant	Yes
G5	Cypress, elder, sycamore, field maple	C1	Removal to facilitate the construction of the development	High	Moderate	Mitigation planting of native tree and hedge plants within the development design	Slight	Insignificant	Yes
H6	Cypress	C1	Removal to facilitate the construction of the development	High	Moderate	Mitigation planting of native tree and hedge plants within the development design	Slight	Insignificant	Yes
G7	Cypress	B2	(Removed since tree survey undertaken)	-	-	-			-
G8	Cherry, sycamore	C2	- Potential damage to the stem and canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including footpath and garden wall construction.	Medium	Minor	- Installation of temporary tree protection barrier to BS 5837:2012. - Facilitation pruning of lower canopy branches if required, undertaken by a qualified arboriculturist to BS3998:2010 recommendations - During demolition of adjacent building, a banksman is to be employed to instruct the machine operator when close to branches. - Careful removal of scrap metal and other stored items within the RPA. - Removal of existing hard surfacing within the RPA and foundation. Replace with topsoil laid to proposed falls. - Tree protection barrier moved to secondary location. - A No-Dig solution for footpath construction. - Garden wall construction to follow a prescribed method statement.	Low	Insignificant	No
H9	Hawthorn, bramble, oak	C2	- Partial removal to facilitate the development design construction - Potential damage to the retained canopy from construction vehicles, activities and operatives.	Medium	Minor	- Careful removal of scrap metal and other stored items within the RPA. - Installation of temporary tree protection barrier to BS 5837:2012.	Low	Insignificant	Partial

			Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.			Mitigation planting of native tree and hedge plants within the development design			
T10	Oak	A2	- Potential damage to the stem and canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Major	Installation of temporary tree protection barrier to BS 5837:2012.	Slight	Minor	No
G11	Hawthorn	B2	- Potential damage to the canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction activities, including levels changes.	Medium	Moderate	- Installation of temporary tree protection barrier to BS 5837:2012. - For construction activities within or adjacent to the RPA. Tree protection barrier moved to secondary location. - Installation of temporary ground protection such as ground guards or similar approved over the eastern side of the RPA, to allow space for scaffolding.	Low	Minor	No
H12	Hawthorn, elder, bramble,	C2	- Potential damage to the canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Minor	- Careful removal of scrap metal and other stored items within the RPA. - Installation of temporary tree protection barrier to BS 5837:2012.	Low	Insignificant	No
T13	Cypress	C1	- Potential damage to the stem and canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Minor	Installation of temporary tree protection barrier to BS 5837:2012.	Low	Insignificant	No
G14	Elder, bramble, hawthorn	C1	Removal to facilitate the construction of the development	High	Moderate	Mitigation planting of native tree and hedge plants within the development design	Slight	Insignificant	Yes
H15	Cherry, hawthorn, elder, bramble, blackthorn, ivy	C2	- Potential damage to the canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Minor	- Careful removal of scrap metal and other stored items within the RPA. - Installation of temporary tree protection barrier to BS 5837:2012. - Tree protection barrier moved to secondary location only when the parking area construction is ready to be undertaken. - A No-Dig solution for parking area construction.	Low	Insignificant	No
H16	Cypress	C2	- Potential damage to the stems and canopy from construction vehicles, activities and operatives. - Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Minor	- Installation of temporary tree protection barrier to BS 5837:2012. - Facilitation pruning of lower canopy branches if required, undertaken by a qualified arboriculturist to BS3998:2010 recommendations - During demolition of adjacent building, a banksman is to be employed to instruct the machine operator when close to branches. - Careful removal of scrap metal and other stored items within the RPA. - Removal of existing hard surfacing within the RPA and foundation. Replace with topsoil laid to proposed falls. - Tree protection barrier moved to secondary location.	Low	Insignificant	No

T17	Cypress	C2	• Potential damage to the stem and canopy from construction vehicles, activities and operatives. • Potential for direct damage to roots and soil compaction due to construction and demolition activities, including levels changes.	Medium	Minor	• Installation of temporary tree protection barrier to BS 5837:2012.	Low	Insignificant	No
			•			• Installation of temporary tree protection barrier to BS 5837:2012. • Root pruning if required on southern side of RPA to BS.3998:2010 specifications. • Installation of temporary ground protection such as ground guards or similar approved over the southern side of the RPA. • If required, facilitation pruning to BS 3998:2010 recommendations of the retained canopy and root system, by a qualified arboriculturist • Installation of temporary ground protection such as Cellweb or similar approved over the northern and eastern side of the RPA.			

Appendix 7

Methodology

- 1.1 The tree survey was carried out with reference to the methodology set out in BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'. Trees were not tagged.
- 1.2 Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups/woodlands were also surveyed as individuals
- 1.3 Tree survey findings are recorded in the tree survey schedule.
- 1.4 Within the tree survey schedule, each surveyed tree (T), hedgerow (H), group (G), woodland (W) on or adjacent to the site is given a reference number which refers to its position on the tree survey plan.
- 1.5 Also shown on the tree survey plan are quality grading and preliminary tree constraints: root protection areas.
- 1.6 Tree species: listed by common name.
- 1.7 Heights: measured in metres. They are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- 1.8 Trunk diameters: measured in millimetres and are rounded to the nearest 10mm. Single stemmed tree diameters are measured at 1.5m above ground level or, where a fork or swelling makes this impractical, at the narrowest point beneath. Diameters of multi-stemmed trees are calculated as '*combined stem diameters*' according to specific guidance set out within BS5837:2012 (p.10, para 4.6.1 a and b).

