

Shell Welwyn Garden City

Tree Survey Report and Tree Constraints Plan & Arboricultural Impact Assessment

Plan in accordance with BS5837:2012



SQUIRES YOUNG
LANDSCAPE ARCHITECTURE

Date | July 2021
Reference | SY21-292-ARB-21-01



Suite 1, Unit 2
Crown Yard
Bedgebury Estate
Goudhurst
Kent
TN17 2QZ

Client:	Shell UK
Location:	Shell Welwyn Garden, Stanborough Road, Welwyn Garden City, AL8 6XA
Report Title:	Tree Survey Report and Tree Constraints Plan & Arboricultural Impact Assessment
File Reference:	SY21-292-ARB-21-01
Date of Site Visit	18.05.2021
Site Visit Carried Out By:	Francis Squires and Cicely Rice-Wilson
Report Author:	Francis Squires

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- 14.0** Landscape Planting Plan: SY21-292-LPP-21-08

1.0 Introduction

- 1.1 It is proposed to seek planning permission for the redevelopment of an existing Service Station at Shell Welwyn Garden, Stanborough Road, Welwyn Garden City, AL8 6XA.
- 1.2 As such a tree survey is necessary to determine the extent and value of trees on the site and adjacent to the site which may be affected by any construction works. This tree survey report has been prepared in line with local plan policies and is to be considered as a material part of any application to carry out construction works.

2.0 Brief

- 2.1 We have been instructed by jms Planning & Development on behalf of Shell UK to survey the trees on the site with the guidance of BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 2.2 Based upon the data collected we are to provide a Tree Survey Plan (TSP) to show the trees present and a Tree Constraints Plan (TCP) to show the constraints posed by the trees at the design stage. We have provided details of the Root Protection Area (RPA) indicated on the Tree Constraints Plan (TCP) and also shown in the Tree Survey Schedules.
- 2.3 We have been asked to produce an Arboricultural Impact Assessment (AIA) showing the effect of the proposed works on the existing site trees.

NB Until Full Planning permission is granted a Forestry Commission Licence may be required to fell trees on the site - A felling licence is required by law if you fell more than 5m³ in one calendar quarter. If you are selling the wood - for logs, for example - then you can only fell 2m³ in a calendar quarter. This applies to trees in hedges as well as woodlands.

- 2.4 We have been asked to produce a Landscaping Planting Plan to show the proposed Soft Landscaping works.

3.0 Scope of Report

- 3.1 This report is designed to survey the trees currently present on site and adjacent to the site.
- 3.2 The trees have been surveyed at a preliminary level only. The survey for trees in relation to the planning process must not be substituted for a tree risk assessment report. Detailed inspections involving decay inspection equipment, climbing or aerial inspections were not carried out and are beyond the scope of this report. In cases where we consider further investigation to be necessary this will be highlighted in the report.

- 3.3 Where tree stems and canopy structure are obscured by the presence of Ivy or other climbers it will not be possible to assess the areas of the tree that are not visible.
- 3.4 This survey covers stages 1-3 of the 5 stage Arboricultural process used in relation to planning. Stage 1 is the Tree Survey Plan (TSP). Stage 2 is the production of the Tree Constraints Plan (TCP). Stage 3 is the preparation of an Arboricultural Impact Assessment (AIA) and this is to be found later in this document Stage 4 is the preparation of an Arboricultural Method Statement (AMS). Stage 5 is the implementation, supervision and ongoing monitoring of the Works.

4.0 Survey Method

- 4.1 All observations were conducted from ground level with the aid of binoculars. No detailed inspection of the subject trees was undertaken.
- 4.2 All observations were conducted from within the site boundaries or public places. No access was made to private properties and therefore any commentary on trees within neighbouring sites was made in the context of what could be observed at distance.
- 4.3 The following data was assessed for the trees:
- Dimensions (height, crown spread and stem diameter)
 - Height above ground level of level of the lowest point of the crown base (excluding very minor parts of the crown)
 - The overall structural condition
 - The deadwood in the tree
 - The likely remaining retention span of the trees

The quality and value grade for each tree or group according to the cascade chart contained within BS 5837.

- 4.4 Tree heights were calculated by use of a Tri-Pulse laser measuring device where possible. A clinometer was also used.
- 4.5 Stem diameters were measured in accordance with the recommendations of BS5837.
- 4.6 Crown spreads were calculated using by use of a Tri-Pulse laser measuring device where possible or by pacing. Where access was difficult or unavailable distances were estimated.

4.7 The tree survey was carried out by Francis Squires and Cicely Rice-Wilson on 18th May 2021. The weather was partly cloudy and light rain.

