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Arboricultural ASSOCIATION Professional Member

ARBORICULTURAL IMPLICATIONS ASSESSMENT FOR PROPOSED WAREHOUSE EXTENSION

AT

DUNCAN REEDS LTD.
UNIT 11
GILLMANS INDUSTRIAL ESTATE
NATTS LANE
BILLINGSHURST
WEST SUSSEX
RH14 9EZ

BY

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CONTENTS

		Page No.
1.	INTRODUCTION	1
2.	GENERAL SITE DESCRIPTION	1
3.	SCOPE OF TREE SURVEY	1
4.	DATA COLLECTION	1
5.	RISK ASSESSMENT - INFORMATIVES	2
6.	RESULTS OF TREE INSPECTIONS	3
7.	BS CALCULATED ROOT PROTECTION AREAS (RPAs)	4
	ARBORICULTURAL IMPLICATIONS ASSESSMENT	
8.	REDEVELOPMENT PROPOSALS	5
9.	POTENTIAL IMPACT OF PROPOSALS ON OFFSITE TREES	5
10.	TREE SURGERY REQUIREMENTS	6
11.	TREE PROTECTION MEASURES	6
12.	SITE OPERATIONS AND MATERIALS STORAGE	7
13.	SERVICES/DRAINAGE/SOAKAWAYS	7
14.	ARBORICULTURAL METHOD STATEMENT	7
15.	SUMMARY	7

APPENDICES:

1. EXPLANATORY SHEETS, TREE INSPECTION SHEETS
2. TREE CONSTRAINTS PLAN, DRAWING NO. J54.19/01
3. TREE PROTECTION PLAN, DRAWING NO. J54.19/02

1. INTRODUCTION

1.1 Broad Oak Tree Consultants Ltd. received instructions from Duncan Reeds Ltd. through MH Architects to undertake an inspection of trees located on and immediately adjacent to the site referred to as Duncan Reeds Ltd., Unit 11, Gillmans Industrial Estate, Natts Lane, Billingshurst, West Sussex, RH14 9EZ. 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 construction of two extensions to the sides of the rear of the existing warehouse with matching roof lines and replacement of the existing roof to incorporate larger sky lights. Details of the proposals will have been submitted by MH Architects.

1.3 The trees were inspected on 21st September 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 certain trees adjoining the site are covered by Tree Preservation Order No. TPO/1412 "Land East of Groomsland Drive, Natts Lane, Billingshurst, West Sussex". Specific details of which trees are covered would need to be confirmed with the Council.

2. GENERAL SITE DESCRIPTION

2.1 The site is located within an industrial estate on the western side of a spine road with similar industrial warehouse type structures to the north and south. The building has wide concreted strips to the north and south separating it from adjoining buildings, used for parking, lorry loading/unloading, skips and storage. Across the rear of the building is a narrower concrete strip with dust extractors. The western boundary is defined by a metal palisade fence with concrete surfacing upto the fenceline.

2.2 Beyond the western boundary fence is a narrow belt of trees and shrubs at various stages of development with a field beyond.

3. SCOPE OF TREE SURVEY

3.1 Only those trees present immediately adjacent to the western boundary fence were inspected. All trees are located offsite and had to be assessed remotely.

4. DATA COLLECTION

4.1 All trees were inspected remotely from the ground and no climbing or specialist investigations were undertaken. As the trees are located offsite they could not be basally inspected, with their structural integrity 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 G12 inclusive. Tree numbers, together with BS recommended colour coding of condition, have been added to the Tree Constraints Plan, our drawing no. J54.19/01 in Appendix 2. 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. Separate detailed tree survey sheets are 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 ten individual trees and two groups were inspected, representing a wide range of ages and dimensions.

6.2 The two groups represent generally linear clusters of young trees and shrubs of varying dimensions either forming part of an original field hedgeline/wooded belt or added to with planting to part screen the industrial site.

6.3 The individual trees inspected are primarily Common Oak and Field Maple, with trees T10 and T11 (Oak) mature specimens with the rest ranging from circa 30-80 years of age. A number are growing in crowded conditions and have asymmetric crowns with spreads into the site of varying extents.

6.4 Tree health appears variable, ranging from dead (T8), to healthy, with the Oak (T10) appearing to be in declining health.

