

Georgiana Street, London NW1 0QS

Bangor Wharf



Report to accompany planning application:



Report on Trees
Broad Oak Tree Consultants Limited
February 2016

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1. INTRODUCTION

- 1.1 Broad Oak Tree Consultants Ltd. received instructions from One Housing Group through TM Architects to undertake an inspection of trees located at Bangor Wharf, Georgiana Street, London, NW1 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 redevelopment of the site to create a residential-led mixed-use development comprising 46 residential units (Use Class (3) (18x 1bed, 19x 2bed and 9x 3bed), new office floor space (Use Class B1a) (686sqm) with associated works to highways and landscaping following demolition of existing buildings.
- 1.3 Details of the proposals will have been submitted by TM Architects and others.
- 1.4 The trees were inspected on Tuesday 3rd February 2015 by Tim Laddiman, BSc.(Hons) M.I.C.For. M.Arbor.A., Chartered Arboriculturist and Principal Consultant of Broad Oak Tree Consultants Ltd.

2. GENERAL SITE DESCRIPTION

- 2.1 The site was previously operated by EDF until October 2015 and comprises an office complex, outbuildings and surfaced parking areas located on the north side of Georgiana Street. To the east is the Grand Union Canal with a road bridge to the south/south-east of the site crossing the canal. To the west are residential properties.
- 2.2 Adjacent to the bridge within the site a cobbled roadway descends to the base of the bridge to a filled in archway. On its east side is a narrow retained area within which is located a mature weeping willow tree. Beyond the boundary fencing adjoining the canal are a number of self seeded young trees.

3. SCOPE OF TREE SURVEY

- 3.1 The primary focus of the site visit was the weeping willow tree indicated to the east of the site on the supplied Atum Survey Services Ltd. "Site Survey", drawing no. DAT/9.0 supplied as a pdf. A number of small self seeded trees located immediately beyond the northern boundary of the site were also noted whilst on site. However access was not gained to two small trees indicated at the northern end of the site on the survey plan.

4. DATA COLLECTION

- 4.1 All trees were inspected from the ground and no climbing or specialist investigations were undertaken. Only the tree 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 1 to G3 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 in Appendix 2. As only a pdf version of the topographic survey was supplied the tree constraints information has had to be annotated. This drawing also includes crown spreads based on four compass points and BS calculated root protection areas.

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 one linear group were inspected.
- 6.2 Tree T2 and Group 3 comprise what appears to be self seeded young trees growing in areas of no access/low maintenance. These are opportunistic trees and for most, and particularly T2, growing out of the canal side brickwork, their long term presence is not viable as their continued growth could result in damaging root action to the canal walls and other structures. These are low quality, small trees, most of which should be removed and the stumps poisoned to prevent regrowth.
- 6.3 The weeping willow, T1, is still maturing and has had numerous operations in the last year or so to reduce its overall crown, remove hanging branches from over the bridge structure and remove low hanging branches from within the site.
- 6.4 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	1	1
C	2, G3	2
U	-	-
	TOTAL	3

6.5 *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. COMMENTS ON WILLOW TREE AND ITS SURROUNDINGS



- 7.1 The willow is a maturing tree, poorly located for its potential mature size. This could be upto 16m in height and circa 50% increases in radial branch spread. However it is clear that due to its location its development has been controlled at least on several locations.
- 7.2 The multi stemmed nature of the tree is suggestive of it having been pollarded (topped back to a large stub) at circa 3.5m-4m upto 15 years ago, presumably to control its development. Such harsh pruning was common in the past for such species and they respond rapidly. More recently, within the last 1-2 years, the crown has been reduced all over to remove growth from the bridge and other structures. Within the winter months of 2014/2015 the lower crown to the west/south-west has been heavily cut back to provide maintenance clearance of the internal structures to the site. The largest low limb to the south-west also displays a significant split and the potential collapse of this limb may have instigated the recent works.



View from west to east towards willow. Note recent removal of low limbs to the west/south-west of the tree and constrained nature of the existing space.

