



Wrexham Island Green

Arboricultural Survey Report

August 2015

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Wrexham Island Green

Arboricultural Survey Report

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Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007).

Issue	Date	Prepared by	Checked by	Approved by
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Third	July 2015	Leon Bryant Landscape Consultant	Steve Brindle Associate Director	Steve Brindle Associate Director
Fourth	August 2015	Leon Bryant Landscape Consultant	Steve Brindle Associate Director	Steve Brindle Associate Director

Comments

Our Markets



Property & Buildings



Transport & Infrastructure



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Environment

Disclaimer

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1. Introduction

- 1.1. Waterman Infrastructure & Environment Limited (Waterman IE) formerly known as Waterman Energy, Environment & Design Limited, was instructed by Henderson RWF. to undertake an arboricultural survey of trees and tree groups on and immediately adjacent to an area of Wrexham Town Centre, to be known as Wrexham Island Green (hereafter referred to as the 'Study Area').
- 1.2. The above and below ground constraints and opportunities posed by the canopy shape and rooting area of the surveyed trees are described, including the implications of any known planned construction works in the vicinity of these trees, and best practice for retention of trees in this context.

Tree Survey Methodology

- 1.3. The tree survey was based upon existing topographical information relating to the Study Area provided by PM Surveys UK Ltd. drawing Nos. PMS15028-01 to 05, dated 26th March 2013, and was otherwise conducted in accordance with the principles outlined within BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations¹ (BS5837).
- 1.4. Fieldwork was undertaken on 30th April during which dimensional data and observational information were collected. A DBH tape measure and Leica Disto™ laser distance meter were used in the collection of this data, which now forms the basis of this report.
- 1.5. Features comprising multiple trees, scrub or other arboreal features were recorded with a G suffix for groups, W suffix for woodlands and H suffix for hedgerows. Where sufficiently consistent, these have been categorised and include information relating to species composition, age and condition ranges as appropriate etc. to best describe each feature. Within these features, principal trees have been identified where appropriate.

Height

- 1.6. Unless otherwise stated, tree heights are approximate and estimated in metres.

Stem Diameter

- 1.7. The survey included collecting the following information on trees and woody vegetation with a stem diameter over 75mm. The stem diameter of single stemmed trees is measured at 1.5m above ground level and given in millimetres. The diameter measurement of multi-stemmed trees is taken as a combined measurement of all the major stems. Where stems fork or swell the measurement is taken at the narrowest point below the fork or swelling. Where access to the trunk of a tree is not available, an estimation of the stem diameter is made and identified by '*' or 'est' on the accompanying schedule of existing trees.

Crown Spread

- 1.8. Radial crown spread is measured in metres. These are recorded for each of the four cardinal points as access restrictions allow. Where direct access is not available, the spread is estimated and identified by '*' on the accompanying schedule of existing trees. The canopy shape for surveyed trees depicted on the accompanying plans is representative of the canopy spread as measured or estimated during fieldwork.

¹ BS5837:2012 Trees in relation to design, demolition and construction – Recommendations, 2012, British Standards Institution.

Height of Crown Clearance and Canopy

- 1.9. The height of crown clearance is the height above ground in metres of the first significant branch and the direction of growth. The height of canopy is the height above ground in metres of the main canopy.

Age Class

- 1.10. The age of each tree is defined as follows:

- Young (Y): Within the first 1/4 of useful life expectancy.
- Semi-mature (SM): Within the second 1/4 of useful life expectancy.
- Early Mature (EM): Within the third 1/4 of useful life expectancy.
- Mature (M): Within the fourth 1/4 of useful life expectancy.
- Over Mature (OM): Exceeded normal useful life expectancy.
- Veteran (V): Significantly exceeded normal life expectancy and/or displays characteristics associated with a veteran tree

Physiological and Structural Condition

- 1.11. The fieldwork informing this report has comprised a non-intrusive, visual survey undertaken from ground level. The physiological and structural condition of each tree or tree group is summarised, highlighting features relevant to the assessment process. This includes cultural conditions e.g. context and growing environment which may also be of relevance. Where further specialist inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this is highlighted within the report.
- 1.12. Unless otherwise stated, trees were found to be displaying 'normal' characteristics for their age, species and context. The physiological condition for each tree is described as Good (G), Fair (F) or Poor (P) or may comprise a range where this relates to grouped features. Where appropriate, notes on the structural integrity are provided on form, taper, forking habit, storm damage, decay, fungi, pests, etc. No invasive investigations or climbing inspections were carried out to confirm visual or audible signs of defect or debility and no tissue or soil samples were taken for laboratory analysis. Where identified, external signs of substantial defects or debility have been recorded. Where access to a tree was restricted, this is qualified and, an estimation of physiological and structural condition may have been made.

Estimated Remaining Contribution (ERC) in Years

- 1.13. The Estimated Remaining Contribution (ERC) for each tree is based on species, context and existing physiological and structural condition of the tree. The ERC may affect proposed development layout because the longer the tree is likely to live, the greater the contribution it will make and the greater the need for retention.

Category Grading

- 1.14. Each individual tree was given a Category Grading in accordance with BS5837: 2012 to reflect the overall arboricultural value and retention category. Where sufficiently consistent, grouped features

have also been graded. However, such grouped features may still contain trees of a range of potential Category Gradings. The Category Gradings are defined according to the following criteria, and are further divided into sub-categories based on arboriculture, landscape and/or historic value, as defined within BS5837:2012, contained at **Appendix A**:

- **Category Grading A:** Trees of high quality and value, (with a suggested remaining life expectancy exceeding 40 years);
- **Category Grading B:** Trees of moderate quality and value, (with a suggested remaining life expectancy of at least 20 years);
- **Category Grading C:** Trees of low quality and value, (with a suggested remaining life expectancy exceeding 10 years or young/immature trees which may have the potential to attract a higher Grade as they mature); and
- **Category Grading U:** Trees which are in such a condition that they are unsuitable for retention in the context of the current land use for longer than 10 years.

Preliminary Management Recommendations

- 1.15. Any recommendations made for management of the existing tree stock, (for example, tree surgery) are not a 'specification' for tree work. These recommendations are instead intended as a preliminary guide to inform future management of tree stock in the current context which should be formalised as a separate management plan. References to habitat value should be taken as comparative observations compared with a baseline situation with no tree present.
- 1.16. Proposed tree surgery or inspection works should be undertaken by a qualified arboricultural contractor, such as those listed in the Arboricultural Association's Approved Contractors Directory (Ref. www.trees.org.uk). Any work undertaken by the contractor should be in accordance with best practice, such as the European Tree Pruning Guide² or required by BS3998: 2010 Tree work - recommendations³.

Limitations

- 1.17. All trees were visually inspected from ground level with no climbing, boring or sampling undertaken. All measurements are metric and where qualified, approximate. The comments made are based on the conditions observable factors present at the time of inspection, including weather, seasonality and access. It must be stressed that this survey and report does not constitute a tree risk assessment.
- 1.18. This report is intended to assist with the planning and management of construction, refurbishment and/or demolition operations under current best practice.
- 1.19. This report is not intended to confirm the safety, (or otherwise) of surveyed trees or tree groups. References to defects or potential safety issues are not exhaustive but are intended as a guide only to inform the provision of further resources / more detailed investigations. The person(s) responsible for the management of the trees surveyed within this report are recommended to commission a separate tree condition survey by a suitably qualified and experienced person in order to manage the Health and Safety aspects of trees under their control, and discharge their reasonable Duty of Care under the 'Duty of Care' owed under the Occupiers' Liability Act 1984⁴.

² European Tree Pruning Guide, 2001, Arboricultural Association

³ BS3998:2010 'Treework - Recommendations', 2010, BSI

⁴ Occupiers' Liability Acts 1957 and 1984. HMSO

Un-assessable Risks

- 1.20. Owing to the changing nature of trees as living, dynamic features and other Site circumstances, this report and any recommendations made remain valid for a period of 18 months from first issue.
- 1.21. Unless otherwise stated, trees should be re-inspected regularly to satisfy the 'Duty of Care' owed under the Occupiers' Liability Act 1984⁵, or directly proceeding heavy storms (i.e. force 6-7 and above on the Beaufort scale). It is recommended that advice from an ecologist is sought prior to carrying out any works to trees, in order to ensure these are carried out in accordance with, (in particular) the protection afforded to wild birds and bats under The Wildlife and Countryside Act⁶ and The Conservation of Habitats and Species Regulations⁷.

Root Protection Area

- 1.22. The RPA defines the approximate underground area occupied by the tree roots based on a calculation relating to the girth of the tree, point above ground at which the trunk begins to branch out and the number of stems. BS5837 outlines the calculation of RPA as follows:

$$RPA(m^2) = \left(\frac{\text{stem diameter (mm) @ 1.5 m} \times 12}{1\,000} \right)^2 \times \pi \quad (3.142)$$

- 1.23. Trees with more than one stem below 1.5m height are given an aggregate stem diameter using either of the following two calculations as outlined in BS5837. This diameter is then used in the above calculation to estimate RPA:

- a) For trees with two to five stems:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \dots + (\text{stem diameter 5})^2}$$

- b) For trees with more than five stems:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

- 1.24. The RPA of existing tree stock is an important material consideration when considering site constraints and planning development activities.
- 1.25. Construction operations, materials storage or changes in level should generally be avoided within the RPA of a tree to be retained on a developed site. This is because these operations have the potential to damage or kill the tree, the safe retention of which may be a condition of planning permission. This is significant when considering construction in close proximity to off-site / third party land. Special construction techniques, i.e. no-dig construction / permeable surfacing may be considered for light loadings, e.g. pedestrian footpaths, within the RPA.
- 1.26. It should be noted that the RPA often varies in size to the physical area occupied by the canopy spread (due to particular tree species or management practices to artificially alter the canopy size). This is of particular importance when integrating new development in close proximity of existing trees. Similarly, the canopy heights (as identified in the Schedule of Existing Trees) should be considered as the usable space below a low branching tree will be severely restricted without specific arboricultural works to raise the canopy (which may not always be appropriate).

⁵ Occupiers' Liability Acts 1957 and 1984. HMSO

⁶ The Wildlife and Countryside Act 1981 (as amended), OPSI

⁷ The Conservation of Habitats and Species Regulations 2010, OPSI

- 1.27. It should also be noted that BS5837 states that although RPAs should be plotted as a circle centred on the base of the stem, pre-existing site conditions or other factors may indicate that rooting has occurred asymmetrically and so RPAs may instead be represented as a polygon of equivalent area.