6.5 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	3, 6, 11	3
C	G2, 4, 5, 7, 9, 10, G12	7
U	1, 8	2
	TOTAL	**12**

6.6 ***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 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	Goat Willow	U	-	-	-
G2	Common Oak, Willow, Hazel, Hawthorn	C2	<200	<2.4	<18
3	Common Oak	B2	c.400	c.4.8	c.72
4	Common Oak	C2	c.300	c.3.6	c.41
5	Field Maple	C2	c.400	c.4.8	c.72
6	Common Oak	B2	c.500	c.6	c.113
7	Field Maple	C2	c.250	c.3	c.28
8	Common Oak	U	-	-	-
9	Field Maple	C2	c.250	c.3	c.28
10	Common Oak	C2	c.900	c.10.8	c.366
11	Common Oak	B2	c.900	c.10.8	c.366
G12	Hawthorn, Blackthorn, Field Maple	C2	<100	<1.2	<5

8. REDEVELOPMENT PROPOSALS

8.1 The proposals are for the construction of two extensions to the sides of the rear of the existing warehouse with matching roof lines and replacement of the existing roof to incorporate larger sky lights. Details of the proposals will have been submitted by MH Architects.

8.2 The existing concrete surfacing around the proposed extensions will be retained, as will the existing areas accessing on to the estate road.

8.3 The supplied proposed site layout produced by MH Architects has been used as the base for the Broad Oak Tree Consultants Ltd. Tree Protection Plan, drawing no. J54.19/02 in Appendix 3. This indicates measures to protect offsite trees during the construction process.

9. POTENTIAL IMPACT OF PROPOSALS ON OFFSITE TREES

9.1 No trees require removal for the proposed extensions to proceed.

9.2 Ideally the owners of the dead offsite Oak tree, T8, would have it removed or reduced to a habitat stub to avoid potential damage should it collapse, but this is not essential to the proposals.

9.3 Localised minor canopy cut back of trees T3, T4, T6 and T7 would be required to accommodate scaffolding but also to avoid potential contact damage with existing structures (trees T6 and T7). The works involved are described in the following section. These are relatively minor works and as they relate to overhanging foliage the site owners would have the Common Law Rights to cut back, particularly where limbs may interfere with existing machinery or roof structures (subject to any statutory protection applying to the trees).

9.4 No tree RPAs will be adversely affected by the proposed extensions.

9.5 The RPA of T11 overlaps one of the proposed extensions by less than 2m² or less than 1% of the total RPA of circa 366m². This extent of overlap in normal ground conditions would be of no significance, however, given the site circumstances the relevance is even less. The existing thick impermeable concrete surfacing right up to the site boundary will have severely impacted on hydrology and gaseous exchange for the soils beneath. Tree T11 and all others along the boundary are likely to have reduced their concentrations of fine roots in the underlying soils and increased them in the open field conditions to the west. Consequently there will be no adverse impact on the health, longevity or stability of T11 due to the proposed extension.

10. TREE SURGERY REQUIREMENTS

10.1 To provide reasonable maintenance separation and allow for scaffolding space during construction of the extensions and replacement of the existing roof the following tree works would be required. It should be noted that the works proposed to T6 and T7 would be required whether or not the proposed extensions progressed to avoid existing issues with machinery and roof structures.

Tree No.	Species	Works Required
T3	Common Oak	Reduce back fine outer branches to east by 2m and shape to balance.
T4	Common Oak	Reduce back fine outer branches to east by 1m and shape to balance.
T6	Common Oak	Reduce back fine outer branches to east by 2m and shape to balance.
T7	Field Maple	Reduce back fine outer branches to east by 2m and shape to balance.

10.2 None of the above works are of significance in terms of tree health or public visual amenity and should not represent a constraint to the proposals. Whether they are covered by the TPO or not this should not represent a constraint.

10.3 All tree work will be carried out by a competent tree surgeon to comply with BS3998:2010 “Tree Work - Recommendations”.

10.4 All trees recommended for felling or tree surgery works will be checked for the presence of bats or nesting birds prior to works commencing. Disturbance to bats or nesting birds could contravene the Wildlife and Countryside Act 1981 and result in prosecution.

11. TREE PROTECTION MEASURES

11.1 Once the proposed tree surgery works are completed there will be no requirement for specific tree protection fencing or ground protection measures.

11.2 The existing boundary metal palisade fence is a robust protective fence line that will ensure no accidental contact damage between machinery or tree stems.

11.3 Retention of the existing thick and probably reinforced concrete surfacing around the extension footprints and rear of the building will continue to provide a load bearing structure protecting underlying soils from any additional compaction. As indicated above root presence beneath the concrete is likely to be nominal due to the sub optimal conditions and the surfacing was designed to carry the weight of lorries. Consequently construction machinery running on the existing concrete will have no adverse impact on underlying soils or roots, if present.

12. SITE OPERATIONS AND MATERIALS STORAGE

12.1 Details of site zoning cannot be specified by an Arboriculturalist as these are commonly determined by contractors on the basis of Health & Safety Assessments. However, the robust protective fencing will define the remaining site space available for storage and operations.

12.2 All equipment and machinery associated with the proposed extensions and roof works will be operating on the existing load bearing concrete with all materials and storage located on the more easterly sections of existing surfacing, remote from the trees.