4.8 Each individual tree has been allocated a reference number. 'T' refers to trees on site or just off site. 'G' refers to grouped trees.

5.0 Site Description

5.1 The site is located at Shell Welwyn Garden, Stanborough Road, Welwyn Garden City, AL8 6XA, Ordnance Survey (OS) National Grid Reference SJ 91530 75387



Figure 1: Extent of survey indicated by red line

5.2 Shell Welwyn Garden City is located on the northern side of the Stanborough Road (A6129). The north, east and west of the site is bound by residential properties.

5.3 The application site is currently in use as a Service Station with a hardstanding forecourt and a boundary comprising of established shrubs and trees.

5.4 The site lies within the Conservation Area designated in the Welwyn Hatfield District Plan 2005.

- 5.5 The site is not in a Green Belt and does not contains wooded areas.
- 5.6 The Welwyn Hatfield Borough Council Interactive map shows there are no individual trees or groups that are protected by TPOs.
- 5.7 The site geology comprises superficial deposits of the Lowestoft formation the Bedrock geology is the Lewes Nodular Chalk Formation and Seaford Chalk Formation - Chalk. The soil texture is Loam to Clayey Loam, Chalky. The soil depth is deep. Past development works means some imported topsoil is likely to be present.
- 5.8 All of the trees surveyed were within the site boundary excluding T1 Ash, T6 Ash, T13 Ash, T14 Sycamore and T15 Ash. The western part of the site is devoid of planting. To the northern boundary lies T2 a multistem Ash, Cherries T3 and T4, a small Rowan T5, T6 which is an off-site Ash and T7 a small Ash overgrown by Ivy, all of these trees are C2 rated. To the eastern boundary lies T8, T9, T10 and T11 which are all C rated Ash together with T12 a C rated Cherry, most of these trees are in poor condition. Also to the eastern boundary T13 and T15 Ash and T14 Sycamore are in good condition but C rated trees which lie off-site. To the road frontage/southern boundary lie two Whitebeam T16 and T17 which are in good condition and B rated.

Shrubs seen on-site include Rosa canina, Lonicera pileata, Berberis thunbergi Atropurpurea, Hornbeam, Elder, Ligustrum ovalifolium, Cotoneaster Skogholm together with variegated Ivy partially in mature form and Bramble.

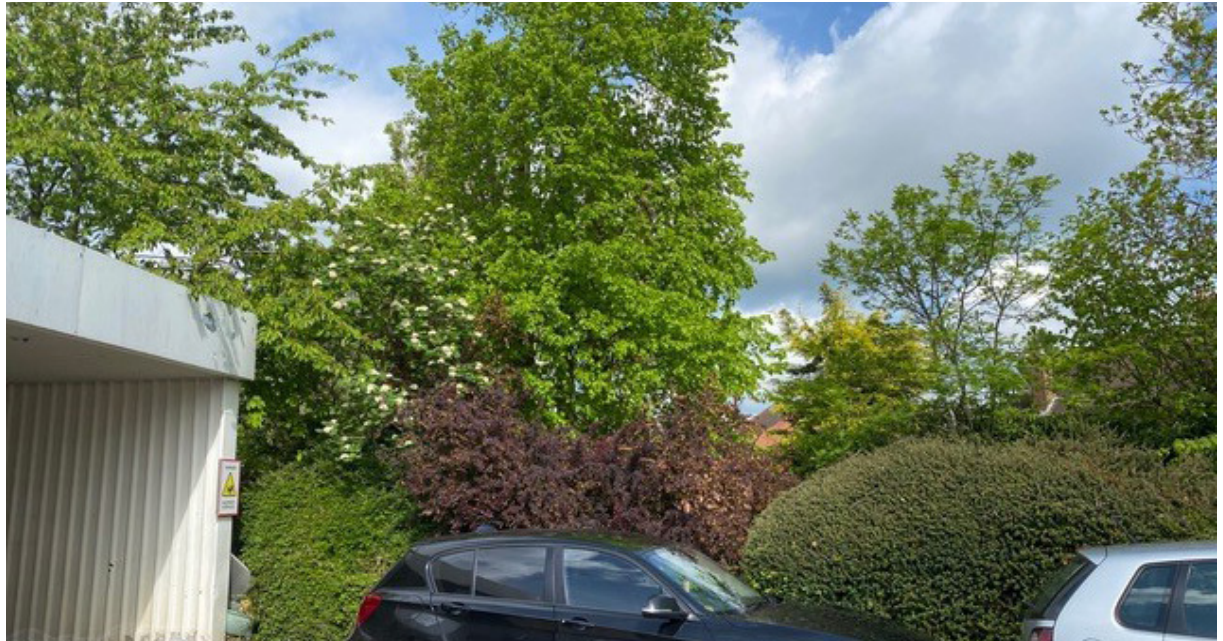
5.9 Photos of site, taken during a site visit on 18th May 2021.