2. Fieldwork Observations

- 2.1. The survey recorded 36No. individual trees and 11No. tree groups within or immediately adjacent to the Study Area. This is illustrated on Tree Survey drawings **EED15092-100-AA-77-001C** and **002C**. The majority of existing trees recorded within the Study Area were mostly young, standard trees directly associated with the external car park areas of the current retail development (Photographs 1 and 2). These trees were typically recorded growing within linear belts or smaller islands of soft landscape. The most common planted tree species within the Study Area was Norway Maple (*Acer platanoides*) being a common choice for amenity plantings such as this. There appeared to be a broad correlation between the area of soft landscape surrounding individual trees and indicators of strong growth/vigour (and visa-versa). However, the soft landscaped context within which all trees within the Study Area are growing could be regarded as superior to that provided by equivalent trees growing within isolated tree pits within a similar hard surfaced car park.
- 2.2. Occasional torn branch wounds and instances of rootzone compaction likely derived from pedestrian or vehicular over-run was recorded within the Study Area, (Photograph 3). Such features are relatively common within confined car park areas but have the potential to detrimentally impact longer term tree health and vitality. The Lime tree and tree group T14 and G16 (respectively), both growing in narrow areas of soft landscape appeared to show particularly low vitality and otherwise poor condition, (Photograph 4). The species is generally tolerant of urban growing conditions and the low levels of vitality may be attributed to a combination of the modest size of planting bed and limited depth of and/or impermeable nature of the growing medium associated with these trees.



Photograph 1



Photograph 2



Photograph 3



Photograph 4

- 2.3. Some self-sown trees and woody vegetation were recorded on and immediately adjacent to the Study Area boundary. This typically comprised Sycamore (*Acer pseudoplatanus*), Goat Willow (*Salix caprea*) and occasional Norway Maple (*Acer platanoides*) which are either pioneer species or from seed derived from the adjacent amenity tree plantings. Tree and tree group T3 and G11, (respectively) were recorded growing immediately adjacent to retaining walls. These trees appeared to be causing modest deflection to the retaining wall through natural root development, (Photograph 5). Tree T31 comprised a mature multi-stemmed Sycamore growing on the Study Area boundary, (Photograph 6). This tree is conspicuous in that it appears to pre-date the current commercial development and land use.



Photograph 5



Photograph 6

- 2.4. One mature Sycamore (T1) was recorded growing in St. Marks Road immediately to the north of the Study Area. A historic photograph (dating from 1910) suggests the canopy growth of this tree over the last 100 years appears to have been extremely modest, (Photographs 7 and 8). This is likely to be due to the challenging rooting conditions within which this tree is growing. Despite several pruning wounds and cavities the tree still provides amenity value to a location otherwise dominated by built form.



Photograph 7⁸



Photograph 8

- 2.5. The majority of trees and tree groups within the survey have been graded as 'C' Category, being of low value in this context. This is due to a combination of quality and immaturity and with suitable management, many trees could reasonably be expected to increase in value as they mature. Despite their relative immaturity, tree groups G27 and G36 were collectively graded as 'B' Category being of medium value in this context, (Photographs 9 and 10). This was due to a combination of the Norway

⁸ Photograph 7 reproduced with kind permission of Mr P. Caldecott - (Williams, W. A. Old Wrexham Volume 2: A Collection of Images, Wrexham: Bridge Books)

Maple species having general suitability to these locations and the collective contribution and longevity these trees could provide on the Study Area boundary.



Photograph 9



Photograph 10

- 2.6. Two individual trees comprising T1 (Photograph 8) and T31, (Photograph 6) both Sycamore were also graded as being 'B' Category being of medium value in this context. This was on account of their relative maturity and amenity contribution to the public realm and/or Study Area.

3. Development Proposals

- 3.1. The proposed development comprises, in part, alterations to the main Island Green Car Park (Site 1) and associated public realm to improve the quality and quantity of parking spaces within it.
- 3.2. Within the southeast portion of the survey area (Site 2), the applicant wishes to seek planning permission for a restaurant incorporating a 'drive-thru' together with surface car parking, external enclosed area for plant and site boundary fence with associated soft landscaping. The opening hours are yet to be finalised but typically would range between 0600 – 0000 hours.
- 3.3. The proposed Site layouts are shown on **Chapman Taylor** drawings '**CTL-XXX-00-00-1003-00 Proposed Car Park Layout**' and '**CTL-XXX-20-00-2001-0 Ground Floor Plan Drive Thru Restaurant**'.

4. Tree Protection

- 4.1. Tree protection will normally be required in order to manage and minimise the construction impacts upon the existing trees to be retained. This will be in accordance with BS5837:2012 guidelines and including both above and below ground impacts and extends to the working area required for demolition and construction works. Temporary protective fencing will normally be erected around trees and tree groups to be retained, prior to the commencement of work on site.
- 4.2. The potential exists for the development of asymmetrical RPA's which may locally extend beyond the circular RPA stated on the Tree Survey drawings. Where root material is encountered in this manner, the extent of the controlled **Construction Working Area** should be extended to incorporate additional rooting areas as necessary, (see 4.12 below).

Trees to be retained

- 4.3. Within and adjoining Site 1 a number of trees, mostly in the southern portion of the car park, can be retained during the construction phase. The retention of trees and groups G18-T25, T37-T42 and the majority of G47 help maintain landscape amenity and would minimise potential impact upon the surrounding townscape.
- 4.4. Within Site 2 a number trees at the western and eastern peripheries would be retained, including the majority of G27 which contains several Norway Maples of moderate quality and landscape value, and T31 which is a prominent mature Sycamore of moderate quality. The retention of these trees would help to safeguard the generally good amenity conferred to the adjacent streetscape.

Trees to be removed

- 4.5. Within Site 1 the following trees will be removed to accommodate the proposed development: tree groups G16 and G17; the north westernmost tip of tree group G47; and trees T43, T44 and T45. The following trees will be removed in line with the preliminary management recommendations and categorisation within this report, adjudged to be unsuitable for retention in the context: trees T3, T6 T8 and tree group G11.
- 4.6. Within Site 2 the following trees will be removed to accommodate the proposed development: the eastern portion of tree group G27; trees T28 to T30; tree group G32; and trees T33 to T35.
- 4.7. The existing trees to be removed in both Site 1 and Site 2 are all relatively immature trees mostly comprising Grade 'C' Category trees being of low quality in this context.
- 4.8. Tree removals within Site 1 are necessary primarily to accommodate the proposed car park arrangement.
- 4.9. Tree removals within Site 2 will primarily be driven by the need to re-grade the soft landscape margin on the southern and eastern boundaries and create a level platform for the proposed building and associated circulation spaces. Adjacent to the northern boundary, reconfiguration of the parking areas and construction of an acoustic screen fence will similarly require the removal of trees and associated woody vegetation for construction purposes.

Protection of trees to be retained

- 4.10. Existing trees to be retained should be protected in accordance with the principles within BS5837:2012 during the construction phase. Prior to construction, this includes the erection of temporary tree protection fencing as per drawings **EED15092-AA-77-004 and EED15092-AA-77-005** and figures 2 and 3 extracts from BS5837:2012 within Appendix C and D. Suitable weather-proofed warning signage should be affixed to all tree protection fencing for the duration of construction and demolition operations. An example is provided within Appendix E.
- 4.11. The majority of tree roots can be expected to be found within the upper soil horizons, (normally within the top 600mm of field soil) and construction operations should have regard to the potential presence and protection of tree roots within this location.
- 4.12. Tree groups G26, G27 and G47 can be protected by means of temporary protective fencing as per 4.10. The canopies and of these trees extend into the adjacent vehicular carriageway and this area will be deemed a **Construction Working Area (CWA)** where the height of tree canopies may locally restrict the movement of vehicles or plant etc. associated with construction operations. Prior to commencement of development, the contractor should identify the extent of CWA and select appropriate vehicles/plant and otherwise manage the works to prevent damage or conflict with the adjacent tree canopies in this location.
- 4.13. Tree T31 will be retained, but will be impacted by the construction of a new footpath link. A significant proportion of the canopy and RPA can be protected using temporary protective fencing as per 4.10. The remaining area will become a CWA to manage construction operations within the RPA and canopy spread of this tree. This will include locally raising the ground levels within the RPA to the northwest. In order to reduce the impact of construction within the CWA, the contractor should;
- Mark out the alignment of the proposed path and employ an Arboricultural Association Approved Contractor to undertake formative pruning to allow clearance for path construction and operation. Pruning works to be otherwise undertaken in accordance with the principles outlined within BS3998:2010 Treeworks – recommendations.
 - Provide suitable ground protection to prevent compaction or rutting from over-run, (including pedestrian movement)
 - Where possible undertake construction operations by hand. Where this is demonstrably not possible, select small/light, tracked plant for these works.
 - Access into the CWA should only be permitted to allow direct construction activities within this area and not general site access or materials/plant storage etc.
 - Construction operations should be planned so as to minimise ground disturbance within the CWA.
 - The fill materials used within the CWA should comprise a free-draining medium e.g. MoT Type3 stone to allow air and water to reach the rootzone and otherwise minimise compaction. Fill within the CWA should be laid to a maximum of 1:3 gradient and at no time should the root-collar of T31 be breached by the laying of new fill.
- 4.14. Following the completion of construction, the health of tree T31 should be monitored to record and manage any changes which may have resulted from construction operations. This species (Sycamore) is generally more resilient than most in terms of tolerating level increases within the rootzone.

Proposed tree planting

- 4.15. New tree planting within Site 1 is illustrated on Waterman Proposed Planting Plan drawing WIB15092_100_AA_74_003.
- 4.16. New tree planting within Site 2 is illustrated on Waterman Proposed Planting Plan drawing WIB15092_100_AA_74_001. Replacement trees on the northern and southern boundary will mitigate the loss of existing immature trees. New tree planting will be undertaken within areas of soft landscaping which should allow good establishment and potential for root development.
- 4.17. Within Site 2, new tree planting within will contribute to the quality of streetscape within the adjacent public realm and contrast with the new built elements within the Site. The species selection has been informed by those found growing successfully within the Site.
- 4.18. With regards to both Site 1 and Site 2, new tree planting will reinforce the existing tree stock and overall canopy coverage which can provide wider amenity and environmental benefits. The further diversification of the age structure of the tree stock adjacent to the Study Area will also be of assistance in longer term management.