13. SERVICES/DRAINAGE/SOAKAWAYS

13.1 All electrical feeds for the extensions will be fed internally from existing supplies, remote from the trees.

13.2 New roof drainage will be tied in to existing down pipe systems to avoid the need for additional excavations.

13.3 If it is necessary for services/drainage to be brought in within a tree RPA, the trench will need to be hand excavated or air spaded or the runs thrust bored to avoid damaging tree roots. Any excavations within indicated tree RPAs will be undertaken to the requirements of NJUG Volume 4 “Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees” and supervised by an Arboricultural Consultant.

14. ARBORICULTURAL METHOD STATEMENT

14.1 A separate Arboricultural Method Statement is not considered necessary for this site. Details of the fencing and ground protection specification, timing and location are indicated on the Tree Protection Plan, which can be referred to in a specifically worded condition.

14.2 Section 6.1 “Arboricultural Method Statement” of BS5837:2012 indicates that an Arboricultural Method Statement is only required if operations/access are required within the RPA of retained trees. Therefore, provided the Tree Protection Plan is adhered to, there is no requirement for an Arboricultural Method Statement and there should not be any conflicts between retained trees and the proposals.

15. SUMMARY

15.1 The proposed side extensions and roof replacement works will not result in any tree removals and only localised, maintenance level tree surgery works to address overhanging canopies to four trees, two of which require works whether or not the proposals are progressed.

15.2 There will be no adverse impact on tree root systems with the thick concrete layer across the site restricting root presence through inhospitable conditions and also protecting the underlying ground from any compaction.

15.3 Existing retained site features mean that specific tree protection measures are not necessary.

15.4 The proposals have a nominal impact on the offsite trees which does not represent a potential reason for a refusal on arboricultural grounds.

15.5 Reference can be made to the Tree Protection Plan in a specifically worded condition to ensure the trees are appropriately protected.

Tim Laddiman
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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
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	• 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 NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)			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	
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)	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 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)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
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)	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)	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	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
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.	Trees not qualifying in higher categories	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.	Trees with very limited conservation or other cultural benefits	GREY
	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			

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	Goat Willow	12	Multi	c600	c3	7	c8	c4	M	4+	Poor	<10	U	Multi stemmed from under 1.5m. Located in adjoining land therefore no basal inspection.	
G2	Common Oak, Willow, Hazel, Hawthorn	<10	Multi	<200	<2	<3	<3	<3	MA	0+	Unconfirmed	10-40+	C2	Ivy clad. Mostly overtopped. Located in adjoining land therefore no basal inspection.	
3	Common Oak	14	1	c400	3	5.5	6.5	c4	Y	3+	Unconfirmed	40+	B2	Ivy clad. Located in adjoining land therefore no basal inspection.	
4	Common Oak	14	1	c300	c3	5	3	1.5	Y	3.5+	Unconfirmed	40+	C2	Ivy clad. Located in adjoining land therefore no basal inspection. Crowded to W. Slight lean to E.	
5	Field Maple	12	1	c400	c5	c5	c3	c5	MA	4+	Unconfirmed	20-40	C2	Twin stemmed at circa 2m. Ivy clad. Located in adjoining land therefore no basal inspection.	
6	Common Oak	15	1	c500	c3	5	4	c5	MA	4.5+	Unconfirmed	20-40	B2	Minor deadwood. Ivy clad. Located in adjoining land therefore no basal inspection.	

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							
7	Field Maple	10	1	c250	4	4.5	1	c2	Y	3+	Unconfirmed	20-40	C2	Crowded. Leaning NE. Ivy clad. Located in adjoining land therefore no basal inspection.	
8	Common Oak	7	1	c600	0	1	4	c2	MA	5+	Dead	<10	U	Dead ivy clad tree. Snapped limbs.	
9	Field Maple	10	1	c250	2	3	5	c4	Y	3+	Unconfirmed	40+	C2	Crowded to N. Part ivy clad. Located in adjoining land therefore no basal inspection.	
10	Common Oak	13	1	c900	c6	5	9	c6	M	3+	Unconfirmed	10-20	C2	Fine dieback and thinning in crown. Ivy clad. Located in adjoining land therefore no basal inspection. Twin stemmed at circa 2m.	
11	Common Oak	15	1	c900	c8	7	6	c8	M	4+	Unconfirmed	20-40	B2	Ivy clad. Located in adjoining land therefore no basal inspection. Minor deadwood.	
G12	Hawthorn, Blackthorn, Field Maple	<8	Multi	<100	<2	<2.5	<3	<3	Y	0+	Unconfirmed	40+	C2	Crowded.	