Figure 2: Site plan identifying photo locations



1. Northwest corner of site, view of T2 to T4



2. Car wash entrance, view of T4 to T6



3. North corner of site, view of T6 to T9



4. Northeast side of site, view of T12 to T15



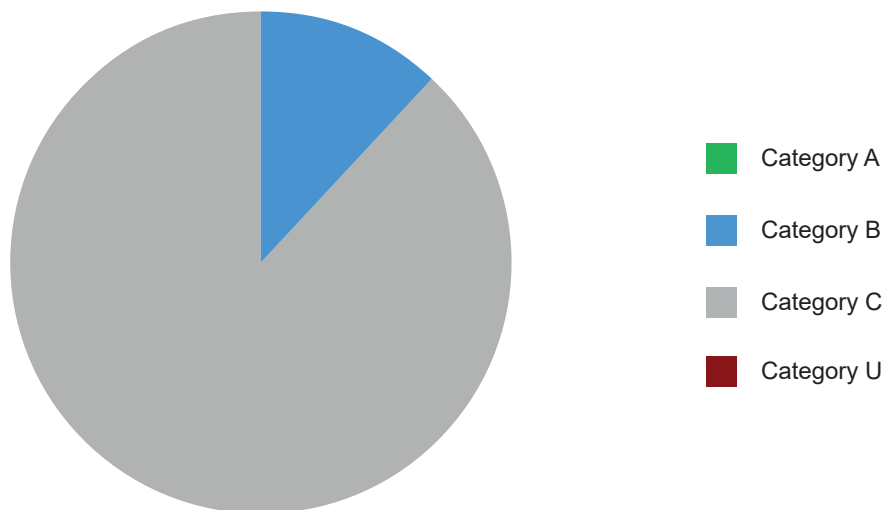
5. Garage Exit, view of T16 and T17

6.0 Survey Details

6.1 A total of 17 individual trees and no groups were surveyed and classified according to the BS 5837 valuation criteria. Of the individual trees and group typical trees surveyed:

- None were classified as BS5837 Category A, representing trees of high quality and value.
- Two were classified as Category B, which represents trees which should be retained wherever possible, these trees mainly provide screening and make up part of the wider street scene.
- Fifteen trees were identified as Category C, which represents trees of low quality, due to past management or structural defects.
- No trees were graded U.

Tree Categories Identified on Site



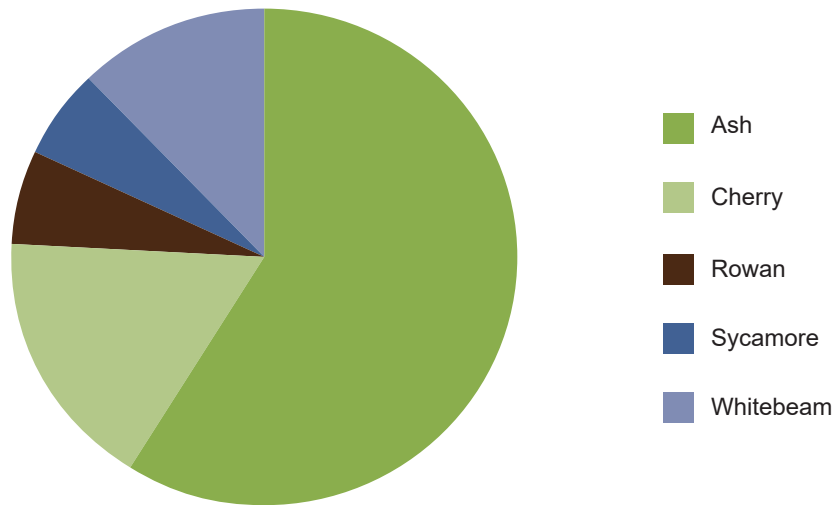
Category	Number of Trees	Approx. Percentage
A - Trees of high quality with an estimated remaining life expectancy of at least 40 years	0	0%
B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	2	12%
C - Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150 mm	15	88%
U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	0	0%

6.2 Tree Species Diversity

Five tree species were recorded during the survey.

