Arboricultural impact assessment and method statement

Ocean Square
Saundersfoot
Pembrokeshire

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Validation statement for LPA registration

Validation statement

This report contains the supporting tree information relating to the redevelopment of the coal office site Ocean Square, Saundersfoot into a Heritage & Arts Centre.

For Local Planning Authority (LPA) validation purposes, this report has the following:

- A full tree survey, compliant to the requirements of ***BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations,*** undertaken by a qualified arboriculturist

- A plan with a north point showing tree survey information, including BS 5837 categories

- An assessment of the arboricultural impacts of development, detailing trees to be retained or removed and the proposed protection measures (Section 1)

- An arboricultural method statement describing a feasible means of tree protection, its implementation and the phasing of works (Section 2)

Section 1

Arboricultural impact assessment

This arboricultural impact assessment provides an evaluation of the probable direct and indirect effects of the proposed development on the trees and vice versa. It considers the characteristics and condition of the trees, with due allowance for their future growth and maintenance requirements. Where necessary, impact mitigation measures are recommended.

Section 1: Arboricultural impact assessment

1.1 DIRECT AND INDIRECT EFFECTS OF THE PROPOSED DEVELOPMENT

1.1.1 Tree losses and pruning required to implement the design

Trees that will be affected by this proposal are listed in Table 1.

Table 1: Trees that will be affected.

	British Standard 5837 category		
	A (High quality)	B (Moderate quality)	C (Low quality)
Trees to be removed	0	T.1, T.2, T.4, T.5, T.7 & T.9	0
Trees to be pruned	0	0	0
Trees to be transplanted	0	T.6	T.3 & T.8

Abbreviations: T = individual; G = group; H = hedge

Impact on local amenity, character, privacy and screening: High. Transplanting three of the trees along with additional planting will reduce the impact to Moderate.

1.1.2 Potentially damaging activities near retained trees

There are no trees that need to be protected by special precautions (other than fencing) on the site.

Impact on retained trees: Low.

1.1.3 Buildability

The potentially damaging effects of temporary activities during construction are considered below:

- **Site access:** All construction traffic will use existing access routes into the site.
  Impact: Nil.

- **Contractor car parking:** Parking for contractors can be accommodated adjacent to the development site and outside of the RPAs of all retained trees.
  Impact: Nil.

- **Workspace:** The worksite has enough space to accommodate all activities without affecting RPAs.
  Impact: Nil.

- **Storage:** Storage areas are provided within the site and are outside the RPAs of all retained trees.
  Impact: Nil.

1.1.4 **Future pressure for the removal of retained trees**

Trees retained in close proximity to structures and hard surfacing have the potential to cause damage. Occupants of buildings near trees may also be affected. Where these impacts are high, retained trees are likely to face pressure for removal. Our assessment of how the proposed development will be affected by retained and transplanted trees, taking in to consideration their future growth potential, is summarised below:

- **Direct damage to structures:** Transplanted trees and proposed new planting have potential to cause damage from future root and crown growth.
  Impact: Low. The installation of root barriers around transplanted trees and proposed new planting, will prevent roots damaging the new paved areas and adjacent buildings. A management plan for routine pruning will contain growth and prevent damage to above ground structures.

- **Shading:** None of the retained trees will cast shadows onto the proposed development. Transplanted trees and new planting will cast minimal shade on to the new development.
  Impact: Nil.

- **Seasonal nuisance:** Falling leaves, fruit and flowers have potential to cause minor seasonal nuisance to paths and drainage gullies.
  Impact: Low. General maintenance and good housekeeping will ensure seasonal nuisance is not a significant issue.

1.2 PROPOSED MITIGATION

1.2.1 **Protection of retained trees**

The successful retention of trees depends on the quality of the protection they are given while there is a risk of damage. An effective means of doing this is through an arboricultural method statement that is specifically referred to in a planning condition. An arboricultural method statement for this site is set out in Section 2 of this report. Implementation of this method statement will allow all the retained trees to survive without any adverse impact and allow them to continue to contribute to local amenity and character.

1.2.2 **Mitigation planting**

Trees T.3, T.6 & T.8 are suitable for transplanting. These three trees along with additional planting as proposed in the specific landscape plan, will increase tree numbers in the area and add to local amenity and character.

1.3 CONCLUSIONS ON THE IMPACTS OF THE DEVELOPMENT PROPOSAL ON LOCAL AMENITY AND CHARACTER

Provided adequate precautions to protect the retained trees are implemented, as specified in the arboricultural method statement, the development proposal will have a moderate impact on the contribution made by the existing trees to local amenity or character.

Transplanting trees T.3, T.6 & T.8 and the proposed additional planting will mitigate against the losses and increase tree numbers in the area whilst utilising limited planting space.

1.3.1 **Modifications recommended to reduce impacts and accommodate trees**

None recommended.

Section 2

Arboricultural method statement

This arboricultural method statement describes how trees will be protected and managed during site development. It is based on the information available at the planning application stage and may need to be updated in the context of any specific planning conditions, when full planning approval detail is known (Table B1 of BS 5837).