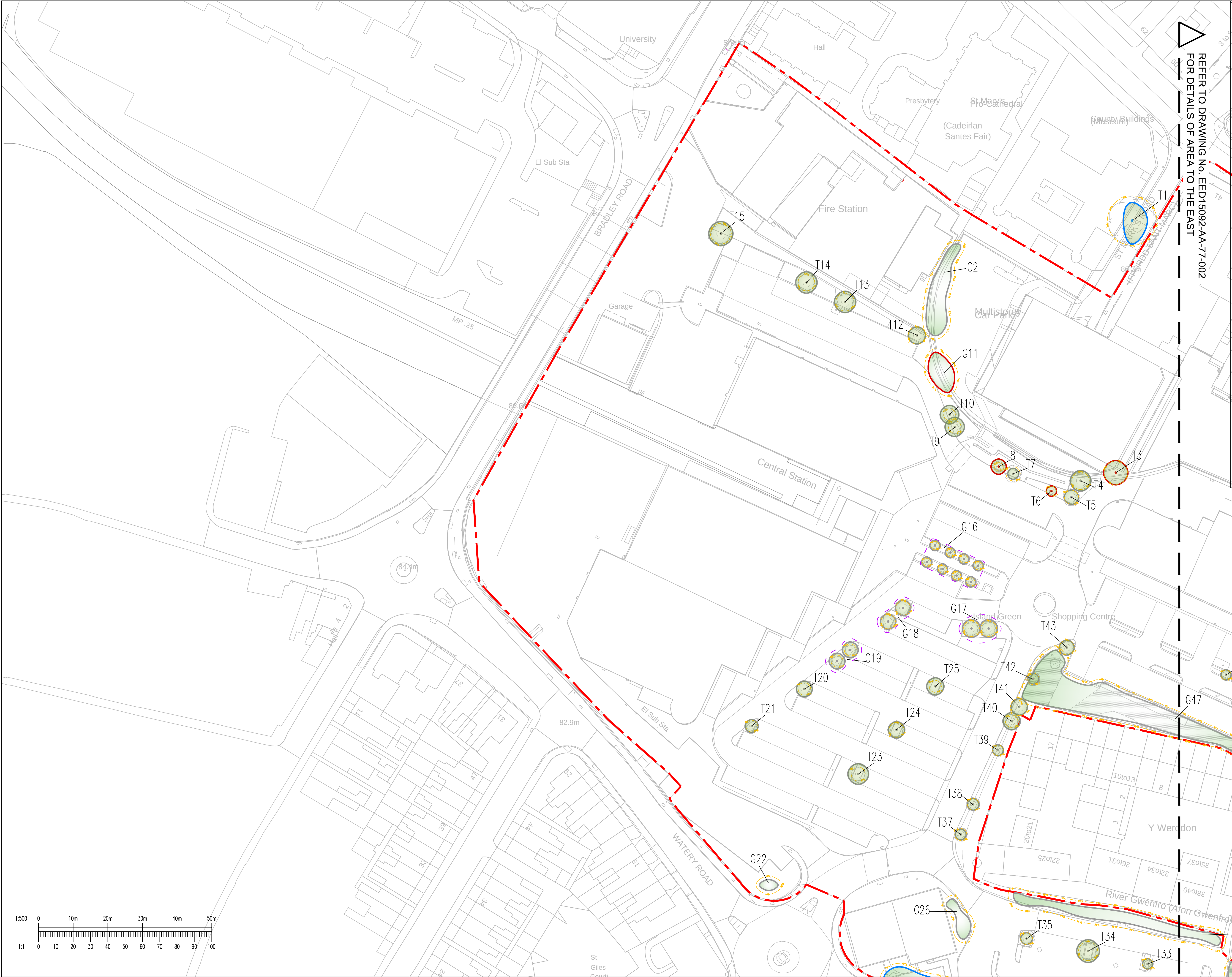
5. Summary

- 5.1. The survey recorded 36No. individual trees and 11No. tree groups within or immediately adjacent to the Study Area. The majority of existing trees recorded within the Study Area were mostly young, standard trees directly associated with the external car park areas of the current retail development. The most common planted tree species within the Study Area was Norway Maple (*Acer platanoides*) being a common choice for amenity plantings such as this.
- 5.2. Occasional torn branch wounds and instances of rootzone compaction likely derived from pedestrian or vehicular over-run was recorded within the Study Area. The Lime tree and tree group T14 and G16 (respectively), both growing in narrow areas of soft landscape appeared to show particularly poor condition. This may be attributed to a combination of the modest size of planting bed and limited depth of and/or impermeable nature of the growing medium associated with these trees.
- 5.3. Some self-sown trees and woody vegetation were recorded on and immediately adjacent to the Study Area boundary. Tree and tree group T3 and G11 (respectively) appeared to be causing modest deflection to the retaining wall through natural root development. Tree T31, a mature multi-stemmed Sycamore, appears to pre-date the current commercial development and land use.
- 5.4. One mature Sycamore (T1) was recorded growing in St. Marks Road immediately to the north of the Study Area. The canopy growth of this tree over the last 100 years appears to have been extremely modest, and is likely to be due to the challenging rooting conditions within which this tree is growing.
- 5.5. The majority of trees and tree groups within the survey have been graded as 'C' Category, being of low value in this context. Despite their relative immaturity, tree groups G27 and G36 were collectively graded as 'B' Category being of medium value in this context. Additionally, two individual trees namely T1 and T31, both Sycamore were also graded as 'B' Category being of medium value in this context.
- 5.6. Within Site 1 a total of 9No. trees and tree groups will be wholly removed along with part of one tree group, to allow the construction of the proposed car park arrangement and following preliminary management recommendations. All trees to be removed in this area are relatively immature specimens of 'C' Category (low quality) or 'U' Category (unsuitable for retention).
- 5.7. Within Site 2 a total of 7No. trees and tree groups, and part of one tree group will be removed to allow construction of the proposed drive thru restaurant development. This is primarily as a result of unavoidable changes to levels and allow construction of a new acoustic screen fence on the northern boundary. All trees to be removed are relatively immature specimens comprising primarily grade 'C' Category trees of low value in this context.
- 5.8. New tree planting will be provided as part of the proposed development and will provide mitigation for the existing trees to be removed. The choice of species for new tree planting has been informed by those found to be thriving within the existing Study Area.



Drawings

Drawing 1: EED15092-100-AA-77-001-C Tree Survey Sheet 1 of 2



REFER TO DRAWING NO. EED15092-AA-77-002
FOR DETAILS OF AREA TO THE EAST

LEGEND

CATEGORY GRADE A
Trees of high quality (none present)

CATEGORY GRADE B
Trees of moderate quality

CATEGORY GRADE C
Trees of low quality

CATEGORY GRADE U
Trees unsuitable for retention

ROOT PROTECTION AREAS (RPA)

INDICATIVE EXTENT OF GROUPED
FEATURE

SITE BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH WATERMAN TREE SURVEY REPORT

The location of T31 is approximate and is derived from Chapman Taylor LLP drawing CTL-0004 revision 00 dated 05.05.2015, and estimated from site observation.

Rev	Date	Description	By
C	10.07.15	Site boundary updated	LB
B	09.07.15	Location of T31 adjusted	LB
A	14.05.15	Updated with revised drawing status	DD

Amendments	
Project	Wrexham Island Green
Title	Tree Survey (Sheet 1 of 2)
Client	Centros

Merchants House Wapping Road Bristol BS1 4RW
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m a i l @ w a t e r m a n g r o u p . c o m w w w . w a t e r m a n g r o u p . c o m

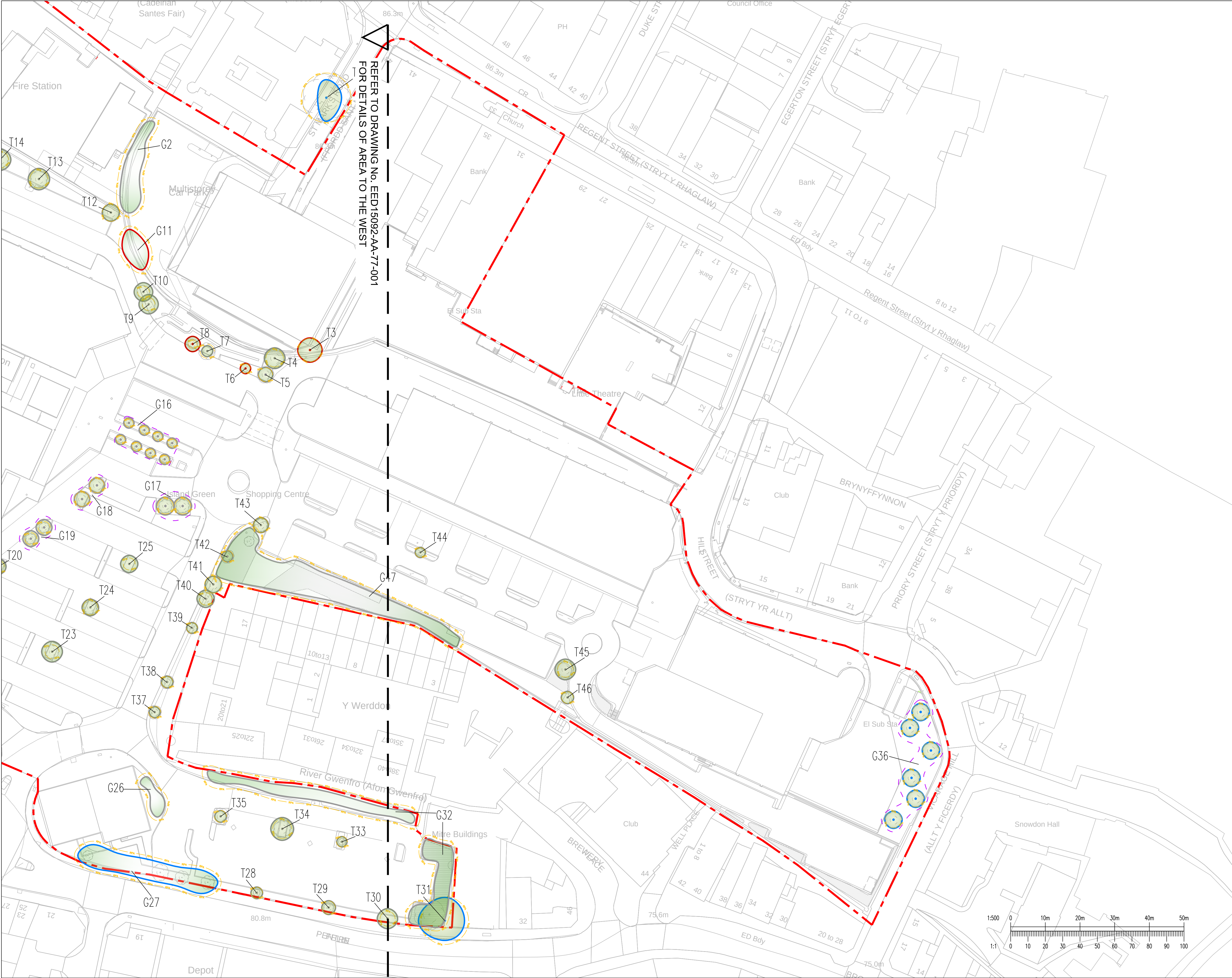
Drawing Status					
PLANNING			Project No	15902	
Designed by	TA	Checked by	TA	Date	April '15
Drawn by	DD	Work Order No	100		
Scales @ A1 work to figured dimensions only			1:500 @A1		
Publisher	Zone	Category	Number	Revision	
EED	AA	77	001	C	

File Path: Z:\Projects\EED15092 - Wrexham Island Green\100\CAD\Tree Survey\Layout1
File Name: EED15092-100AA-77-002_C Tree Survey.dwg

A1-Wat-T



Drawing 2: EED15092-100-AA-77-002-C Tree Survey Sheet 2 of 2



REFER TO DRAWING NO. EED/15092-AA-77-001
FOR DETAILS OF AREA TO THE WEST

CATEGORY GRADE A
Trees of high quality (none present)

CATEGORY GRADE B
Trees of moderate quality

CATEGORY GRADE C
Trees of low quality

CATEGORY GRADE U
Trees unsuitable for retention

ROOT PROTECTION AREAS (RPA)

INDICATIVE EXTENT OF GROUPED
FEATURE

SITE BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH WATERMAN TREE SURVEY REPORT

The location of T31 is approximate and is derived from Chapman Taylor LLP drawing CTL-0004 revision 00 dated 05.05.2015, and estimated from site observation.

