

Georgiana Street, London NW1 0QS

Bangor Wharf



Report to accompany planning application:

Report on Trees
Broad Oak Tree Consultants Limited

February 2017



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**ARBORICULTURAL IMPLICATIONS ASSESSMENT
FOR
PROPOSED REDEVELOPMENT**

AT

**BANGOR WHARF
LONDON
NW1 0QS**

BY

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1. INTRODUCTION

- 1.1 Broad Oak Tree Consultants Ltd. received instructions from One Housing Group to undertake an inspection of trees located on and immediately adjacent to the site referred to as Bangor Wharf, London, NE1 0QS. The purpose of the inspection was to produce a base inventory of the tree stock and an Arboricultural Implications Assessment of redevelopment proposals.
- 1.2 The proposals are for the demolition of all buildings on-site and new buildings of 1-6 storeys in height to include 40 residential (C3) units (16 x 1 bed, 15 x 2 bed and 9 x 3 bed) of which 34 would be market units and 6 affordable, 813 sq.m (GEA), of new office floorspace (B1a), 55 sq.m (GEA) storage and distribution floorspace (B8) and associated works to highways and landscaping.
- 1.3 The site had previously been inspected in February 2015 and the trees present were reinspected in February 2017 by Tim Laddiman, BSc.(Hons) M.I.C.For. M.Arbor.A., Chartered Arboriculturist and Principal Consultant of Broad Oak Tree Consultants Ltd.
- 1.4 At the time of reporting it is understood that the site stands within the Regent's Canal Conservation Area.

2. GENERAL SITE DESCRIPTION

- 2.1 The site is located on the north side of Georgiana Street with the Grand Union Canal to the eastern boundary. A road bridge over the canal forms the south-east corner of the site with a cobbled access leading beneath the bridge.
- 2.2 A complex of former office units occupies the western and south-western part of the site with the central area dominated by tarmac surfaced parking. Single storey buildings are located to the north and east with a maturing Willow tree occupying a raised, retained location to the south-east corner of the site. To the north-east are two self seeded young Sycamores within fence lines and beyond the eastern boundary on the bank of the canal are further young, self seeded Sycamores.

3. SCOPE OF TREE SURVEY

- 3.1 All trees and shrubs of 75mm diameter or more at 1.5m above ground level were included in the survey. This included trees immediately adjacent to the site.
- 3.2 For the offsite trees estimates of location, dimensions and condition had to be made.

4. DATA COLLECTION

- 4.1 All trees were inspected from the ground and no climbing or specialist investigations were undertaken. Only those trees within the site boundary could be basally inspected, with the structural integrity of the trees located outside the site unconfirmed. Each tree was inspected to the requirements of Section 4.4 of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations".

4.2 The tree survey followed the numbered sequence from T1 to G4 inclusive. Tree numbers, together with BS recommended colour coding of condition, have been added to the Tree Constraints Plan, our drawing no. J50.05/01 Rev. A in Appendix 2. This drawing also includes crown spreads based on four compass points and anticipated rooting areas, given the severe site constraints.

4.3 The following categories of information were obtained for each tree. A separate detailed tree survey sheet is attached in Appendix 1, together with comprehensive explanatory sheets which cover the details of the categories listed below.

- (1) Tree reference number
- (2) Species
- (3) Height in metres
- (4) Stem count
- (5) Stem diameter or equivalent in millimetres
- (6) Branch spread in metres
- (7) Age class
- (8) Height of crown clearance in metres
- (9) Physiological condition
- (10) Estimated remaining contribution in years
- (11) Category grading
- (12) Structural condition
- (13) Preliminary management recommendations

4.4 Within the assessment of physiological condition and remaining contribution, a visual inspection of each tree was undertaken to assess the crown and stem for any weak structures, deadwood, hollows, forks or other defects that might affect its stability and safety. The base of each tree was also visually inspected, together with tapping and probing, to search for signs of root lifting, bark death or decay. Where stems were heavily ivy clad, no full assessment of structural integrity could be undertaken. Clearance of the ivy would be necessary for confirmation of tree condition.

5. RISK ASSESSMENT - INFORMATIVES

5.1 Although the potential risk to someone passing beneath a tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year round basis, such as footpaths, gardens and roadways. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of a tree could potentially cause physical damage to such structures.

5.2 Within the scope of any tree survey it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even healthy trees can suffer stem snap or windblow. There is also a well known propensity for mature trees to occasionally shed limbs for no discernible reason, even on calm days. Although relatively rare, limbs may occasionally be shed and this should be acknowledged as a risk that cannot entirely be mitigated.