The purpose of the arboricultural method statement is to:

- explain how and when the protection measures should be installed;
- explain how protection measures will be maintained for the duration of the development activity; and
- provide opportunity for a planning condition, specifically referring to this arboricultural method statement, to ensure retained trees receive the required protection.

The arboricultural method statement relates specifically to this site and must be read in conjunction with the attached tree protection plan.

A copy of this report must be permanently available on site for the duration of the development activity. It can be:

- included in tendering documentation to identify and quantify the tree protection and management requirements;
- used to plan the timing of site operations to minimise the impact on trees; and
- referenced on site for practical guidance on how to protect important trees.

Section 2: Arboricultural method statement

2.1 IMPORTANT TERMS

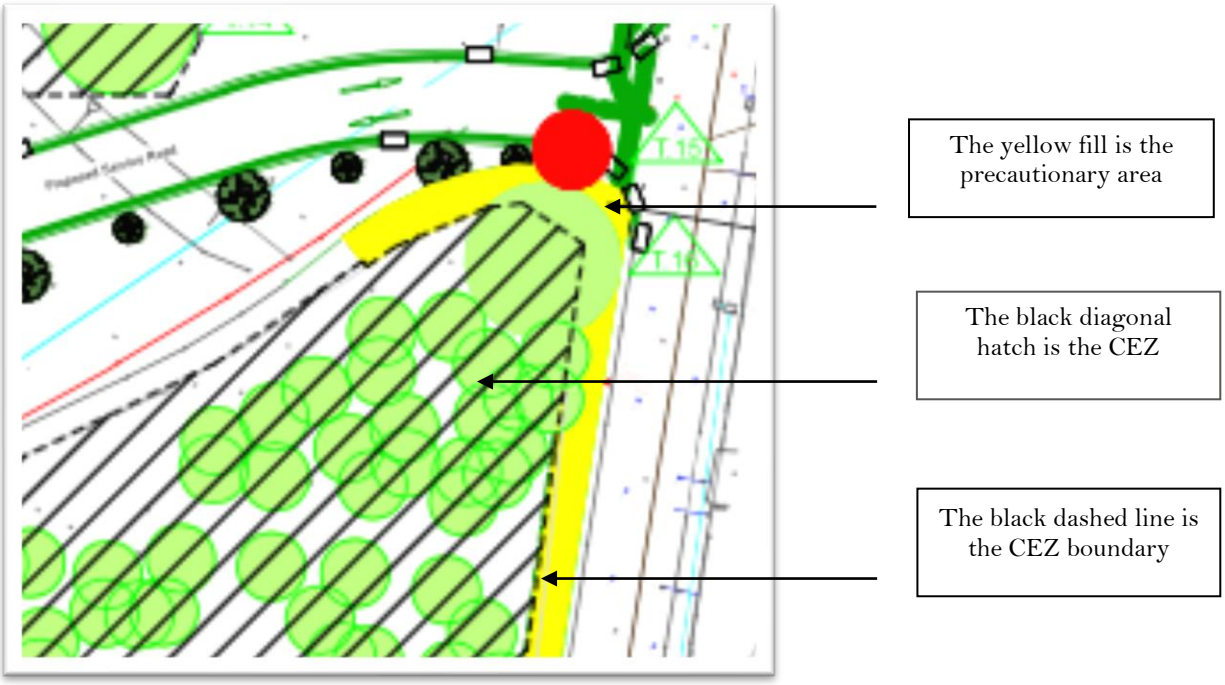
An explanation of the important terms used within this arboricultural method statement is given below.

Root protection areas (RPAs): RPAs are the areas surrounding retained trees where disturbance must be minimised.

Construction exclusion zone (CEZ): This is the RPA where no construction activity should occur and damage is prevented by either installing fencing to restrict access or installing ground protection that allows limited access above the ground, while protecting the rooting environment below.

Precautionary area: This is the RPA outside the CEZ where limited works are proposed, but must be carried out with care to minimise any impact on the tree rooting environment.

These areas are illustrated on our plans and annotated as follows:



Section 2: Arboricultural method statement

2.2 EXPLANATORY NOTES FOR THE TREE PROTECTION PLAN

The tree protection plan (our reference PC17-71v2 -TPP) is based on the provided information. It should only be used for dealing with the tree issues and the precise location of all protective measures should be confirmed at the pre-commencement meeting before any construction activity starts. The plan base is the existing land survey with the proposed layout superimposed, so the two can be easily compared. It shows:

- the existing trees numbered, with high categories (A & B) highlighted in green triangles and low categories (C & U) highlighted in blue rectangles;
- the trees to be removed indicated by a red crown outline; and
- the location of the construction exclusion zone (CEZ) to be protected by barriers formed by fencing and/or ground protection.

2.3 RESPONSIBILITIES

2.3.1 General site management

It is the Main Contractor's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents will be available on site and the site manager will brief all personnel who could have an impact on trees on the specific tree protection requirements. This will be a part of the site induction procedures and written into appropriate site management documents.