C	10.07.15	Site boundary updated	LB
B	09.07.15	Location of T31 adjusted	LB
A	14.05.15	Updated with revised drawing status	DD
Rev	Date	Description	By

Amendments

Project
Wrexham Island Green

Title
Tree Survey
(Sheet 2 of 2)

Client
Centros

Merchants House Wapping Road Bristol BS1 4RW
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Drawing Status

PLANNING

Designed by	TA	Checked by	TA	Project No	15902
Drawn by	DD	Date	April '15	Work Order No	100
Scales @ A1 work to figured dimensions only		1:500 @A1			
Publisher	Zone	Category	Number	Revision	
EED	AA	77	002	C	

A1-Wat-T_Xref_M-Topo-Survey-QS-Map_Xref_PMS15028 2D



Drawing 3: Chapman Taylor CTL-XXX-00-00-1003-00 Proposed Car Park Layout



KEY PLAN

NOTES

New Paving finish

Proposed Car Parking

Existing Car Parking

Proposed Trees

Existing Trees / Groups Retained

Proposed Specimen Shrub

Proposed Green Areas

Existing Green Areas

REV	DATE	INL	DESCRIPTION	CHK	REV	DATE	INL	DESCRIPTION	CHK

PROJECT

ISLAND GREEN
DRIVE THRU RESTAURANT
WREXHAM

CLIENT

Henderson Retail
Warehouse Fund

ARCHITECT

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DRAWING TITLE

PROPOSED CAR PARK
LAYOUT

JOB NUMBER

A816/LGW

SCALE

1:500@A1

DRAWN BY

IMCN

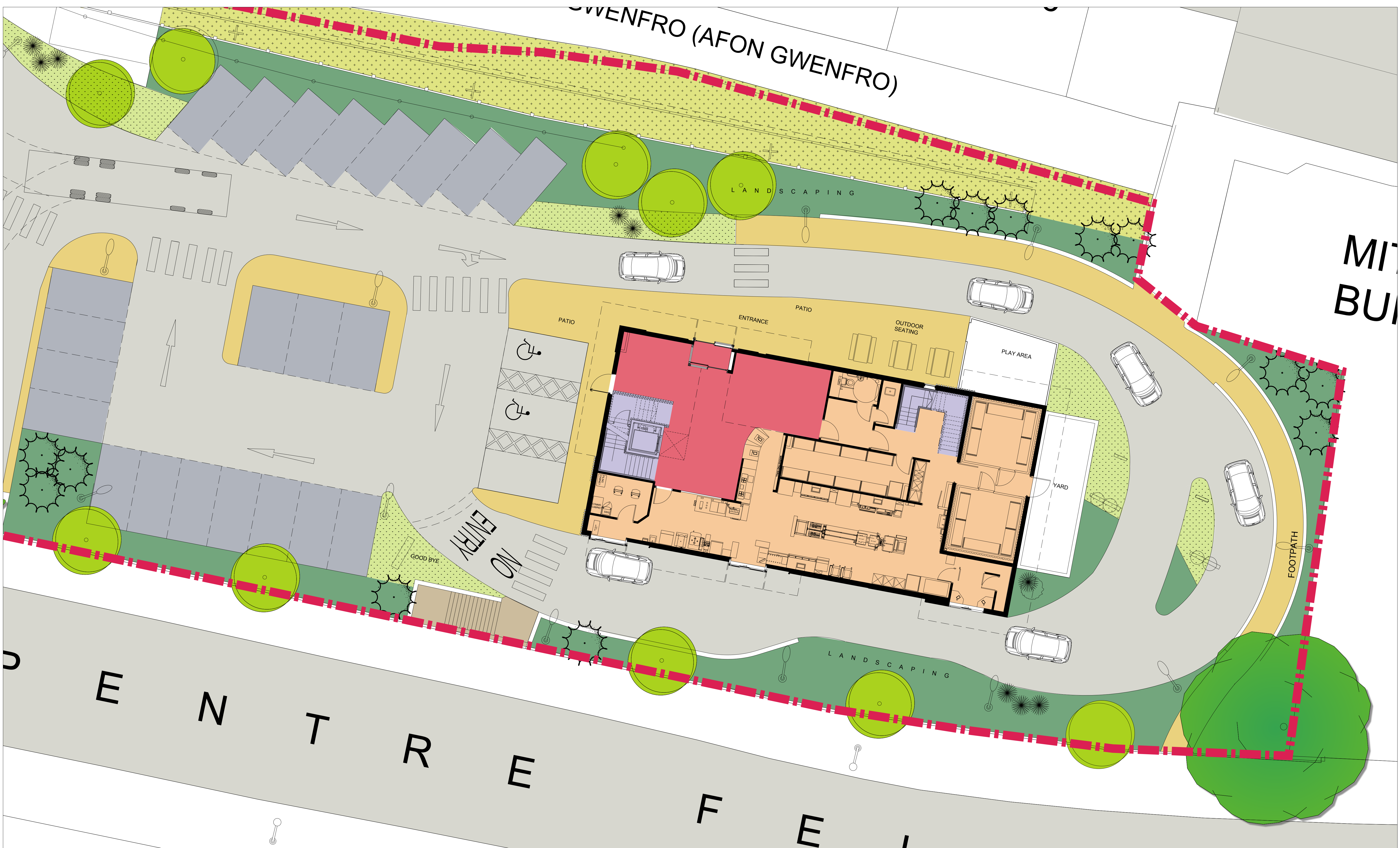
FIRST ISSUE

JUNE2015

COMPANY CODE	BUILDING / ZONE	LEVEL	CATEGORY	DRAWING No.	REVISION
CTL	XXX	00	00	1003	00



Drawing 4: Chapman Taylor CTL-XXX-20-00-2007-0 Ground Floor Plan Drive Thru Restaurant



KEY PLAN

Proposed Trees

Existing Trees / Group Retained

Proposed Specimen Shrub

Proposed Car Parking

Proposed Path

Proposed Scrub Including Native Species

Proposed Amenity Shrubs

Proposed Amenity Grass

Proposed Climber

Proposed Acoustic Fence

REV	DATE	INL	DESCRIPTION	CHK	REV	DATE	INL	DESCRIPTION	CHK

PROJECT

ISLAND GREEN
DRIVE THRU RESTAURANT
WREXHAM

CLIENT

Henderson Retail
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DRAWING TITLE