- 7.3 In visual terms the tree does provide local visual amenity in an area dominated by built structures. However it is clear that even in its current context the tree requires ongoing, regular maintenance to keep its canopy clear of existing structures and maintain access beneath. The tree cannot readily be allowed to increase in size and given the very rapid growth rates of willow recutting on a maximum two year cycle is likely to be required. The alternative would be a heavier overall reduction to increase the maintenance cycle. Such works would not be detrimental to the tree as a vigorous growth response will occur.
- 7.4 The root system of the tree is highly constrained at present by the bridge, canal and internal retaining wall structures. Willows are known to have very vigorous, aggressively spreading and wide/deep reaching root systems when growing in open conditions. The retained area of soil is likely to be almost solid roots and there is visible evidence of cracking to the retaining wall, most likely due to lateral pressure from root development. If the tree were allowed to grow unchecked then root increment would also increase and future failure of the retaining structure could occur. If controlled in dimensions the tree does not require additional rooting and future damage could be minimised.

8. BS CALCULATED ROOT PROTECTION AREAS (RPAs)

8.1 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.

8.2 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 basic circles 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 indicated RPA circles 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 (m²)
1	Weeping Willow	B	530	6.4	129
2	Sycamore	C	c160	c.1.9	c.11
G3	Sycamore	C	<130	<1.6	<8

8.3 All of the trees inspected are severely constrained by built structures in terms of their root spread and development. Only generalised indications of rooting areas can be provided without further investigations.

ARBORICULTURAL IMPLICATIONS ASSESSMENT

9. REDEVELOPMENT PROPOSALS

- 9.1 The proposals are for the redevelopment of the site to create a residential-led mixed-use development comprising 46 residential units (Use Class (3) (18x 1bed, 19x 2bed and 9x 3bed), new office floor space (Use Class B1a) (686sqm) with associated works to highways and landscaping following demolition of existing buildings.

10. TREES FOR REMOVAL

- 10.1 The supplied TM Architects "Proposed Site Layout", drawing no. PL04 Rev. P (copy attached in Appendix 3 for reference purposes) indicates that all of the trees included in the survey and any other small self seeded Sycamores along the canal wall will be removed within the proposals.
- 10.2 Within the proposals a new canal side retaining wall is to be built. This has resulted from the "River Wall Survey", produced by Commercial and Specialised Diving Ltd. (dated 05/02/2016). In this report the condition of the existing canal wall is indicated to be in a very poor state with significant root related damage associated with the trees included in this report. In proximity to the Willow tree many of the roots present in the canal wall will be from the Sycamore, T2. However it would be highly unusual if the Willow was not also represented, given the heavily constrained nature of its growing location and know aggressive rooting system and attraction to water sources of Willows.
- 10.3 Replacement of the canal wall alone, regardless of redevelopment of the site, would require the removal of all of the Sycamores. It is also highly likely that the Willow would be lost as cut back of retained structures to formed engineered "toes" to retaining walls would take away much of the constrained rooting area and result in significant root loss.
- 10.4 Whilst the Willow has some visual amenity presence its location is extremely poorly suited, particularly given the growth potential of the tree. The Council could not ignore the fact that even if retained in its current location it would require regular, heavy pruning to limit its growth and contact with the bridge structure, detracting from any visual form it may currently have. It is also causing cracking to its retaining structure within the site and failure of this could occur in the future if the tree developed further.
- 10.5 The location is highly unsuited for the tree and particularly the species and this is not a viable situation even if the site remained as it is. Consequently removal of the Willow and the Sycamores should not represent a constraint to the proposals.

11. NEW PLANTING PROPOSALS

- 11.1 Within the proposed site layout the Architects have indicated the locations of three new trees within a central communal space. These have been positioned to have space to develop canopies and with the provision of sufficient rooting space can develop as feature trees within the setting of the new buildings. The open spacing will provide green presence for residents, as well as providing overhead shaded seating in the summer and softening the appearance of the built structures.