2.3.2 Contacts

The key contacts, with responsibility for tree related issues on this site are provided below:

Responsibilities	Name	Contact details
Local Authority Arboricultural Officer	Mike Higgins Pembrokeshire Coast National Park Authority	01646 624881
Main Contractor	TBC	-
Arboricultural Consultant	Jason Winter Paul Cleaver Tree Consultancy	01437 899888

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2.3.3 **Arboricultural supervision**

The arboricultural consultant is appointed to supervise the tree protection and management for the site. The form and purpose of the arboricultural supervision is as follows:

- **Pre-commencement meeting:** A pre-commencement meeting will be held on site before any of the site clearance and construction work begins. *This would normally be attended by the site manager, the arboricultural consultant and a LPA representative. If a LPA representative is unable to be present, the arboricultural consultant will inform the LPA in writing of the details of the meeting.* All tree protection measures detailed in this document will be fully discussed so that all aspects of their implementation and sequencing are understood by all parties. This will include agreeing the form and location of the most appropriate combination of fencing and/or ground protection to be used as barriers for the CEZ. Any agreed clarifications or modifications to the consented details will be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection will be agreed and finalised, which will then form the basis of any supervision arrangements between the arboricultural consultant and the developer.

- **Ongoing supervision of operations that could affect trees:** Once the site is active, the arboricultural consultant will visit at intervals agreed at the pre-commencement site meeting. This would normally be every two to four weeks for general supervision, but could be at longer intervals if agreed between all parties. The arrangement will be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with the developer and the LPA to ensure that protective measures are fit for purpose and in place before any work starts on site. Once the site is working, that role will switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

- **Proof of compliance to help refute liability and facilitate the discharge of planning conditions:** All supervisory visits will be formally confirmed in writing and circulated to all relevant parties, including the LPA. The purpose of these written records is firstly, to provide proof of compliance that will allow the developer to robustly demonstrate adherence to best practice in the event of any disputes, and secondly, to help the LPA efficiently discharge the relevant planning conditions.

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2.4 PHASING OF WORKS AND PROGRAMME OF ARBORICULTURAL INPUT

A preliminary programme of construction phasing and arboricultural input is set out below:

Finalising tree protection details after consent, but before work starts	
Phase	Arboricultural input
Pre-commencement site meeting. With supervising arboriculturist, site manager and the LPA representative (if appropriate)	• Meeting on site to agree detail of supervision requirements, i.e. frequency of visits and reporting • Review tree protection, if already installed • Agree any changes to CEZ barrier combinations of fencing and ground protection
Site operations before construction starts on site	
Phase	Arboricultural input
Tree works carried out	• Review the site requirements with the tree work contractor
Installation of tree protection for agreement by the LPA	• If appropriate, preparation of any revised plans and specifications for agreement by the LPA • Photographs showing relevant aspect of installed tree protection measures • Liaise with the contractor installing protection until satisfactorily completed
Operations that could affect trees during construction	
Phase	Arboricultural input
Construction, including new pedestrian paving, building, fencing and installation of new services Transplanting of commemorative trees	• Meeting with contractors for briefing before work starts, with further supervision visits as necessary at the discretion of the arboricultural consultant • Finalise protection measures and work methods
Operations that could affect trees after construction is completed	
Phase	Arboricultural input
Removal of barriers and ground protection	• Meeting with contractor for briefing before work starts, with further supervision visits as necessary at the discretion of the arboricultural consultant • NOTE: This should only be authorised once there is no risk of RPA damage from the construction activity
Tree transplanting	• Check condition, quality, handling, site preparation and planting comply with the specification
Soft and hard landscaping permanent fencing	• Meeting with contractor for briefing before work starts, with further supervision visits as necessary at the discretion of the arboricultural consultant
Tree planting maintenance	• Liaise with landscape contractor to check maintenance complies with the specification

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The precise order and timing of some of these operations may change due to site operating requirements, but all operations that can affect trees will remain under arboricultural supervision.

2.5 TREE WORKS

The proposed tree works are set out in the work recommendations column of the tree schedule in Appendix 2. The trees to be removed are highlighted with red text in the schedule and shown on the plan with a red number and a red filled circle. Trees for transplanting are highlighted with a purple circle.

Where appropriate, to facilitate access, all crowns should be lifted to 3–4m above the site. Only works in excess of this have been listed for individual trees.

The following points should also be noted before carrying out any works:

2.5.1 **Implementation of works**

All tree works should be carried out to BS 3998 Recommendations for Tree Work as modified by more recent research. It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association. The Arboricultural Association's register of Contractors is available free from The Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire GL10 3DL; phone 01242 522152; website http://www.trees.org.uk

2.5.2 **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 tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

2.5.3 **Stumps:** Stumps to be removed within the RPAs of retained trees should be ground out with a stump grinder to minimise any disturbance unless otherwise authorised by the appointed arboricultural consultant.

2.5.4 **Reporting during work operations**

In the context of the preliminary nature of the tree inspection, any defects that may affect tree safety discovered by the contractor when carrying out the work recommendations should be reported to the arboricultural consultant. Modification

to the schedule of works may be required because of these reports. The contractor should be specifically instructed on this point.

2.6 INSTALLATION OF CEZ BARRIERS (FENCING AND/OR GROUND PROTECTION)

Once the tree works have been carried out, the appropriate fencing and ground protection will be installed before any construction work starts. The protective barriers will remain intact and fit for purpose for the duration of any development activity that could cause damage.