GROUND FLOOR PLAN
DRIVE THRU
RESTAURANT

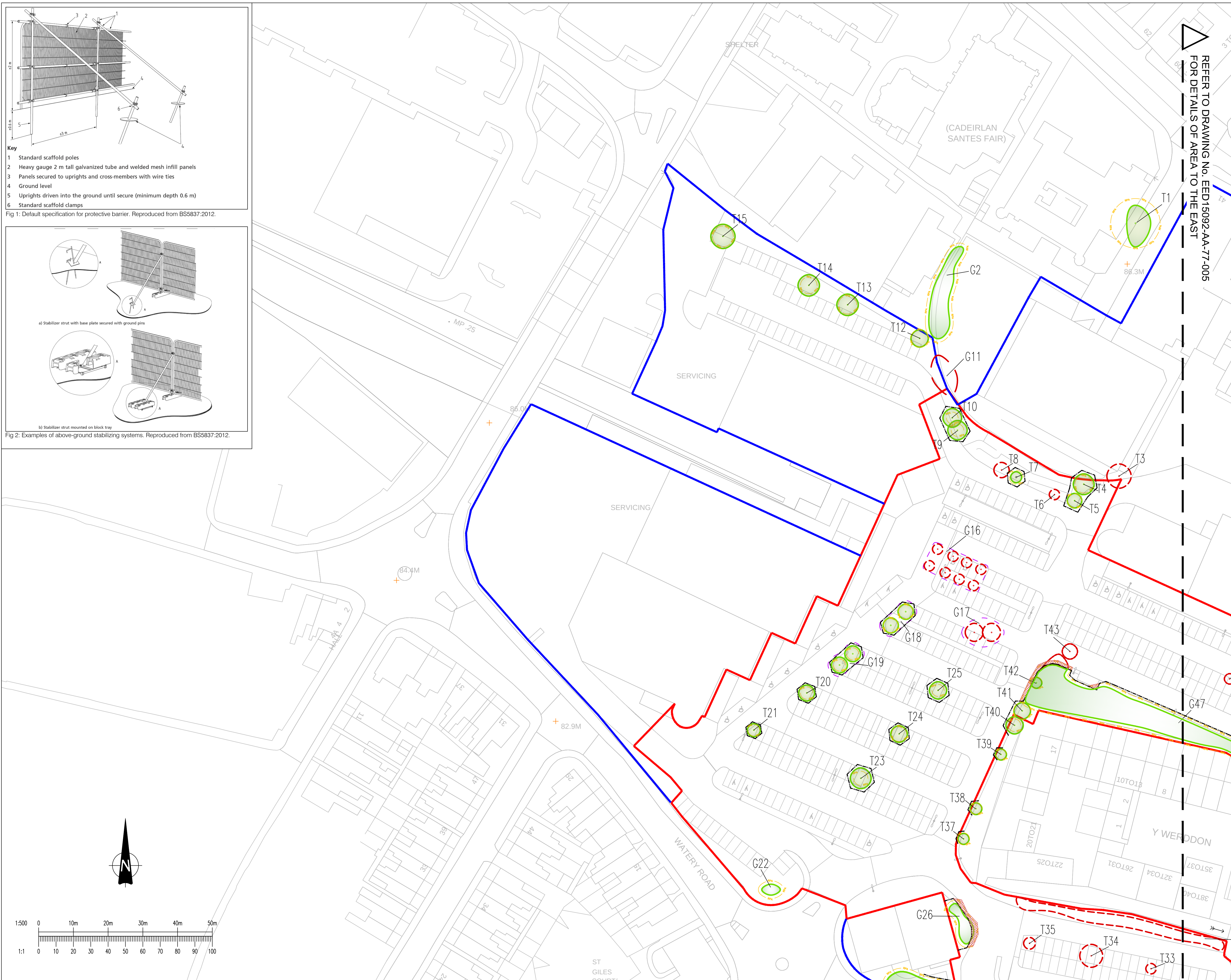
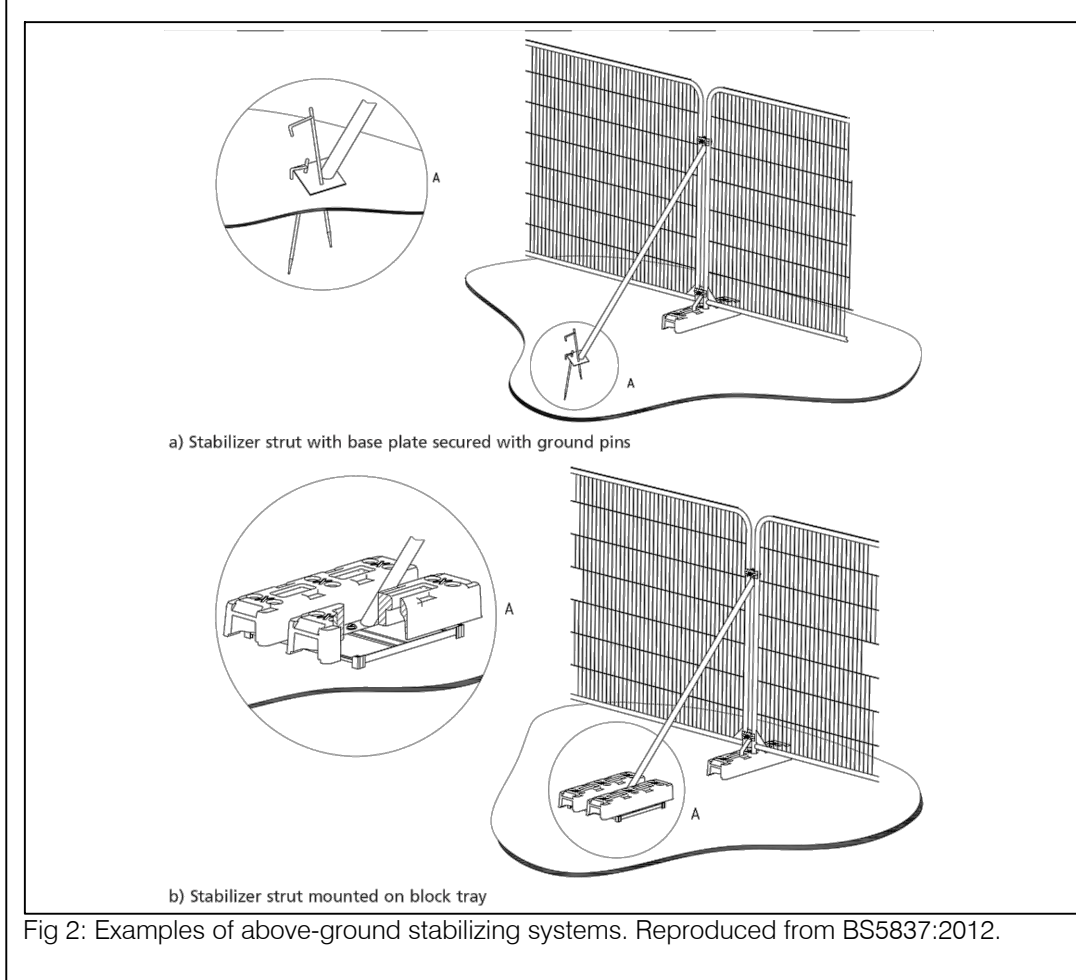
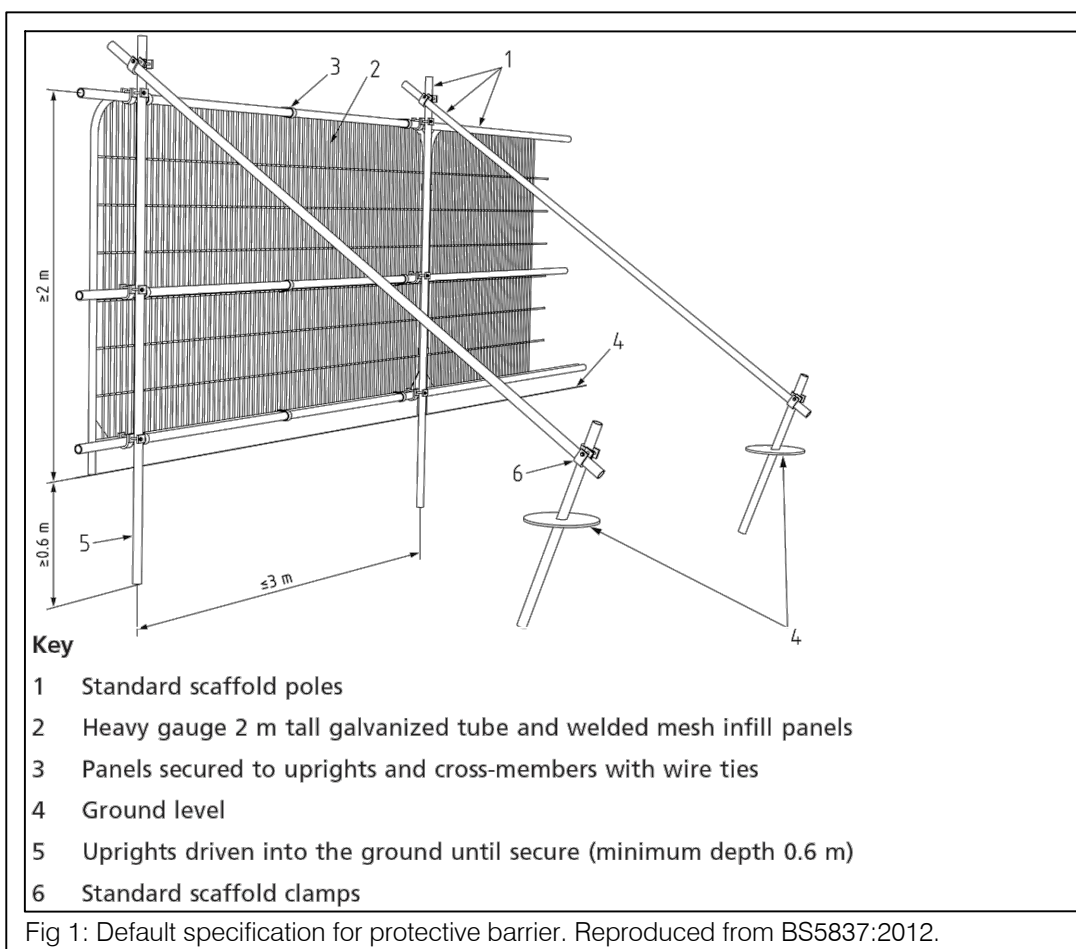
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A816/IGW	1:100@A1	IMcN	JUNE 2015

COMPANY CODE	BUILDING / ZONE	LEVEL	CATEGORY	DRAWING No.	REVISION
CTL	XXX	20	(00)	2007	0

PRELIMINARY



Drawing 5: EED15092-100-AA-77-004 Tree Protection Plan Sheet 1 of 2



LEGEND



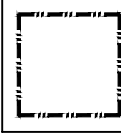
TREES, GROUPS OR HEDGES
TO BE RETAINED



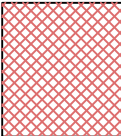
TREES, GROUPS OR HEDGES
TO BE REMOVED



ROOT PROTECTION AREAS (RPA)



TREE PROTECTION
Refer to Detail.



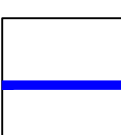
CONSTRUCTION WORKING AREA
(Including Demolition)
Refer to notes for details.



INDICATIVE EXTENT OF GROUPED
FEATURE(S)



SITE BOUNDARY



LAND OWNERSHIP BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

**THIS DRAWING SHOULD BE READ IN
CONJUNCTION WITH WATERMAN
ARBORICULTURAL SURVEY REPORT**

The location of T31 is approximate and is estimated from site observations.

Proposed development taken from Chapman Taylor drawing CTL-XXX-00-10-1002-00 Proposed Car Park Layout dated June 2015.

Rev	Date	Description						By	
Amendments									
Project Wrexham Island Green									
Title Tree Protection (Sheet 1 of 2)									
Client Centros									

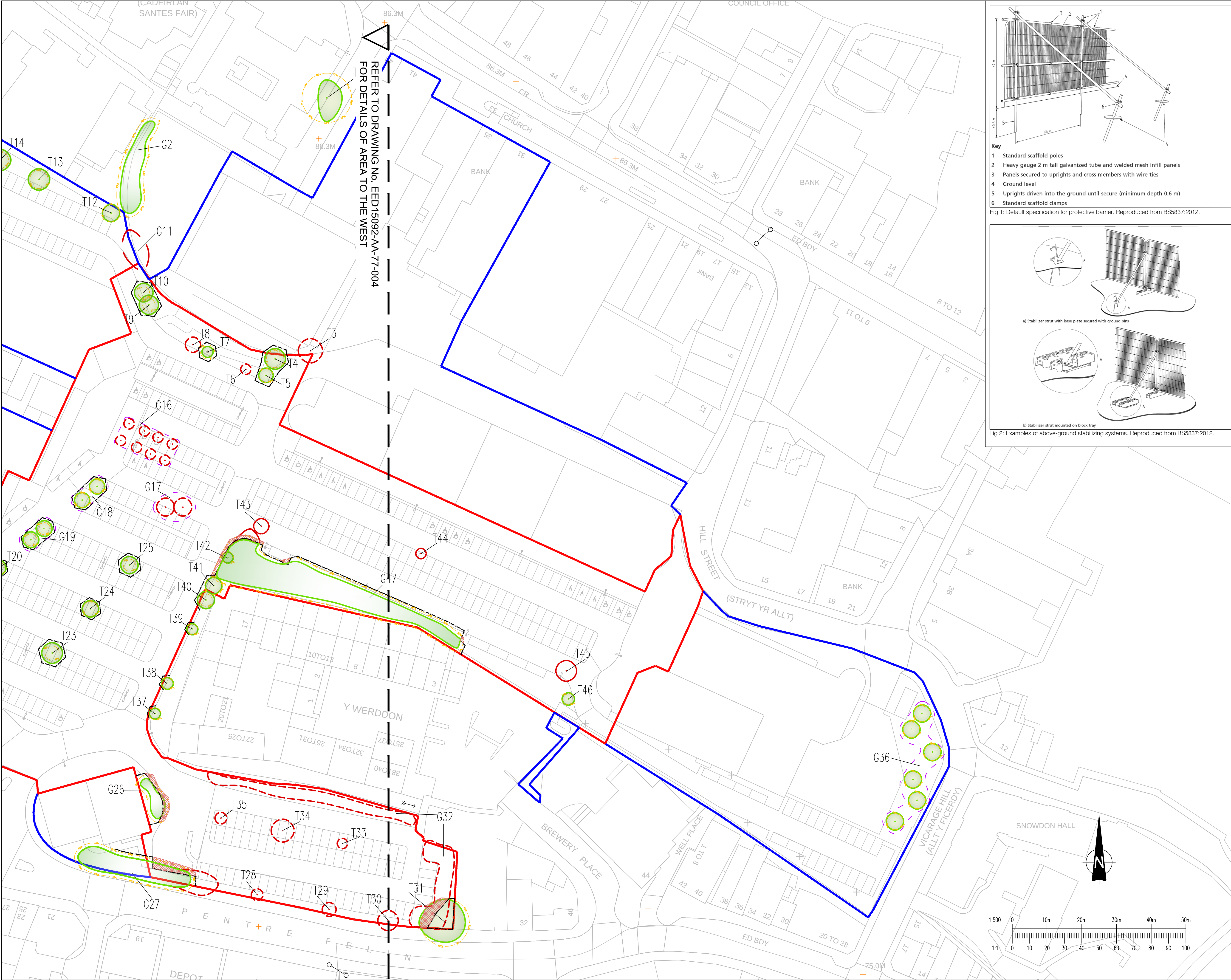


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PLANNING				
Designed by	LB	Checked by	KR	Project No
				15902
Drawn by	LB	Date	July '15	Work Order No
Scalers @ A1		1:500 @A1		100
work to figured dimensions only				
Publisher	Zone	Category	Number	Revision
EED	AA	77	004	



Drawing 6: EED15092-100-AA-77-005 Tree Protection Plan Sheet 2 of 2



REFER TO DRAWING NO. EED15092-AA-77-004
FOR DETAILS OF AREA TO THE WEST

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

Fig 1: Default specification for protective barrier. Reproduced from BS5837:2012.

a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Fig 2: Examples of above-ground stabilizing systems. Reproduced from BS5837:2012.