- 11.2 To have an instant presence it would be recommended that Heavy Standards be planted of 5m-6m height. Species choice suited to the location could include Birch, Hornbeam, Field Maple, Chanticleer Pear or Italian Alder. All of these species have varieties with fastigate crowns, seasonal colour and small leaves to minimise maintenance issues.
- 11.3 A specifically worded condition relating to requirements regarding tree size and species choice could be included within a consent.

12. SUMMARY

- 12.1 The proposed redevelopment would result in the removal of the Willow tree and all the self seeded Sycamores growing along the canal wall.
- 12.2 None of the Sycamores are in sustainable locations for retention and are contributing to damage to the canal wall identified by others.
- 12.3 The Willow is also poorly suited for its location with constrained above and below ground growing conditions. Retention would require ongoing extensive works to contain its dimensions and it could never develop to its full potential.
- 12.4 Even in the absence of redevelopment, replacing the canal wall would require the removal of all of the Sycamores and potentially the Willow due to substantial loss of rooting area. Consequently removal of the trees should not represent a planning constraint.
- 12.5 Within the proposed scheme three new trees are proposed within the central open space between buildings. These are positioned to allow for future growth and provide visual amenity. Large planting stock can be utilised for instant presence with species chosen that can attain 15m-20m mature heights without excessive canopy spreads.

Tim Laddiman
Chartered Arboriculturist
Broad Oak Tree Consultants Ltd.