6. RESULTS OF TREE INSPECTIONS

- 6.1 A total of two individual trees and two small groups were inspected. The two groups and one individual are all young Sycamores of less than 15 years of age that have self seeded in areas of low maintenance along fence lines and the built edge of the Canal. Due to their potential impact on structural integrity of the associated structures it is likely that they would be removed during any maintenance works.



G3 Sycamores growing along edge of Canal



G4 Sycamores within fence lines of a restricted access area

- 6.2 The Willow, T1, was previously assessed as providing some localised visual amenity in its setting, albeit that its canopy was constrained by the bridge structure and rooting restrictions were severe.
- 6.3 Reinspection has discovered the since February 2015 the tree has suffered a catastrophic failure of over half its crown. This has collapsed into the Canal, crushing T2 Sycamore in the process.



Major collapse of canopy of Weeping Willow, T1, to north with extensive tearing back into remaining stem. Complete canopy failure inevitable.

- 6.4 The Willow is now considered to be in a dangerous condition. The collapsed part of the canopy requires removal to avoid detriment to the Canal and any use by vessels. The remaining section is at a very high risk of complete collapse. The tear wound extends back into the remaining support tissue, which is weakened by structural deformities. Within the remaining canopy there are several other partially torn/collapsed limbs and the tree is no longer in a viable condition. Consequently it has been classified as BS category U and requires removal on safety grounds.
- 6.5 T2, Sycamore, has been partially crushed, with one stem broken and requiring removal from the Canal and the other under significant loading from the collapsed crown of T1, if complete failure has not since occurred.
- 6.6 Of the trees inspected, the following is a breakdown of the various numbers of trees and groups in each BS category.

BS Category	Tree No.	Sub Total
A	-	-
B	-	-
C	G3, G4	2
U	1, 2	2
	TOTAL	4

6.7 **Interpretation of table**

Category A Retention most desirable. Of high quality and value and in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

Category B Retention desirable. Of moderate quality and value and in such a condition as to make a significant contribution (a minimum of 20 years is suggested).

Category C Could be retained – of low quality and value. Poor crown form, heavily asymmetric, large numbers of similar species/size. Currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested) or young trees with a stem diameter below 150mm.

Category U Trees for removal. Dead/dying/dangerous trees due to structural defects, fungal decay or root plate uplift. Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

7. BS CALCULATED ROOT PROTECTION AREAS (RPAs)

7.1 To provide an indication of the critical areas of root plate necessary for tree survival and longevity, BS 5837:2012 requires the calculation of RPAs for trees in the BS Categories A, B and C. Calculations are not made for Category U trees which will require removal on safety grounds within 10 years.

7.2 The table below has been calculated using the measured stem diameters and the formula as described in Section 4.6 in BS 5837:2012. These are represented as dashed areas due to the sever site constraints on the Tree Constraints Plan. Where buildings, walls, services and hard surfacing exist within the indicated RPAs it is likely that the architecture of root systems will have been affected. Foundations to walls and buildings can completely obstruct root development, depending on their depth and the nature of the underlying soils. In the absence of detailed site investigations the calculated RPAs should be used for guidance only within any redevelopment proposals.

Tree no.	Species	BS Category	Stem diameter or calculated equivalent (mm.)	BS calc. radial equiv. root protection area (m.)	BS calc. total RPA (m ²)
1	Weeping Willow	U	-	-	-
2	Sycamore	U	-	-	-
G3	Sycamore	C2	<150	<1.8	<10
G4	2no. Sycamore	C2	<200	<2.4	<18

8. IMPACT OF PROPOSALS ON TREES

- 8.1 Based on the Proposed Ground Floor Plan, drawing no. SK206/P1 produced by TM Architects all of the trees detailed above would require removal.
- 8.2 Trees T1 and T2 will require removal on safety grounds, whether or not the redevelopment proceeds.
- 8.3 G3, Sycamore, would need to be removed to allow for repairs to the Canal edge and future growth potential would be incompatible with the proposed buildings. G4, Sycamores, are also in unsustainable locations in terms of any reactivation of the site in its current form or in relation to the proposed buildings.
- 8.4 None of the trees to be removed are of current visual or future amenity significance due to the species present and their poor locations. Consequently as BS category C and U trees they should not represent a constraint to the proposals.
- 8.5 The trees are indicated for removal on the Tree Removal Plan, drawing no. J50.05/02 in Appendix 3. This is based on the TM Architects Proposed Ground Floor Plan referenced above. Trees T1 and T2 are indicated for removal on safety grounds with red dashed crown outlines with groups G3 and G4 indicated for removal for redevelopment reasons with blue dashed crown outlines.
- 8.6 New planting proposals will have been detailed by Turkington Martin, Landscape Architects, and are not covered in this report.