APPENDIX 2

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TREE CONSTRAINTS PLAN

T1 – G12 Tree numbers

BS Category of Condition

- 0 — BS Condition A
- T3 — BS Condition B
- T4 — BS Condition C
- T1 — BS Condition U

Paced crown spread

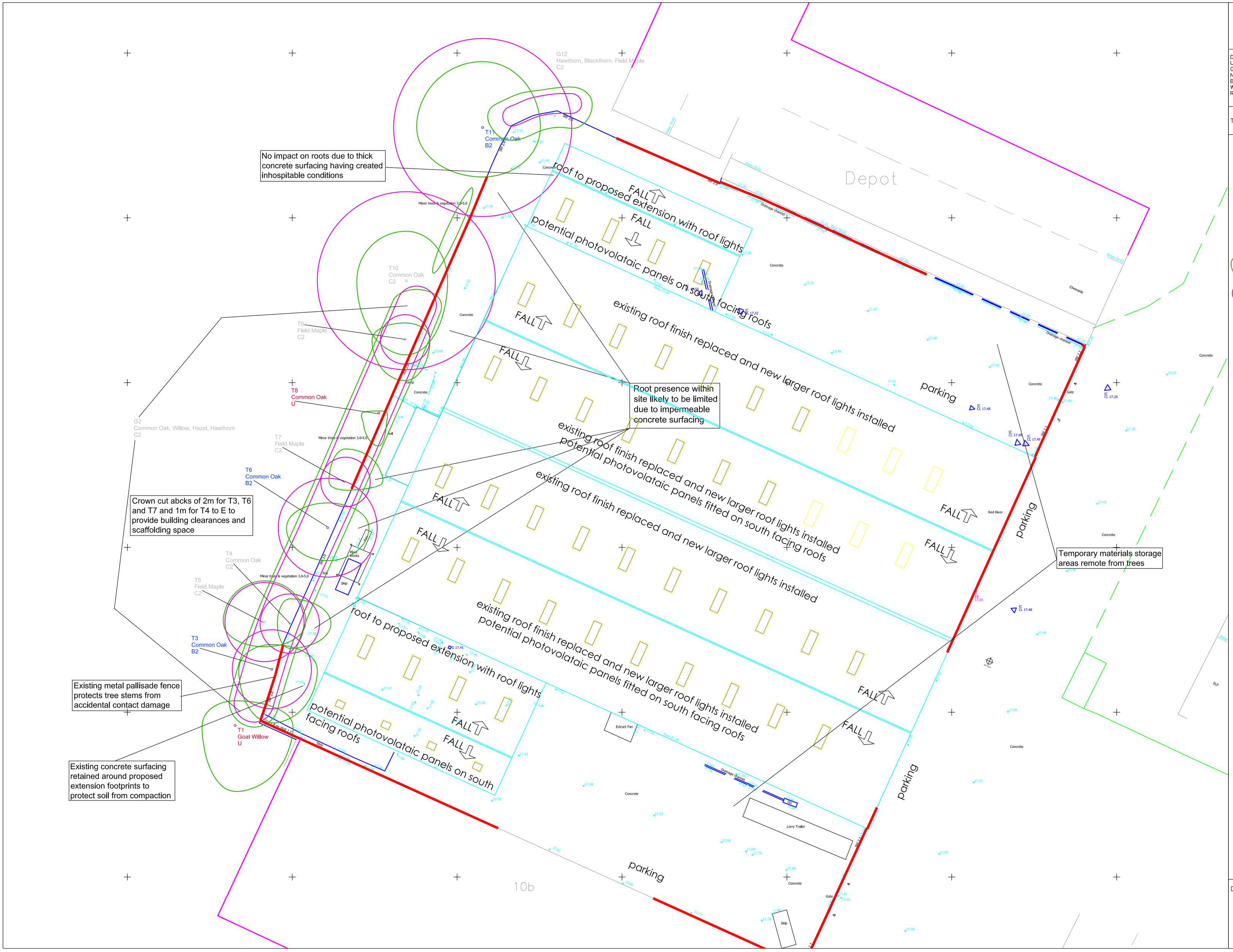
BS Calculated root protection areas

The root protection areas have been calculated using the measured stem diameters and the formula as described in Section 4.6 in BS5837:2012. 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.

Root presence within site likely to be limited due to impermeable concrete surfacing

DRAWING NO. J54.19/01
Scale: 1:200 at A1
Added to by: NL
25/09/2017

APPENDIX 3



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TREE PROTECTION PLAN

T1 – G12 Tree numbers

BS Category of Condition

- 0 BS Condition A
- T3 BS Condition B
- T4 BS Condition C
- T1 BS Condition U
- Paced crown spread
- BS Calculated root protection areas

All services to be installed to the requirements of NJUG Volume 4 "Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees". Any runs within retained tree root protection areas to either be bored/moled or any hand excavation to be supervised by the Arboricultural Consultant

DRAWING NO. J54.19/02
Scale: 1:200 at A1
Added to by: NL
29/11/2017