APPENDIX 1

TREE SURVEY EXPLANATORY SHEET

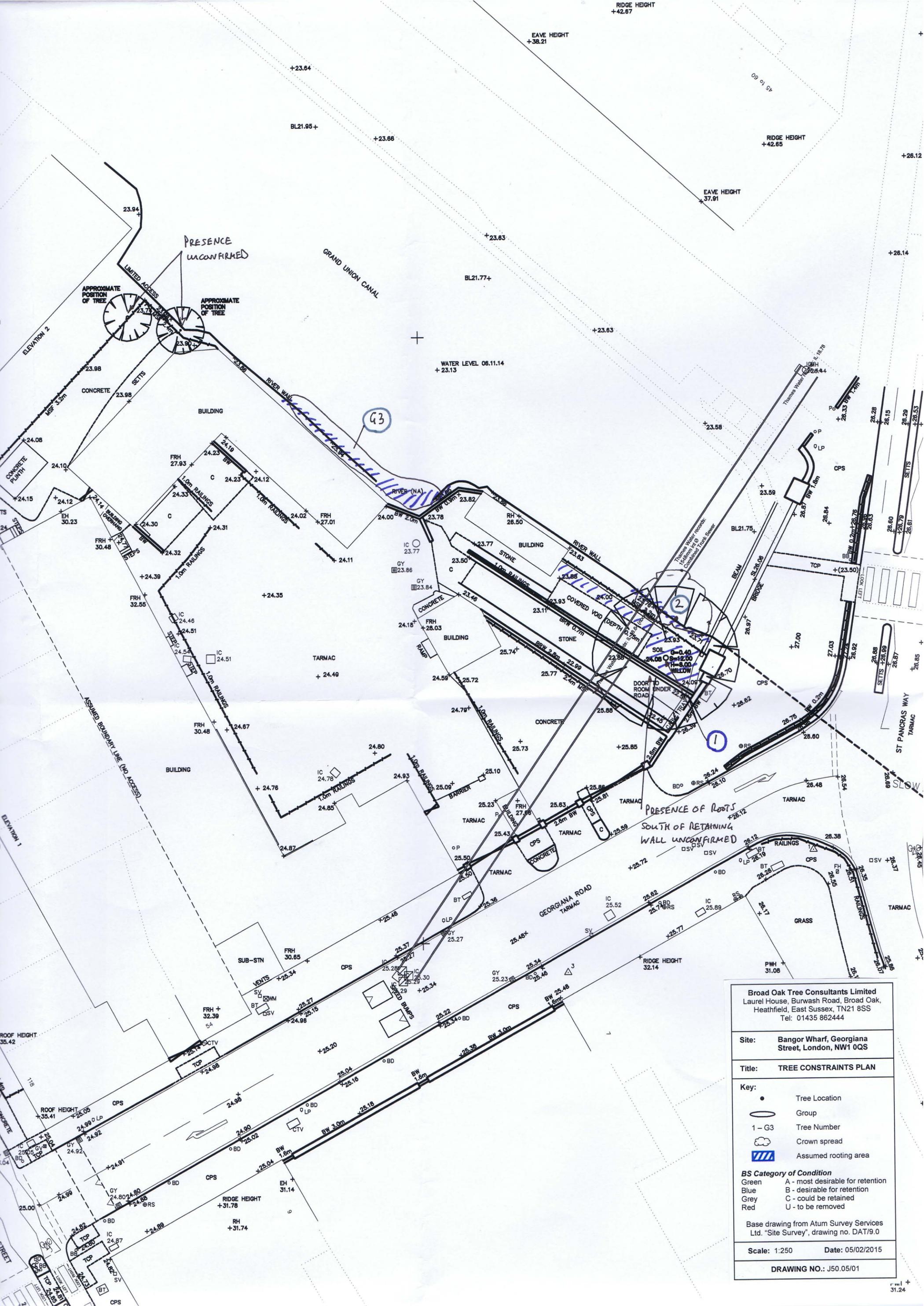
Height	in metres (estimated where ground uneven or access restricted).
Stem count	number of stems
Stem diameter	in mm. at 1.5m. above ground level.
Branch spread	radial spread in metres at four main compass points (estimated where no access).
Age class	Young - Y Middle aged - MA Mature - M Over mature - 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	Preliminary management recommendations
					N	E	S	W								
1	Weeping Willow	10	1	530	6.5	5	6	6.5	MA	3+	Fair	20-40	B	2	Metal netting enclosed in lower stem to E. Kinked stem at 1.6m. Surface root wounding to N. with decay. Stem fused at 3m. Multi stemmed from 3.5m-4m where pollarded in past. Over lapping limbs to S. Cut back over road and to W. in past year to 3.5m height. Branches low over hedge structure. Split in lowest large limb to SW. Lightly reduced all over in past couple of years.	
2	Sycamore	7	2	c160	c4	3	0.5	3	Y	2+	Poor	10-20	C	1	Crowded. Twin stemmed from under 1m. Poor growth.	
G3	Sycamore	<7	1/Multi	<130	<2	<2	<1	<2	Y	1+	Poor	20-40	C	2	Self seeded on far side of wall. Poor location.	

APPENDIX 2



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Site: Bangor Wharf, Georgiana Street, London, NW1 0QS

Title: TREE CONSTRAINTS PLAN

Key:

- Tree Location
- Group
- 1 - G3 Tree Number
- ☁ Crown spread
- ▨ Assumed rooting area

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

Base drawing from Atum Survey Services Ltd. "Site Survey", drawing no. DAT/9.0

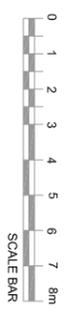
Scale: 1:250 **Date:** 05/02/2015

DRAWING NO.: J50.05/01

APPENDIX 3

Notes

- General:
1. Do not scale from this drawing. All dimensions are millimeters unless otherwise stated.
 2. This drawing is for information purposes only. Any dimensions and levels data are indicative only and subject to deleted structural and architectural design.
 3. Copyright Tranter Mohan Architects Ltd. This drawing not to be re-produced without the permission of the architect.
 4. All areas and sizes are approximate only. Based on Ordnance Survey data only and subject to measured survey.