9. SUMMARY

- 9.1 A total of two individual trees and two groups were inspected, all but one of which are self seeded Sycamores of less than 15 years of age growing in inappropriate areas of lapsed maintenance/restricted access.
- 9.2 The Weeping Willow present, growing in a constrained, retained space next to the bridge, has suffered a significant partial collapse of over half its crown into the Canal, severely damaging one of the young Sycamores.
- 9.3 Further collapse of the remaining Willow canopy is inevitable and its removal, along with the compromised Sycamore is recommended to address safety issues.
- 9.4 All of the self seeded Sycamores and the Willow would require removal within the redevelopment proposals.
- 9.5 A BS Category C and U trees they should not represent a constraint to the proposals, according to BS5837:2012.

Tim Laddiman
Chartered Arboriculturist
Broad Oak Tree Consultants Ltd.

APPENDIX 1

TREE SURVEY EXPLANATORY SHEET

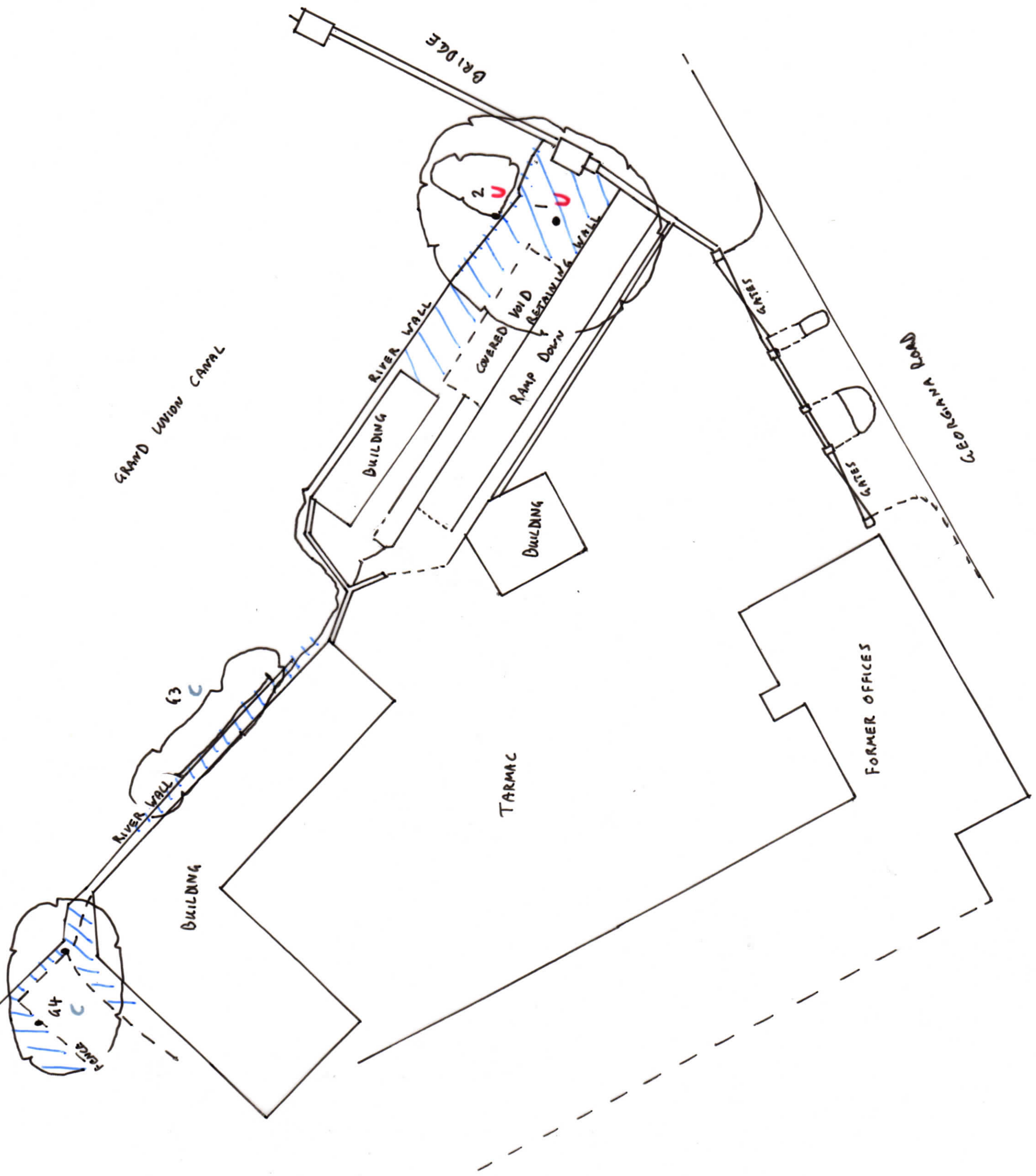
Height	in metres (estimated where ground uneven or access restricted).
Stem count	number of stems
Stem diameter	in mm. at 1.5m. above ground level.
Branch spread	radial spread in metres at four main compass points (estimated where no access).
Age class	Young - Y Middle aged - MA Mature - M Over mature - OM Veteran - V
Height of crown clearance	in metres. Normally range of heights of outer branches above ground level, e.g. 2-4m.
Physiological condition	Good, Fair, Poor, Dead, Variable
Estimated remaining contribution	in years e.g. less than 10, 10-20, 20-40, 40+
Category grading	see attached sheet
Structural condition	comment on presence of defects, decay, crown form, past management, deadwood, other features worthy of note. N.B. If trees are ivy clad, no full structural assessment will have been possible.
Preliminary management recommendations	requirements of further investigations, works necessary to alleviate potential hazards based on current setting and levels of access. NB: Works that may be necessary in relation to development are not included here