LEGEND

- TREES, GROUPS OR HEDGES TO BE RETAINED
- TREES, GROUPS OR HEDGES TO BE REMOVED
- ROOT PROTECTION AREAS (RPA)
- TREE PROTECTION Refer to Detail.
- CONSTRUCTION WORKING AREA (Including Demolition) Refer to notes for details.
- INDICATIVE EXTENT OF GROUPED FEATURE(S)
- SITE BOUNDARY
- LAND OWNERSHIP BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH WATERMAN ARBORICULTURAL SURVEY REPORT

The location of T31 is approximate and is estimated from site observations.

Proposed development taken from Chapman Taylor drawing CTL-XXX-00-10-1002-00 Proposed Car Park Layout dated June 2015.

Rev	Date	Description	By

Project Title

Wrexham Island Green

Tree Protection (Sheet 2 of 2)

Client

Centros

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Drawing Status				
PLANNING				
Designed by	LB	Checked by	KR	Project No
Drawn by	LB	Date	July '15	15902
Scales @ A1		Work Order No		
work to figured dimensions only		1:500 @A1		
Publisher	Zone	Category	Number	Revision
EED	AA	77	005	



APPENDICES

A. Cascade Chart for Tree Quality Assessment (extract from BS5837:2012)

TREES FOR REMOVAL				
Category and Definition	Criteria			Identification on Plan
<u>Category U</u> Those in such a condition that that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning); • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline; and • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve.			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	Criteria - Subcategories			Identification on Plan
	1 Mainly Arboricultural Values	2 Mainly Landscape Values	3 Mainly Cultural Values, including Conservation	
<u>Category A</u> Trees of high quality with an estimated remaining life expectancy minimum of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
<u>Category B</u> Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
<u>Category C</u> Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

B. Schedule of Existing Trees

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T1	Sycamore (<i>Acer pseudoplatanus</i>)	13.0	595	5.2	6.8	4.4	2.5*	4.5(S)	3.5	Fair	M	Growing in pavement area on St. Marks Road with metal tree grille surround to base. Levels historically raised around base of trunk. Historic pruning wounds visible with some wound wood development including large wound with cavity at approx. 3.0m Ht. on SE side with cavity and decay visible. High, slightly thin, but otherwise balanced canopy visible with generally stunted growth due to urban context.	Of amenity value to streetscape. Monitor growth to ensure tree grille does not begin to foul trunk development. Inspect cavities for extent of decay and general safety in this context. Monitor overall vigour.	20+	B2
G2*	Ornamental Currant (<i>Ribes sp.</i>), Lilac (<i>Syringa vulgaris sp.</i>), Sycamore (<i>Acer pseudoplatanus</i>), Shrub Rose (<i>Rosa sp.</i>), Goat Willow (<i>Salix caprea</i>) & Ivy (<i>Hedera helix</i>)	3.0 – 8.0	Up to 125	Up to 3.9 @ S end				Varies (MS)	2.0 Av	Fair	Y	Belt of young, self-sown trees and woody vegetation growing on carpark boundary in mutual competition. Some plants beginning to foul adjacent chain link fencing.	Of nominal screening and amenity value. Consider thinning out to allow development of individual trees and generally to prevent damage to boundary fence.	10+	C1/2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T3*	Sycamore (<i>Acer pseudoplatanus</i>)	15.0	200 200	3.5 Average				0.0 (MS)	0.2	Fair	SM	Self-sown tree growing immediately adjacent to retaining wall. Forks at approx. 1.2m into two main trunks with included bark at junction. Generally balanced form.	Consider for removal to prevent damage to adjacent retaining wall.	10+	U
T4	Norway Maple (<i>Acer platanoides</i>)	11.0	210	3.0 Average				2.2 (Av)	2.0	Fair/Good	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development.	Of general amenity value/potential on car park boundary in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	C2
T5	Norway Maple (<i>Acer platanoides</i>)	9.0	170	2.1 Average				2.0 (SW)	2.0	Fair	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Beginning to shade adjacent lighting column.	Of general amenity value/potential on car park boundary in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T6	Norway Maple (<i>Acer platanoides</i>)	8.0	120	1.5 Average				2.0 (SW)	2.2	Fair	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Becoming suppressed by adjacent tree T5.	Consider for removal to allow development of superior adjacent tree T5.	10+	U
T7	Norway Maple (<i>Acer platanoides</i>)	9.0	170	1.6 Average				2.0 (S)	2.2	Fair/Good	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Beginning to shade adjacent lighting column. Wire rat-trap tie beginning to foul trunk development.	Of general amenity value/potential on car park boundary in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay. Remove/adjust wire tie to ensure trunk development is not impeded.	20+	C2
T8	Norway Maple (<i>Acer platanoides</i>)	8.0	100	2.2 Average				2.5 (Av)	2.2	Fair	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Becoming suppressed by adjacent tree T10.	Consider for removal to allow development of superior adjacent tree T10.	10+	U

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T9	Norway Maple (<i>Acer platanoides</i>)	10.0	150	2.8 (Average)				2.2 (Av)	2.0	Fair/ Good	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Beginning to shade adjacent lighting column. Minor deadwood within canopy.	Of general amenity value/potential on car park boundary in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay.	20+	C2
T10	Norway Maple (<i>Acer platanoides</i>)	9.0	140	2.8 (Average)				2.0 (N)	2.0	Fair/ Good	Y	Standard tree growing in area of soft landscape. Occasional pruning wounds visible with some wound wood development. Beginning to shade adjacent lighting column.	Of general amenity value/potential on car park boundary in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay.	20+	C2
G11*	2No. Norway Maple (<i>Acer platanoides</i>)	7.0 (Av)	170 (Av)	2.6 (Average)				0.2 (Av – feathered trees)	Down to 0.0	Fair/ Good	Y	Self-sown feathered trees growing immediately adjacent to retaining wall. Beginning to cause deflection to adjacent retaining wall.	Consider for removal to prevent damage to adjacent retaining wall.	20+	U