The CEZ boundary is shown on the tree protection plan as the heavy black dashed line. Its location is approximate because its precise position will need to be finalised on site, depending on the local site conditions.

BS 5837 (3.6) describes the CEZ as the "area based on the RPA from which access is prohibited for the duration of a project". In practice, this can be done by any combination of fencing and ground protection, to be finalised and agreed at the pre-commencement meeting.

2.6.1 Protection of the CEZ by the use of fencing and ground protection

BS 5837 (3.6) describes the CEZ as the "area based on the RPA from which access is prohibited for the duration of a project". In practice, this can be done by any combination of fencing and ground protection, to be finalised and agreed at the pre-commencement meeting.

- **Protective fencing:** On the tree protection plan, the approximate boundary of the CEZ is shown by the heavy black dashed line, with the diagonal black hatching indicating the enclosed CEZ. The precise form of the fencing can vary, provided it is fit for purpose in that it prevents damaging activities within the CEZ that it encloses. Examples of suitable fencing are contained in Appendix 3, Section 1.

- **Ground protection:** Where it is not practical to protect the CEZ using fencing alone, BS 5837 (6.2.3.1) allows for the fencing to be set back and the soil protected by ground protection. The purpose being that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots.

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2.7 CONTROL OF ACTIVITIES WITHIN RPAS

All work operations in RPAs will be strictly controlled to comply with BS 5837. All construction activities with the potential to disturb RPAs shall be subject to arboricultural supervision.

Specific control measures are as follows:

2.7.1 **Excavation, lifting and transporting transplanted trees:** Hand tools will be used to dig trenches around the root ball of transplant trees. Machinery used to lift and transport the transplant trees to their new site, will be positioned on existing hard surfaces outside of all RPAs; specific detail of the transplanting operation is contained in Appendix 3, Section 3.

In addition to the controls above, once the barriers are removed any landscaping activity in RPAs will be carefully supervised.

Although not anticipated on this site, sometimes unexpected works are needed within fenced RPAs. For the avoidance of doubt, all activities within RPAs shall be supervised by the arboricultural consultant.

2.8 CONTROL OF ACTIVITIES NEAR RPAS

Any risk to trees from activities outside RPAs, but close enough to have a knock-on impact, will be assessed during the day-to-day running of the site and appropriate precautions put in place to reduce that risk.

2.8.1 **Prevention of soil contamination:** All cement mixing and washing points for equipment will be outside RPAs. Where there is a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of using heavy-duty plastic sheeting and sandbags with the ability to contain accidental spillages will be put in place to prevent contamination; Appendix 3, Section 2 provides an example of this.

Contaminated mixer and tool wash water shall be decanted in to a sealed container and transported off-site for appropriate disposal.

2.8.2 **Prevention of soil compaction:** Storage of materials shall be accommodated outside of new planting areas, the RPA of retained trees and the root ball area of transplanted trees.

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2.9 INSTALLATION OF NEW SERVICES OR UPGRADING OF EXISTING SERVICES

It is often difficult to clearly establish the detail of services until the construction is in progress. Where possible, it is proposed to keep all new services outside RPAs. If unexpected services do need to be installed within RPAs, written approval shall be obtained from the LPA before any works are carried out.

2.10 REMOVAL OF PROTECTIVE MEASURES

All protective barriers will remain in place until the construction activity is finished and there is no realistic risk of damage to the protected soil surfaces.

2.11 LANDSCAPING AND REINSTATEMENT

The final tidying up and reinstatement can only be carried out when all the protective barriers have been removed, which means great care is needed by all the contractors to observe the tree protection requirements. No machines shall be used within RPAs, which specifically includes rotovators. All new planting and soil level variations shall be agreed and supervised by the arboriculturist.

2.11.1 **Root barrier installation**: Root barriers will be installed around all planting areas following manufactures guidance. The specific design and location of the root barrier must be agreed by the Project Arboriculturist prior to installation by the Landscape contractor. An example of root barrier installation is contained in Appendix 3, Section 4.

Section 3

Appendices

Appendix 1: Administrative information, site visit and data collection

Administrative information

1. Instruction

I am instructed by Michael Davies, Saundersfoot Harbour to inspect the significant trees that could be affected by the development proposal at Ocean Square, Saundersfoot and to prepare the following information to accompany the planning submission:

- a schedule of the relevant trees to include basic data and a condition assessment;
- an assessment of the impact of the proposal on trees and any resulting impact that has on local amenity; and
- an arboricultural method statement dealing with the protection and management of the trees to be retained

2. Documents provided

The tree protection plan is derived from the following provided information:

- Existing ground floor plan, 10/01/2018.pdf
- Proposed ground floor plan, 10/01/2018.Plan.pdf
- Site location plan, 10/01/2018.pdf
- Topographical survey, 04/12/2017.dwg

3. Limitations of this report

The following limitations apply to this report:

- **Statutory protection**: The existence of tree preservation order or conservation area protection does not automatically mean trees are worthy of being a material constraint in a planning context. Trees can be formally protected, but be in poor structural condition or in declining health, which means that they are unsuitable for retention or influencing the future use of the site. Furthermore, a planning consent automatically takes precedent over these forms of protection, which makes them of secondary importance. For these reasons, we do not check statutory protection as a matter of course in the process of preparing this report. However, if any tree works are proposed before a planning consent is given, then the existence of any statutory protection must be checked with the LPA.