CASCADE CHART FOR TREE QUALITY ASSESSMENT

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
<p>Category U Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management</p>	<ul style="list-style-type: none"> • Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R 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. • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality <p>NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)</p>			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	
<p>Category A Those of high quality and value: in such a condition as to be able to make a substantial construction (a minimum of 40 years is suggested)</p>	<p>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)</p>	<p>Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)</p>	<p>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</p>	LIGHT GREEN
<p>Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)</p>	<p>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)</p>	<p>Trees present in numbers, usually as groups or woodland, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality</p>	<p>Trees with clearly identifiable conservation or other cultural benefits</p>	MID BLUE
<p>Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.</p>	<p>Trees not qualifying in higher categories</p>	<p>Trees present in groups or woodland, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.</p>	<p>Trees with very limited conservation or other cultural benefits</p>	GREY
<p>NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation</p>				

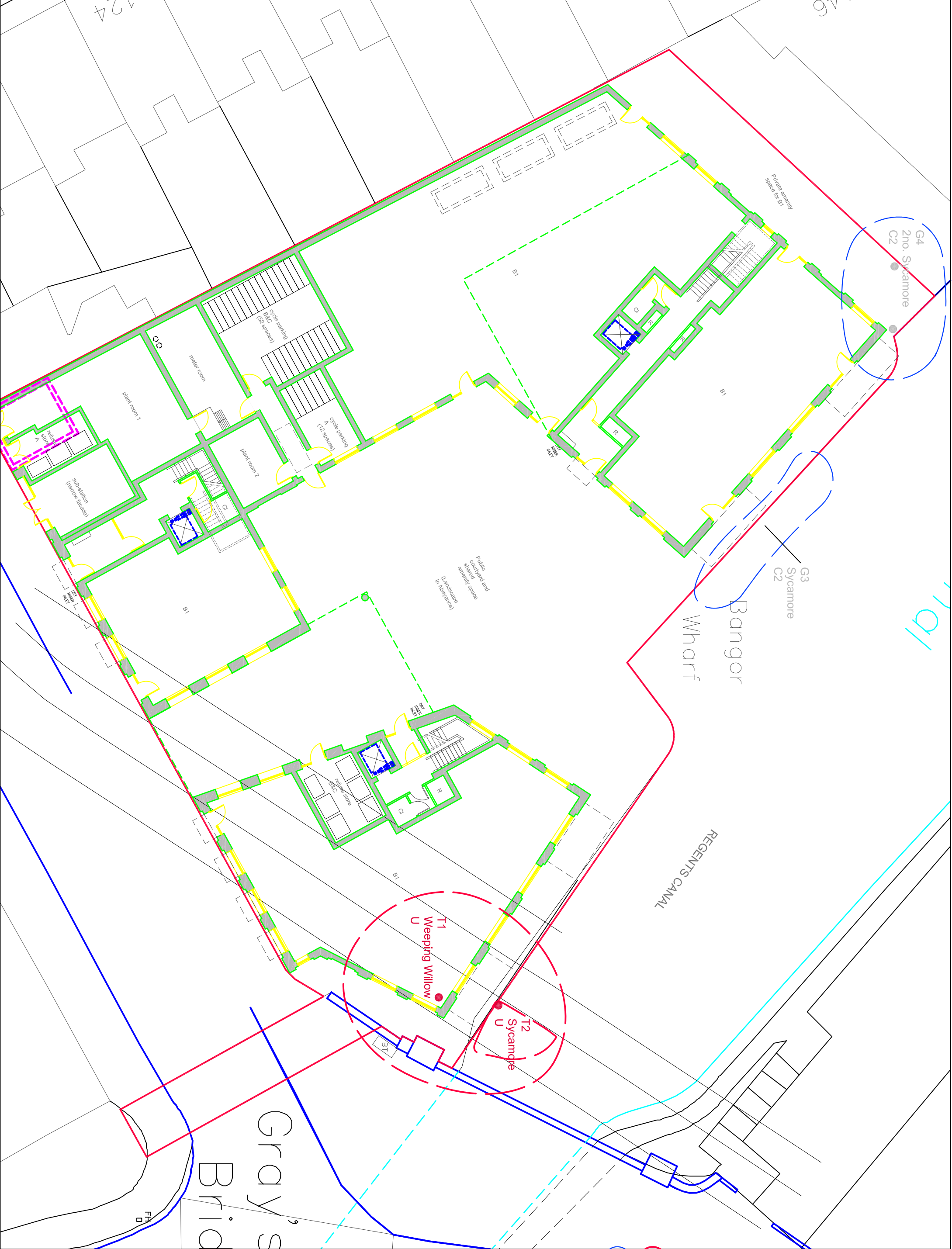
Tree ref. no.	Species	Height (m.)	Stem Count	Stem diameter or equivalent (mm.)	Branch spread (m.)				Age class	Ht. of crown clearance (m.)	Physiological condition	Estimated remaining contribution (years)	Category grading	Structural condition and Notes	Preliminary management recommendations