- 1.9 Crown spreads: taken at the four cardinal points to derive an accurate representation of the tree crown. They are recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m. For trees assessed as groups or woodland, an estimated mean radial crown spread in metres is taken for trees at the 80 percentile size.
- 1.10 Crown clearance: expressed both as existing height above ground level of first significant branch along with its direction of growth (e.g. 2.5m-N), and also in terms of the overall canopy. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- 1.11 Estimates: where any other measurement has had to be estimated, due to inaccessibility for example, this is indicated by a “#” suffix to the measurement as shown in the tree survey schedule.
- 1.12 Life stage:
- Y – young (stake dependent);
 - SM - Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature);
 - EM – Early Mature (not yet having reached 75% of expected mature size);
 - M – Mature (anything else up to normal life expectancy for the species);
 - OM – Over Mature (anything beyond mature and in natural decline); and
 - V – Veteran (any tree displaying characteristics described by Natural England).

1.13 Management Recommendations: recorded in relation to a tree's structural and/or physiological condition (e.g. the presence of any decay and physical defect) and /or any preliminary management recommendations that may be appropriate. This is NOT intended to comprise a specification for tree work; further advice should be sought prior to implementation. Trees assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practical.

1.14 Physiological condition:

- Good (Generally in healthy condition. No indications of impaired physiological function and in optimum condition for age and species);
- Fair (Condition satisfactory though below mean species performance, with indicators of reduced vitality. Some intervention may be required);
- Poor (Tree in decline/retrenching, with significantly impaired physiological function for age and species); and
- Dead (self-explanatory).

1.15 The above are informed by the following;

- Leaf size and colouration – unless otherwise state, leaf size and colouration is typical of the age and species; and
- Canopy density – unless otherwise stated, the canopy density of trees is typical of the age and species.

1.16 Structural Condition & Notes:

- Good (without any observable significant biomechanical structural weaknesses);
- Fair (with minor biomechanical structural flaws. Some remedial action may be required); and

- Poor (with significant biomechanical weaknesses requiring intervention particularly where risk management is required).

1.17 Notes on the apparent structural integrity of the tree are based upon visual tree assessment, including notes on form, taper, forking habit, storm damage, wood decaying fungi, pests and disease etc. plus other pertinent observations.

1.18 Anticipated useful life expectancy (ULE): the length of time a tree is estimated to be able to make a safe useful contribution to local amenity is expressed in years as: <10, 10+, 20+, 40+.

1.19 Category Grading: individual trees, hedgerows, groups of trees, and woodlands are assessed in terms of quality and benefit within the context of proposed development and graded into one of four categories (U, A, B, and C) which are differentiated on the tree survey plan (Appendix 3) plan by the colours indicated below:

Category U (Red)

1.20 Unsuitable for retention. Trees in such a poor condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Retention Implications to a site

1.21 Not a material consideration in the planning process but may have other benefits i.e. ecological benefits/importance.

Category A (Green)

1.22 Trees of high quality with an estimated remaining life expectancy of 40 years.

Retention Implications to a site

- 1.23 Tree should be retained and amendments to a proposed scheme should be identified in preference to tree removal.

Category B (Blue)

- 1.24 Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Retention Implications to a site

- 1.25 Where possible amendments to a proposed scheme should be considered in preference to tree removal.

Category C (Grey)

- 1.26 Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Retention Implications to a site

- 1.27 The retention of trees may be advantageous in the short term, but they should not be seen as a constraint to development.
- 1.28 A, B and C trees have also been given a sub-category of 1, 2 or 3 which reflects their arboricultural, landscape or cultural and conservation values respectively. Each subcategory has an equal weight, for example an A1 tree has the same retention priority as an A3 tree.
- 1.29 Trees have been assigned 'U' or category grading A-C in accordance with the cascade chart given in BS: 5837:2012.

- 1.30 In addition to the category, the tree survey schedule also describes each tree's root protection area (RPA) in terms of radius (metres) and overall area (sq metres).

Limitations

- 1.31 This report has been undertaken in compliance with BS: 5837:2012 and is not intended to be a tree safety survey. This report is prepared for planning application purposes only and does not evaluate the degree of risk posed by trees. Any notes offered regarding structural integrity of trees are to be considered incidental. Our recommendations given for immediate intervention should be put in the hand of the owner/site manager as soon as reasonably practicable.
- 1.32 Trees are dynamic living organisms as well as self-supporting dynamic structures, capable of achieving considerable size and structural complexity. Their physiological and structural condition can change rapidly in response to a wide range of biotic/abiotic factors. They are exposed to and can become damaged by the elements and by human activity, and have co-evolved with decay causing organisms that can degrade and sometimes destroy their structural integrity. The laws and forces of nature dictate a natural failure rate even among trees that appear healthy and structurally sound. They therefore have the potential to fail structurally, without prior manifestation of any reasonably observable symptoms. By their very nature, therefore, it is not possible to categorically state that any tree is 'safe' or hazard free. Tree surveys and/ or tree inspections are inherently a snap shot in time of the structural and physiological conditions of the trees concerned.
- 1.33 It is beyond the scope of this report to comment in relation to structural damage – direct or indirect, existing or potential – that might be associated with vegetation growth, or vegetation-related soil subsidence or heave.

- 1.34 Unless otherwise stated, all such surveys/inspections are undertaken from ground level and no internal inspections or tests have been undertaken.
- 1.35 Any management recommendations set out within this report are of an advisory and preliminary nature only and relate to trees within the context of current site use.
- 1.36 The findings and recommendations of this report should be considered time-limited for planning purposes to a maximum of 24 months from the date of this report (absent revisions of BS5837, which render pre - existing data obsolete).

Appendix 8

Tree Protection Fencing

(BS5837:2012 compliant)

Figure 2 Default specification for protective barrier