- **Ecology and archaeology:** Although trees can be valuable ecological habitat and can grow in archeologically sensitive locations, we have no specialist expertise in these disciplines and this report does not consider those aspects.

Appendix 1: Administrative information, site visit and data collection

- **Tree assessment and management advice:** Our inspection of the trees for the purposes of assessing their condition and work requirements is made on the basis that they will be annually inspected in the future to identify any changes in condition and review the original recommendations. For these reasons, the tree assessment advice only remains valid for one year from the date that the trees were last inspected.

4. Technical references

This arboricultural method statement is based on the following primary technical references:

- British Standards Institution (2012) BS 5837: Trees in relation to design, demolition and construction – Recommendations
- National Joint Utilities Group (2007) Volume 4, Issue 2: Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees

5. Qualifications and experience

This report is based on my site observations and the provided information, interpreted in the context of my experience. I have experience and qualifications in arboriculture that can be reviewed at www.treeworks.wales/about-us/the-team.

Site visit and data collection

6. Site visit

I visited the site on the 11th January 2018. All my observations were from ground level without detailed investigations and I estimated all dimensions unless otherwise indicated. The weather at the time of inspections was clear, still and dry, with good visibility.

7. Brief site description

The site occupies a prominent central location within the village of Saundersfoot, directly adjacent to the harbour. A building stands on the site flanked by formal gardens to the north and south. A public car park is to the east and a public highway runs along the western boundary. Non-native tree species of varying ages are found in the formal gardens, three of which have been planted to commemorate events in history.

8. Collection of basic data and compliance with BS 5837

Each significant tree was inspected and the numbering scheme is indicated on the tree protection plan. Obvious hedges and groups were identified where appropriate. For each individual tree, group or hedge, information was collected on species, height, stem diameter, maturity and potential for contribution to amenity in a development context. As

advocated in BS 5837, each tree was then allocated to one of four categories (A, B, C or U), which reflected its suitability as a material constraint on development. Each category A, B and C tree was automatically assigned BS sub- category 1 unless otherwise stated.
When collecting this information, specific consideration was given to:

- any low branches that may influence future site use;
- age class;
- physiological condition;
- structural condition; and
- remaining contribution.

Where appropriate, crown spreads were also noted where they differed from those shown on the provided land survey. This data, with explanatory notes, is set out in the tree schedule included as Appendix 2 and the supporting plan information. Each tree inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. BS 5837 (4.4.2) sets out recommendations for the collection of data and this report is fully compliant with that advice in the context of the BS 5837 Foreword, which states: "Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations." In that context, we will justify any deviation in this report from the strict BS 5837 recommendations on request.

9. Calculation of RPAs

Following the recommendations in Table D1 of BS 5837, the diameter of each tree was rounded up to the next 2.5cm increment, with the radius of a nominal circle and the resultant RPA taken directly from that table. This information is listed for each tree in the tree schedule in Appendix 2.

Appendix 2: Tree schedule and explanatory notes

NOTE: Colour annotation is: A & B trees with green background; C & U trees with blue background; trees to be removed in red text.

Tree No.	Species	Height (m)	Stem Dia. (mm)	Maturity	Crown spread (m)				Low Branches	Category	Notes	Tree Works	RPA R (m)	RPA A (m^2)
					N	S	E	W						
T.1	Sorbus	8	270*	Early mature	2.5	2.5	2.5	2.5	1.5m West	B			3.3	34
T.2	Sorbus	8	250*	Early mature	3	3	3	3	1.8m All around	B			3	28
T.3	Acer	7	160*	Young	2	2	2	2	2m North	C1	Commemorative tree	Transplant into new landscape plan	2.1	14
T.4	Sorbus	7	230*	Early mature	2	2	1.5	2	2m North	B			3	28
T.5	Sorbus	7	110x4* (220)	Mature	2	2	1.5	1.5	2m North	B			2.7	23
T.6	Acer	7	140*	Early mature	1	0.5	1	3	No	B	Commemorative tree	Transplant into new landscape plan	1.8	10
T.7	Sorbus	5.5	160*	Early mature	0.5	1.5	1.5	2	No	B			2.1	14
T.8	Sorbus	6	90*	Young	0.5	-	-	2	No	C1	Commemorative tree	Transplant into new landscape plan	1.2	5
T.9	Cherry	6.5	270*	Mature	4	4	4	4	No	B			3.3	34
T.10	Sorbus	3.5	270*	Mature	0.5	0.5	0.5	0.5	No	C8	Crown has been severely reduced		3.3	34

Appendix 2: Tree schedule and explanatory notes

NOTE: Colour annotation is: A & B trees with green background; C & U trees with blue background; trees to be removed in red text.