					N	E	S	W							
1	Weeping Willow	6	1	560	8	5	6	6.5	MA	0+	Poor	<10	U	Half crown collapsed to N. at 3m with extensive tear wound back into stem. Weak structure in remaining stem. Loaded to SW. Fracture in large limb to W. Overlapping bowed limbs in canopy to S. Failure of remaining canopy likely and N. sections collapsing into canal. Constricted growing location.	Fell.
2	Sycamore	7	2	c160	c4	3	0	0	Y	2+	Poor	<10	U	Originally twin stemmed. W. stem collapsed under crown of T1 with E. stem bowed to N. No access.	
G3	Sycamore	<7	1/Multi	<150	<2	<2	<1	<2	Y	1+	Fair	20-40	C2	Variable form. Self seeded trees along bank of canal. No access.	
G4	2no. Sycamore	<8	1/2	<200	<3	<3	<3	<3	Y	1+	Fair	20-40	C2	No access. Self seeded along fence line in constricted conditions.	

APPENDIX 2



Broad Oak Tree Consultants Limited Laurel House, Bunwash Road, Broad Oak, Heathfield, East Sussex, TN21 8SS Tel: 01435 862444	
Site: Bangor Wharf, London, NW1 0GS	Title: TREE CONSTRAINTS PLAN
Key: • Tree Location I Group Location 1-G4 Tree/Group Number  Crown spread  Potential rooting areas	BS Category of Condition Green A - most desirable for retention Blue B - desirable for retention Grey C - could be retained Red U - to be removed
Scale: 1:200 at A3	Date: 20.02.2017
DRAWING NO.: J50.05/01 Rev. A	

APPENDIX 3



Project Oak Tree Consultants Ltd
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TREE REMOVAL PLAN
 T1 - G4 Tree numbers

BS Category of Condition	T1 - G4 Tree numbers
○ BS Condition A	T1 BS Condition U
○ BS Condition B	T1 Tree to be removed for safety
○ BS Condition C	T1 Tree to be removed for development
○ BS Condition U	

DRAWING NO. J50.05/02
 Scale: 1:200 at A3
 Added to by: NL
 20/02/2017