Notes: CHM Date: Rev

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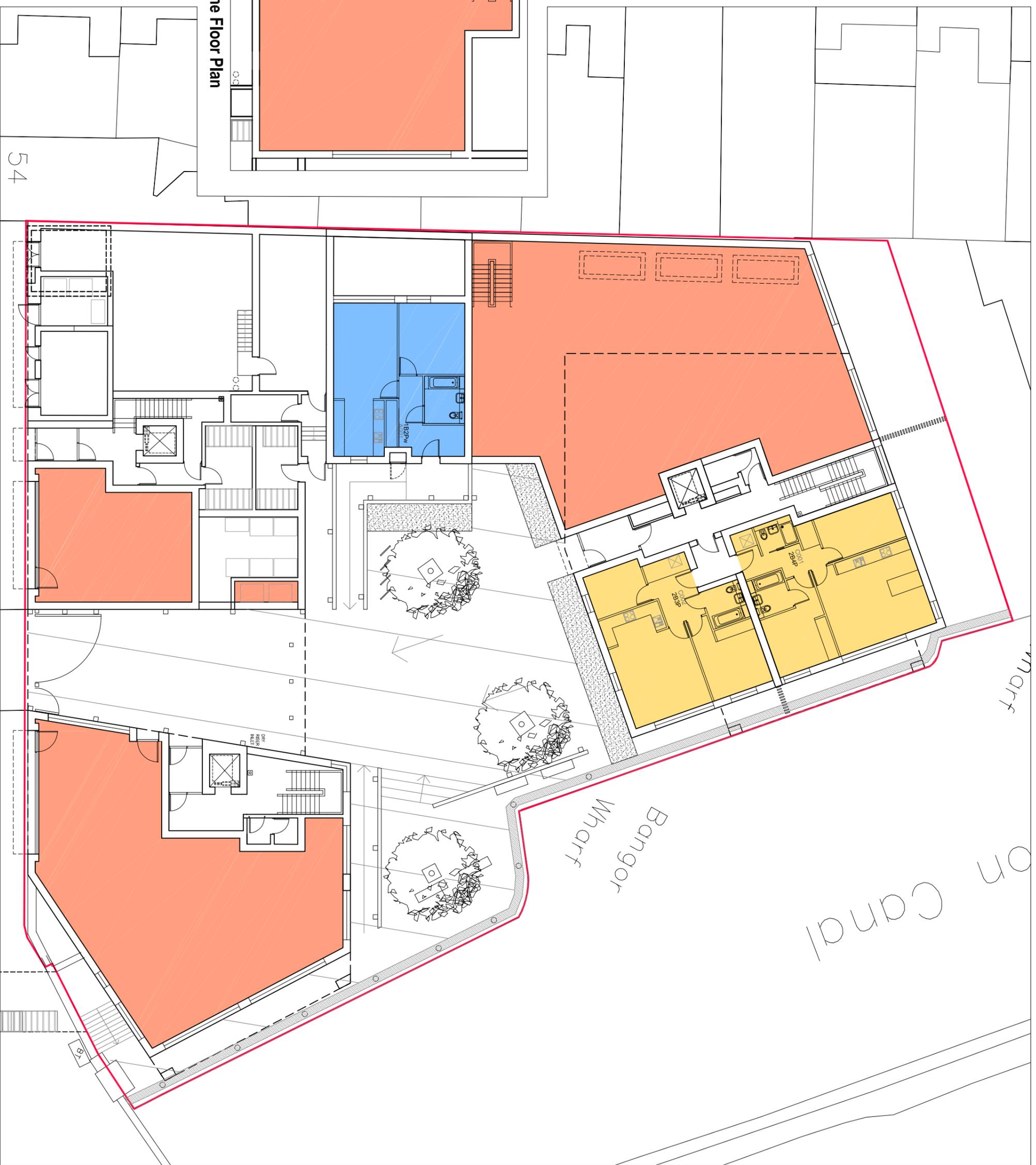
Bangor Wharf
London NW1 0QS

Proposed Ground Floor Plan (incl. mezzanine)

Scale: 1:100 @ A1

Job Ref: DWG No: Rev

194 / PL05 / P-



Mezzanine Floor Plan

Ground Floor Plan (in OS context)