Tree No.	Species	Height (m)	Stem Dia. (mm)	Maturity	Crown spread (m)				Low Branches	Category	Notes	Tree Works	RPA R (m)	RPA A (m^2)
					N	S	E	W						
T.11	Sorbus	3.5	270*	Mature	0.5	0.5	0.5	0.5	-	C8	Crown has been severely reduced		3.3	34
T.12	Holm Oak	5	270*	Early mature	1.5	1.5	1.5	1.5	1.5M South	B	Crown intensively managed		3.3	34
T.13	Holm Oak	4.5	190*	Early mature	1.5	1.5	1.5	1.5	2m West	B	Crown intensively managed		2.4	18
T.14	Holm Oak	4.5	200*	Early mature	0.5	0.5	0.5	0.5	No	B	Crown intensively managed		2.4	18
T.15	Holm Oak	4	210*	Early mature	0.5	0.5	0.5	0.5	No	B	Crown intensively managed		2.7	23
T.16	Sorbus	5	190*	Early mature	1	1	1	1	No	C8	Crown has been severely reduced		2.4	18
T.17	Sorbus	4.5	180*	Early mature	-	1.5	0.5	0.5	No	C8	Crown has been severely reduced		2.4	18
T.18	Sorbus	4	200*	Early mature	2	1	0.5	0.5	No	C8	Crown has been severely reduced		2.4	18

Appendix 3: Additional information and specifications

Explanatory notes for schedule

- **Abbreviations:**

T	: Individual
G	: Group
H	: Hedge
RPA	: Root protection area

- **BS 5837 (2012) compliance:** All data has been collected based on the recommendations set out in subsection 4.4 of BS 5837.

- **Future tree safety inspections:** Our assessment of the trees was carried out on the basis that a re-inspection would be carried out within 1 year of our assessment visit and our advice on tree condition must be reviewed annually from the date of that visit.

- **Site limitations:** Where there is restricted access to the base of a tree, its attributes are assessed from the nearest point of access. Climbing inspections are not carried out during a walkover tree survey and, if heavy ivy is present, tree condition is assessed from what can be seen from the ground. A separate note is recorded if further investigation may be required to clarify its status.

- **Crown spreads:** The crown spread measured from the centre of the trunk to the tips of the live lateral branches and rounded up to the nearest half metre for dimensions up to 10m and the nearest whole metre for dimensions over 10m, N= north, S= south, E= east and W=west.

- **Dimensions:** All dimensions are estimated unless annotated with '*'.

- **Species:** Species identification is based on visual observations. Where there is more than one species in a group, only the most frequent are noted and not all the species present may be listed.

- **Height:** Height is estimated to provide an indication of the size of the tree.

- **Trunk diameter:** Trunk diameter is estimated or measured and recorded in 2.5cm increments as advised in BS 5837 Table D1. It is measured with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837.

Appendix 3: Additional information and specifications

- **Maturity:** In a planning context, maturity provides a simplistic indication of a tree's ability to cope with change and its potential for further growth. For the purposes of this report, 'young' indicates a potential to significantly increase in size and a high ability to cope with change, 'maturing' indicates some potential to increase in size and some ability to cope with change and 'mature' indicates little potential to increase in size and limited ability to cope with change.

- **Low branches:** Any low branches that would not be feasible for removal during normal management and should be considered as a design constraint are noted here and explained in the notes.

- **Category:** Tree retention categories were awarded according to the criteria detailed on the TreeABC field sheet provided below. Our assessment automatically considered tree physiological/structural condition (BS 5837, 4.4.2.5h) and so these are not listed separately in the schedule. Additionally, the category accounts for the remaining contribution (BS 5837, 4.4.2.5i) as greater than 40 years for A trees, greater than 20 years for B trees, at least 10 years for C trees and less than 10 years for U trees, so this is also not listed separately in the schedule. Category A, B and C trees are automatically listed as sub-category 1 unless otherwise stated.

- **Notes:** Only relevant features relating to physiological or structural condition and low branches that may help clarify the categorisation are recorded. If there are no notes, then the presumption should be that no relevant features were observed.

- **Tree works:** The inspection of all trees was of a preliminary nature and only defects visible from the ground have been identified. Each individual tree may not have been inspected closely because of access difficulties. In addition to tree removals for development and management reasons, further works are listed to reduce the threats from retained trees.

Appendix 3: Additional information and specifications

TreeABC field sheet (Version 16.03-UK)

Ancient/veteran: Each tree is assessed by a visual check. If it is a veteran/ancient tree, then it is automatically categorised as A2, and not subjected to any of the category U, C or B considerations.

Category U (unsuitable for retention): Any remaining trees that are unsuitable for retention because they are dead; in irreversible decline; and/or have irremediable structural conditions; and/or are causing severe structural damage or inconvenience, are categorised as U.

Category C (low quality): Any remaining trees are systematically reviewed to decide if they fit into any of the four C subcategory groups listed below.

Category B (moderate quality): Any remaining trees are automatically category B, with the possibility of being promoted to category A.

Category A (high quality): If a category B tree is already large, or has the potential to become so, it can be promoted to category A, at the discretion of the assessor.