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T12	Norway Maple (<i>Acer platanoides</i>)	10.0	210	2.5 (Average)				2.0 (Av)	2.2	Fair/Good	Y	Standard tree growing in area of soft landscape within car park area with occasional crossing branches visible. Pedestrian over-run and exposed roots visible at base. Wire rat-trap tie beginning to foul trunk development.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to alleviate crossing branches, further raise canopy and ensure balanced development. Monitor pruning wounds for decay. Remove/adjust wire tie to ensure trunk development is not impeded.	20+	C2
T13	Norway Maple (<i>Acer platanoides</i>)	10.0	220	3.1 (Average)				2.2 (Av)	2.0	Fair/Good	Y	Standard tree growing in area of soft landscape within car park area. Pedestrian over-run and exposed roots visible at base. Beginning to shade adjacent lighting column. Wire rat-trap tie beginning to foul trunk development.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay. Remove/adjust wire tie to ensure trunk development is not impeded.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T14	Norway Maple (<i>Acer platanoides</i>)	8.0	200	3.1 (Average)				1.8 (Av)	2.0	Fair/Good	Y	Standard tree growing in area of soft landscape within car park area. Pedestrian over-run and exposed roots visible at base. Beginning to shade adjacent lighting column. Wire rat-trap tie beginning to foul trunk development.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy, ensure balanced development and adjacent lighting column is not unduly shaded. Monitor pruning wounds for decay. Remove/adjust wire tie to ensure trunk development is not impeded.	20+	C2
T15	Norway Maple (<i>Acer platanoides</i>)	10.0	250	3.5 (Average)				1.8 (NW)	2.0	Fair/Good	Y	Standard tree growing in area of soft landscape within car park area with occasional crossing branches visible. Pedestrian over-run and exposed roots visible at base. Wire rat-trap tie beginning to foul trunk development.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to alleviate crossing branches, further raise canopy and ensure balanced development. Monitor pruning wounds for decay. Remove/adjust wire tie to ensure trunk development is not impeded.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
G16	8No. Lime (<i>Tilia sp.</i>)	4.0 – 5.0	100 (Av)	1.5 (Average)				2.5 – 3.0	2.5 – 3.0	Fair/ Poor - Poor	Y	Avenue of similar aged trees growing within two linear areas of soft landscape adjacent to footpath and car park area. Stunted growth with two trees showing significant stress. Occasional pruning wounds and deadwood visible.	Of nominal amenity potential. Monitor condition and general decline.	10+	C1/2
G17	2No. Norway Maple (<i>Acer platanoides</i>)	10.0 (Av)	180 - 200	2.6 (Average)				2.0 – 2.5 (Av)	2.0	Fair/ Good	Y	2No. Standard trees growing in area of soft landscape within car park area. Occasional pruning and torn branch wounds and some wound wood developing. Trees beginning to compete with each other for light.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay. Consider removal of weaker tree to allow better development of remaining tree.	20+	C2
G18	2No. Norway Maple (<i>Acer platanoides</i>)	10.0 (Av)	175 (Av)	2.2 (Average)				2.0 (Av)	2.5 (Av)	Fair/ Good	Y	2No. Standard trees growing in area of soft landscape within car park area. Occasional pruning and torn branch wounds and some wound wood developing. Trees beginning to compete with each other for light and shade adjacent lighting column.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
G19	2No. Norway Maple (<i>Acer platanoides</i>)	9.0 (Av)	120 – 145	2.3 (Average)				2.0 Av	2.5 Av	Fair/ Good	Y	2No. Standard trees growing in area of soft landscape within car park area. Occasional pruning and torn branch wounds and some wound wood developing. Trees beginning to compete with each other for light and shade adjacent lighting column.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	C2
T20	Norway Maple (<i>Acer platanoides</i>)	11.0	150	2.3 (Average)				2.5 (E)	2.5	Fair/ Good	Y	Standard tree growing in area of soft landscape within car park area. Occasional pruning and torn branch wounds and some wound wood developing. Beginning to shade adjacent lighting column.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	C2
T21	Norway Maple (<i>Acer platanoides</i>)	10.0	140	1.9 (Average)				2.0 (Av)	2.0	Fair/ Good	Y	Standard tree growing in area of soft landscape within car park area. Occasional pruning and torn branch wounds and some wound wood developing. Beginning to shade adjacent lighting column with uneven flushing of canopy into leaf.	Of general amenity value/potential in association with adjacent trees. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
G22*	2No. Conifers	7.0 (Av)	140* (Av)	1.2 (Average – each)				0.0 (Fthd)	0.0	Fair/ Good	Y	Growing within area of soft landscape at entrance to car park and beginning to compete with each other.	Of nominal amenity value and potential.	10+	C2
T23	Norway Maple (<i>Acer platanoides</i>)	9.0	170	3.0 (Average)				2.0 (Av)	2.0	Fair/ Good	Y	Growing within island area of soft landscape within car park area. Localised pedestrian over-run and compaction of ground at base.	Of general amenity value and potential to location. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T24	Norway Maple (<i>Acer platanoides</i>)	10.0	180	2.4 (Average)				2.0 (S)	2.5	Fair/ Good	Y	Growing within island area of soft landscape within car park area. Localised pedestrian over-run and compaction of ground at base. Occasional pruning wounds and deadwood visible.	Of general amenity value and potential to location. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor overall vigour.	20+	C2
T25*	Norway Maple (<i>Acer platanoides</i>)	8.0	145	2.5 (Average)				2.0 (Av)	2.5	Fair/ Good	Y	Growing within island area of soft landscape within car park area. Localised pedestrian over-run and compaction of ground at base. Occasional pruning wounds and deadwood visible.	Of general amenity value and potential to location. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor overall vigour.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
G26*	3No. Norway Maple (<i>Acer platanoides</i>)	8.0 – 10.0	130 - 170	2.1 (Average)				2.5 (Av)	2.5 (Av)	Fair/ Good	Y	Growing in area of soft landscape within car park area and adjacent to shop unit and individual trees beginning to compete for light and space. Occasional crossing branches visible and some beginning to rub against adjacent building. Occasional pruning wounds with some wound wood developing.	Of general amenity value and potential to location. Undertake general formative pruning to further raise canopy, ensure balanced development and alleviate conflict with adjacent building. Monitor pruning wounds for decay.	20+	C2
G27*	6No. Norway Maple (<i>Acer platanoides</i>)	10.0 – 12.0	150 - 280	3.0 (Average)				2.0 (Av)	2.0	Fair – Fair/ Good	Y - SM	Line of similar aged trees growing in area of soft landscape on site boundary. Some exposed surface roots and soil compaction visible from pedestrian over-run. Occasional pruning and torn branch stubs visible with wound wood developing.	Of amenity value and potential as a group on site boundary. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor pruning wounds for decay.	20+	B2
T28	Norway Maple (<i>Acer platanoides</i>)	9.0	140	1.7 (Average)				1.6 (Av)	1.6	Fair	Y	Growing in Linear belt of soft landscape on site boundary. Possible dieback and crossing branches within canopy and appears to be locally slow to flush into leaf.	Of general amenity potential on site boundary. Undertake general formative pruning to alleviate crossing branches, further raise canopy and ensure balanced development. Monitor pruning wounds for decay and general vigour.	10+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T29	Norway Maple (<i>Acer platanoides</i>)	10.0	160	2.0 (Average)				1.6 (Av)	1.6	Fair/Good	Y	Growing in area of soft landscape on site boundary. Some exposed surface roots and soil compaction visible from pedestrian over-run.	Of amenity potential on site boundary. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T30	Norway Maple (<i>Acer platanoides</i>)	9.0	180	2.9 (Average)				1.7 (Av)	1.6	Fair/Good	Y	Growing in area of soft landscape on site boundary. Some exposed surface roots and soil compaction visible from pedestrian over-run.	Of amenity potential on site boundary. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T31*	Sycamore (<i>Acer pseudoplatanus</i>)	14.0	260 260 140 140 200 120 200 200 200	6.7	5.7	5.7	7.6	0.0 (MS)	0.1	Fair	M	Growing in area of soft landscape on site boundary. Likely to pre-date existing commercial development occupying much of the site. Multi-stemmed from base with 9No. main trunks rising up from base with some debris collecting at junction(s).	Of amenity value on site boundary. Monitor trunk junction(s) for decay.	20+	B1/2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
G32*	Sycamore (<i>Acer pseudoplatanus</i>), Downey Birch (<i>Betula pubescens</i>), Goat Willow (<i>Salix caprea</i>), Dogwood (<i>Cornus alba</i> sp.), Spirea, Chinese Honeysuckle (<i>Lonicera pileata</i>) Brachyglottis 'Sunshine' (<i>Senecio 'Sunshine'</i>), Cotoneaster, Buddleia, Persian Ivy (<i>Hedera colchica</i>) & Portuguese Laurel (<i>Prunus lusitanica</i>).	6.0 – 10.0	Up to 230							Fair - Good	Y	Linear belt of self-sown saplings and woody vegetation on site boundary growing in mutual competition.	Consider thinning out to allow the development of individual trees. Of general screening value as a group on site boundary.	10+	C1/2
T33	Norway Maple (<i>Acer platanoides</i>)	8.0	130	1.5 (Average)				2.0 (Average)	2.0	Fair	Y	Standard tree growing in island of soft landscape within car park area. Slightly stunted growth and late to flush into leaf.	Of general amenity value to location. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor general vigour.	10+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T34	Norway Maple (<i>Acer platanoides</i>)	10.0	230	3.3 (Average)				2.5 (Av)	2.5	Fair/Good	Y	Standard tree growing in island of soft landscape within car park area.	Of general amenity value to location. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T35	Norway Maple (<i>Acer platanoides</i>)	8.0	145	1.7 (Average)				2.0 (Av)	2.0	Fair	Y	Standard tree growing in island of soft landscape within car park area. Slightly stunted growth and late to flush into leaf. Occasional pruning wounds visible, but little wound wood development. Some over-run and soil compaction visible.	Of general amenity value to location. Undertake general formative pruning to further raise canopy and ensure balanced development. Monitor general vigour.	10+	C2
G36	6No. Norway Maple (<i>Acer platanoides</i>)	8.0 – 10.0	Up to 200	2.5 (Average)				2.0 (Av)	2.0	Good	Y	Informal stand of trees growing in area of soft landscape margin on site boundary and beginning to compete.	Of screening/amenity value and potential as a group. Undertake general formative pruning to further raise canopy, remove duplicating branches and ensure balanced development.	20+	B2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T37	Norway Maple (<i>Acer platanoides</i>)	10.0	145	1.6 (Average)				2.0 (E)	2.0	Fair/Good	Y	Growing in soft landscape margin adjacent to car park access road with retaining wall immediately to W. Minor wound at base of trunk on SW side with some wound wood developing.	Of amenity and screening value on site boundary. Monitor trunk and general pruning wounds for decay. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T38	Norway Maple (<i>Acer platanoides</i>)	9.0	140	1.7 (Average)				2.0 (E)	2.0	Fair	Y	Growing in soft landscape margin adjacent to car park access road with retaining wall immediately to W. Some dieback and deadwood within canopy.	Of general screening and amenity value on site boundary. Monitor general vigour.	10+	C2
T39	Norway Maple (<i>Acer platanoides</i>)	9.0	130	1.6 (Average)				2.0 (W)	2.5	Fair	Y	Growing in soft landscape margin adjacent to car park access road with retaining wall immediately to W. Some dieback and deadwood within canopy.	Of general screening and amenity value on site boundary. Monitor general vigour.	10+	C2
T40	Norway Maple (<i>Acer platanoides</i>)	8.0	150	2.5 (Average)				1.8 (Av)	1.8	Fair	Y	Growing in soft landscaped margin adjacent to car park access road with retaining wall to W. Stunted growth with some pruning wounds visible but modest wound wood development.	Of general screening and amenity value on site boundary. Monitor general vigour and pruning wounds for decay.	10+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T41	Norway Maple (<i>Acer platanoides</i>)	8.0	210	2.4 (Average)				1.8 (Av)	1.8	Fair/Good	Y	Growing in soft landscaped margin adjacent to car park access road with retaining wall to W. Stunted growth with some pruning wounds visible but modest wound wood development.	Of general screening and amenity value on site boundary. Monitor general vigour and pruning wounds for decay.	10+	C2
T42	Norway Maple (<i>Acer platanoides</i>)	8.0	140	1.6 (Average)				1.8 (Av)	1.8	Fair	Y	Standard tree growing within area of soft landscape on car park boundary. Late to flush into leaf.	Of general amenity and screening value on site boundary. Monitor general vigour.	20+	C2
T43	Norway Maple (<i>Acer platanoides</i>)	10.0	180	2.2 (Average)				2.0 (Av)	2.0	Fair/Good	Y	Standard tree growing in soft landscaped margin on car park boundary with occasional pruning wounds and torn branch stubs visible. Over-run and compaction of soils noted at base.	Of general screening and amenity value on site boundary. Monitor general vigour and pruning wounds for decay.	20+	C2

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
T44	Lime (<i>Tilia sp.</i>)	7.0	120	1.5 (Average)				3.0 (E)	3.0	Fair	Y	Standard tree growing in narrow area of former soft landscape, (now surfaced with artificial grass) within car park. Numerous pruning wounds and stubs to lower trunk. Thin canopy.	Of nominal amenity value. Monitor pruning wounds for decay and general vigour following installation of artificial grass.	10+	C1/2
T45	Norway Maple (<i>Acer platanoides</i>)	12.0	185	3.0 (Average)				2.5 (S)	2.5	Fair/ Good	Y	Standard tree growing in area of soft landscape on car park boundary.	Of general amenity value and potential. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
T46*	Sycamore (<i>Acer pseudoplatanus</i>)	6.0	140*	1.8 (Average)				1.5 (S)	1.8	Fair/ Good	Y	Low(er) branching tree growing in area of soft landscape on car park boundary. Limited access due to proximity of dense, woody vegetation.	Of general amenity value and potential. Undertake general formative pruning to further raise canopy and ensure balanced development.	20+	C2
G47	Forsythia, Chinese Honeysuckle (<i>Lonicera pileata</i>), Sycamore (<i>Acer pseudoplatanus</i>) saplings, Oregon Grape (<i>Mahonia</i>)	1.0 – 8.0	Up to 150 (Maples)									Belt of woody amenity planting with occasional self-sown saplings on car park boundary and growing in mutual competition.	Of general amenity and screening value, as a group.	C2	10+

Ref. No	Species	Est. Height (m)	Stem Dia. (mm)	Canopy Spread (m)				First significant branch (m)	Canopy Clearance (m)	Physiological Condition	Age	Observations and Conditions	Preliminary Management Recommendations	Est. Remaining Contribution	Cat.
				N	S	E	W								
	<i>aquifolium</i>), Evergreen Cotoneaster, Hybrid Cherry Laurel (<i>Prunus laurocerasus</i> 'Otto Luyken'), Elaeagnus sp., Dogwoods (<i>Cornus alba</i> sp. & <i>Cornus stolonifera</i> sp.), self-sown Goat Willow (<i>Salix caprea</i>), Snowberry (<i>Symphoricarpos</i> sp.), Portuguese Laurel (<i>Prunus lusitanica</i>), Norway Maple (<i>Acer platanoides</i>) saplings & occasional standards,														