Category C: Low quality trees not worthy of being a material constraint

C		**Size and legal exemptions:** Trees that are too small to be important or unlikely to be suitable for legal protection
	1	**Size:** Young or insignificant small tree
	2	**Legal exemptions:** Trees unlikely to be suitable for legal protection, e.g. a maintained urban hedge, shrubs, etc
		Deteriorating health/condition: Trees that are likely to be removed within 10 years because of deteriorating health and/or structural condition
	3	**Health:** Deteriorating health with little realistic prospect of recovery
	4	**Crown instability:** Deteriorating structural conditions where an increasing risk of failure can be temporarily addressed by reasonable intervention, e.g. storm damage, cavities, decay, included bark, wounds, excessive imbalance, etc
	5	**Root instability:** Deteriorating whole tree stability through poor anchorage, increased exposure to weather, etc
		Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people
	6	**Inconvenience:** Ongoing and increasing inconvenience to residents to the extent that a TPO appeal is likely to result in tree removal, e.g. dominance, debris, interference, etc
	7	**Damage:** Ongoing and increasing structural damage to property to the extent that a TPO appeal is likely to result in tree removal, e.g. severe damage to surfacing and structures, etc
		Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population
	8	**No future potential:** Poor condition or location with no realistic potential for recovery or improvement, e.g. dominated by adjacent trees or buildings, poor architectural framework, etc
	9	**Benefit nearby trees:** Removal would benefit better adjacent trees, e.g. relieve physical interference, suppression, etc
	10	**Maintenance costs:** Unacceptably high maintenance costs, e.g. structural conditions requiring high levels of regular pruning, etc

NOTE: Although C trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Categories B and A: Moderate and high quality trees suitable for retention for more than 10 years, and worthy of being a material constraint

B		All trees that are not categories U or C that can be retained with minimal or limited intervention

NOTE: Category B trees that are already large, or have the potential to become so, with minimal or limited intervention, can be promoted to category A1, at the discretion of the assessor. Veteran/ancient trees are automatically category A2. Although all category A and B trees are sufficiently important to be material constraints, category A trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

A	1	Single category B trees or small groups which, at the discretion of the assessor, have been promoted to category A because they are already large, or have the potential to become large
	2	Veteran/ancient tree

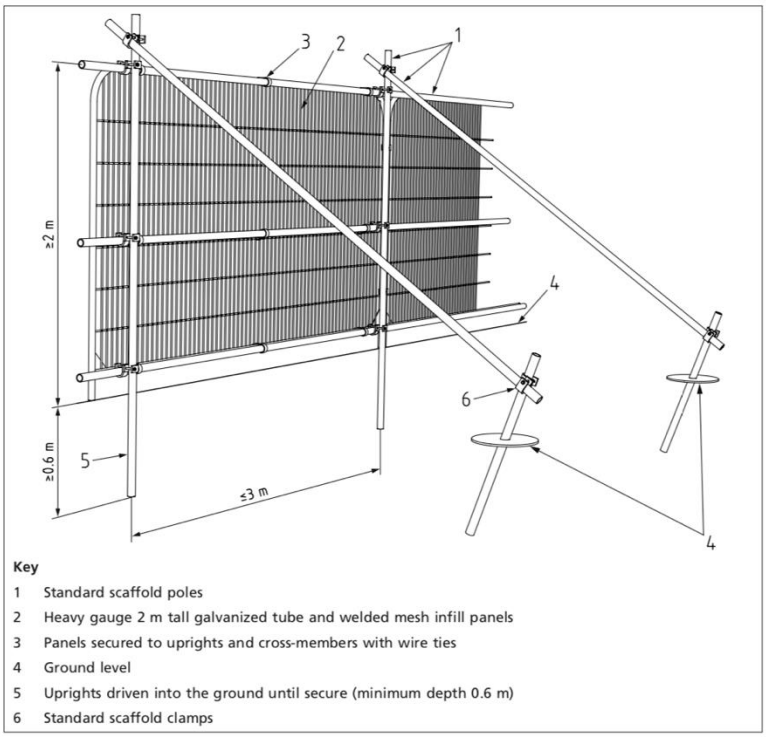
Further explanation of this enhancement of the BS 5837 method can be found at www.TreeAZ.com.

Appendix 3: Additional information and specifications

Additional information and specifications

1. Protective barriers to enclose the CEZ

Type 1- recommendation taken from Figure 2 of BS 5837, to be installed in areas of intensive construction activity.



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Type 2- variation of protective barrier, to be installed in areas of low intensity construction activities.

The barrier shall consist of 1m tall orange plastic mesh held in place with metal pins, positioned at 1.8m spacings.

Appendix 3: Additional information and specifications

2. Bund for cement mixing and washing equipment

Example of a soil bund or a supporting framework covered in heavy-duty plastic sheeting to prevent the risk of spillages contaminating RPAs. This specifically applies to all cement mixing areas and equipment washing facilities.

3. Transplanting operations in accordance with BS4043:1989 Recommendations for transplanting root-balled trees.

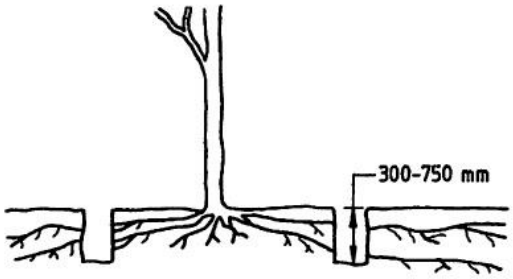
3.1 Tools and equipment: All tools and equipment will be appropriate to the operation and prepared in advance. Digging and root pruning tools shall be sharp and clean in order to cut without breaking, crushing or tearing roots. Machinery used for lifting shall be operated according to manufacturers' guidance. Lifting cables, chains, straps and slings shall be inspected and used according to manufactures' specifications.