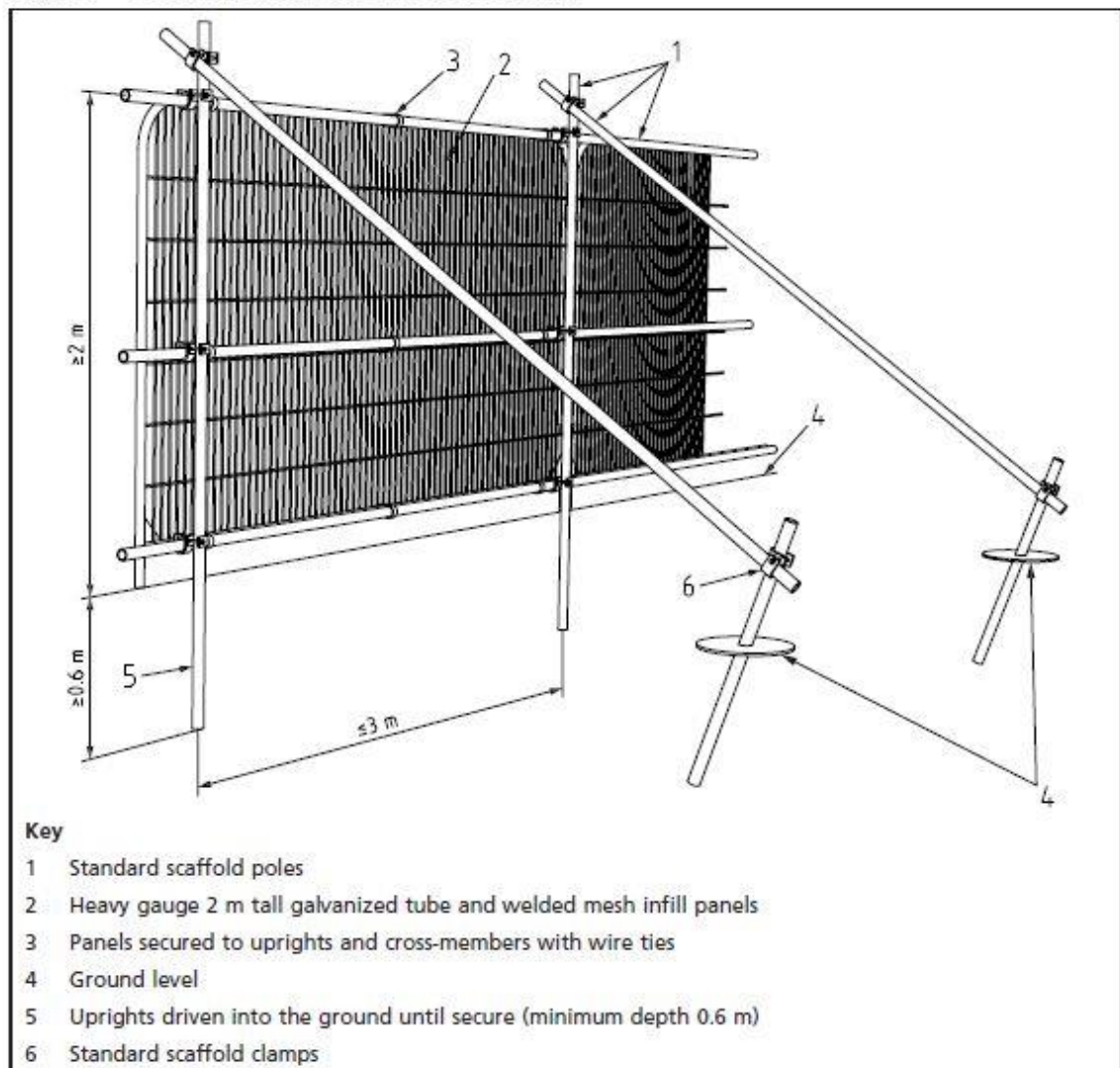
Notes

- All trees and hedgerows subject to full arboricultural inspection for safety, with respect of both existing and proposed site uses/users (targets).
- Any management recommendations in this report subject to protection status of trees (e.g. TPO or Conservation Area etc.) and LPA approval.
- Any management recommendations in this report subject to presence of nesting birds or protected species (e.g. Bats)
- Any tree surgery recommendations contained within this report to be undertaken in accordance with BS3998(2010) Tree work – Recommendations (BS3998)
- Fieldwork survey information subject to seasonal/access constraints.
- N/A - Measurement not accessible.
- ‘*’ or ‘Est’ - Indicates estimated position of tree (not indicated on topographical survey) or value based upon average of remaining measurements or visual estimate.

This schedule should be read in conjunction with Waterman IE Tree Survey drawing No: EED15092-AA-77-001-C and EED15092-100-AA-77-002-C

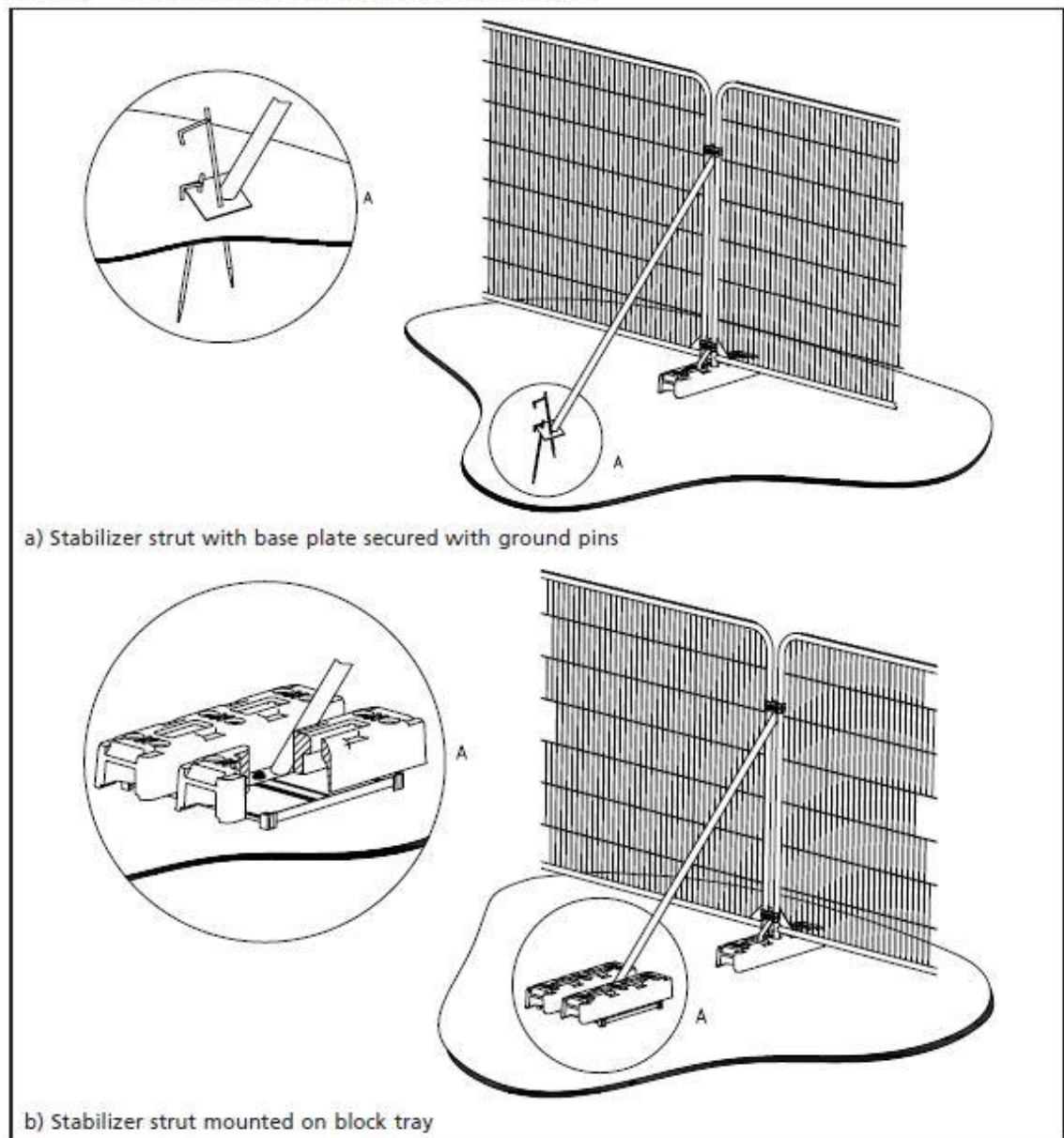
C. Extract from BS5837:2012 – Default specification for protective barrier

Figure 2 Default specification for protective barrier

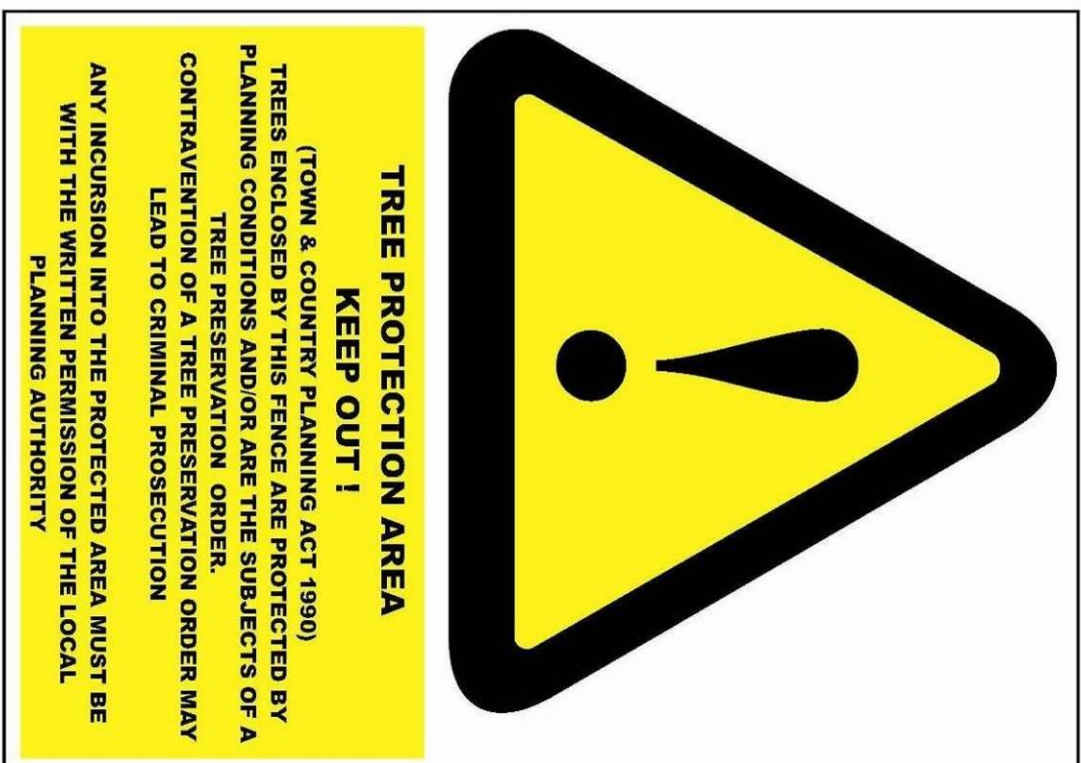


D. Extract from BS5837:2012 – Examples of above-ground stabilizing systems

Figure 3 Examples of above-ground stabilizing systems



E. Tree Protection Signage (Example)



UK and Ireland Office Locations