3.2 Timing of transplanting: Transplanting will be carried out during the dormant season from mid-October to the end of March. Ideally the weather conditions will be overcast with light winds and moist ground. Periods of strong winds and frost will be avoided.

3.3 Preparation of root ball: The size of root ball has been calculated by measuring the stem diameter at 1m from the ground and multiplying it by ten. Size of root ball; T.3 – 1.6m radius, T.6 – 1.4m radius and T.8 – 0.9m radius.

The depth of the root ball will be between 300 – 750mm, however local ground conditions will determine the final depth.

Appendix 3: Additional information and specifications



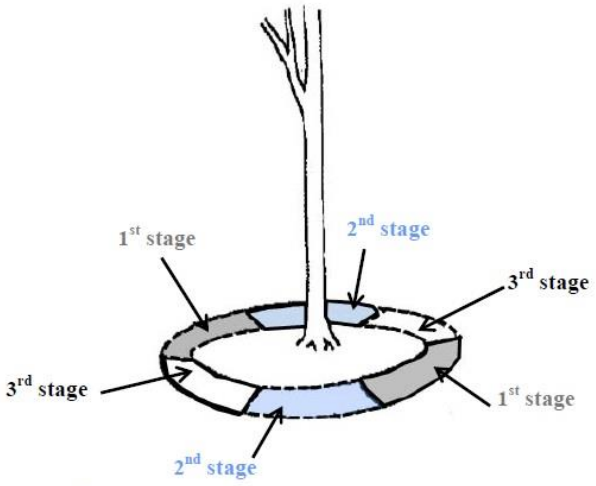
The area of the root ball will be marked out on the ground with line marker spray prior to digging operations which will be carried out in four stages. The first three of these will be carried out in the summer months one growing season prior to the lifting.

1st stage – Divide the circumference of the root ball into six equal segments. Hand dig a trench in two opposing segments;

2nd stage – After a period of a month dig a trench in two further opposing segments;

3rd stage – After another period of a month dig a trench in the remaining two segments;

4th stage – immediately before the tree is transplanted, cut the underside roots and prepare the root ball for lifting.



The 4th stage in preparing the root ball by cutting its underside

All exposed roots will be pruned back to healthy tissue leaving a clean cut on the face of the trench closest to the tree. This side of the trench will be lined with a heavy gauge geotextile fabric to encourage fibrous root development within the root ball. The trench will then be back filled with sand (not building sand) to curtail root spread.

3.4 Pre-lifting operations: A suitably sized planting pit will be prepared in advance of lifting operations, see separate landscape plan for detail. The transport route for the tree will be pre-arranged so potential obstacles are removed.

Appendix 3: Additional information and specifications

The root ball will be prepared by removing the sand from the trench and loosening the soil from the outer edge, tapering the sides with an inward slant towards the base. The root ball will stand on a pedestal of soil for the final shaping and burlapping before it is undercut.

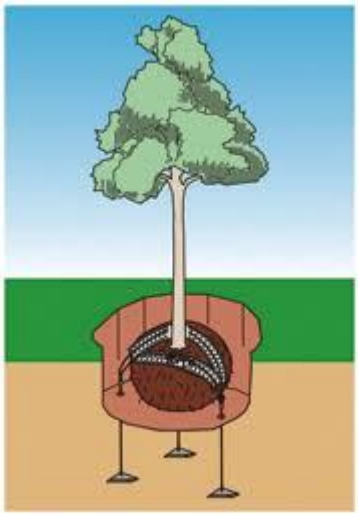
Damp hessian material will be placed around the sides with enough material left over to cover the bottom once the tree is lifted out of the hole. The root ball will then be wrapped with suitable netting or laced with straps to contain the soil. Appropriately sized slings will be passed under the root ball and securely attached to each other ready for lifting.

3.5 Lifting and transporting the tree: The operation will be a direct lift using a machine of appropriate capacity connected to supports around the root ball. The tree will not be lifted by any other part, such as the trunk section.

Appendix 3: Additional information and specifications

Banksmen will be used to guide the tree during its journey to the new planting pit. If for any reason this operation is delayed, then the hessian material will be kept damp to prevent the soil and roots from drying out.

3.6 Planting: The tree will be positioned in the same orientation from which it originated with final adjustments made prior to it being lowered in to the pit. Once in its final position all root ball supporting materials will be removed and a ground anchor system will be installed prior to back filling with suitable material. Once the planting pit has been back filled the tree will be watered and a layer of mulch to a depth of 75mm spread around the base.



3.7 Maintenance: A maintenance program to feed and water the tree shall be drawn up in line with additional planting, which is included as part of a separate landscape plan.

4. Example of root protection barrier

GreenBlue Urban ReRoot directs roots down and away from paved surfaces and structures, whilst preventing the establishment of shallow roots.

Available in 300, 600 and 1000mm depths, depending on species and size of tree and local soil conditions.

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