A summary of the tree species surveyed can be within the Tree Schedule and is also provided in the Table below (dead trees or U rated trees not included):

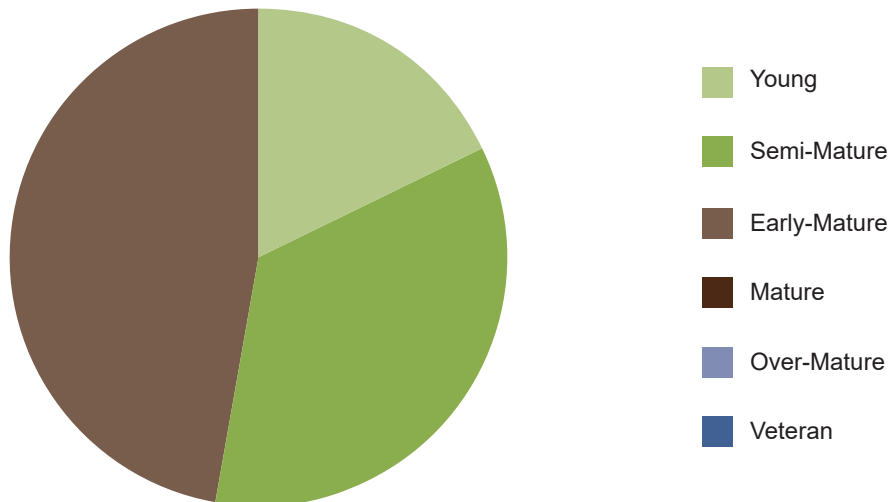
Tree Species Identified on Site



Tree Species	Number	Approx. Percentage
Ash (<i>Fraxinus excelsior</i>)	10	59%
Cherry (<i>Prunus</i> spp.)	3	17%
Rowan (<i>Sorbus aucuparia</i>)	1	6%
Sycamore (<i>Acer pseudoplatanus</i>)	1	6%
Whitebeam (<i>Sorbus aria</i> 'Lutescens')	2	12%

6.3 Age Diversity (excludes groups and U rated trees)

Age Class of Trees Identified on Site



Age Class	Number of Trees	Approx. Percentage
Young	3	18%
Semi-Mature	6	35%
Early-Mature	8	47%
Mature	0	0%
Over-Mature	0	0%
Veteran	0	0%

7.0 Key to Tree Survey Data

7.1 The following information is in accordance with BS 5837: 2012.

7.2 **Tree number:** As identified on the tree plans.

7.3 **Species:** Given as common names and botanical names on the survey schedule.

7.4 **Stem diameter:** Measured in mm. Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA) Prefixed by * indicates an estimate due to obstructions to access or an offsite tree. Prefixed by § indicates an average is given over several stems for example in the case of a hedge.

7.5 **Crown spread:** Estimated crown extents to the cardinal points as shown on the tree plans. Measured in metres with laser or estimated (*) when line of sight is poor. **WC** – indicates that the crown forms part of the woodland canopy.

7.6 **Height of crown clearance:** The height of first significant branch. Cardinal point may be indicated.

7.7	Age Class	Definition
	Young (Y)	Recently planted or establishing tree that could be transplanted with specialist equipment, i.e. less than 150 mm Diameter at 1.5m.
	Semi-mature (S/M)	An established tree, but with some growth to make before reaching its potential maximum size. A tree within its first third of lifespan.
	Early-mature (E/M)	A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread. A tree in its second third of life span.
	Mature (M)	A mature specimen with limited potential for any significant increase in size, even if healthy. A tree within its final third of expected lifespan.
	Veteran (V)	Specimens exhibiting features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.
	Dead (D)	The tree is dead.

7.8 **Landscape Contribution.** Although not always included in BS 5837: 2012 Tree Survey Schedules we find it useful to make an assessment of the Landscape Contribution of the tree as follows:

High	prominent landscape feature
Medium	visible in landscape
Low	secluded/among other trees

Trees of poor quality/appearance will normally be assessed with a lower Landscape Contribution.

7.9 **Comments:** These concern only matters within the interests of good arboricultural practice and do not take any account of the new proposed development. A full hazard assessment is beyond the scope of a report dealing with planning aspects.

7.10 **Estimated remaining contribution:** A guide to the likely period for which the tree is likely to confer benefits to the wider environment. The retention span is categorised into years.

7.11 **Category grading:** To be applied by an arboriculturalist; to identify the quality and value of the tree stock so that informed decisions can be made with regards to which trees should be removed or retained. Four categories are used:

U	Trees unsuitable for retention
A	Trees of high quality
B	Trees of moderate quality
C	Trees of low quality

7.12 **Category sub grading:** May be applied where retention criteria is:

1	Mainly Arboricultural qualities
2	Mainly Landscape qualities
3	Mainly Cultural values including ecological environmental

8.0 Chalara Notes

- 8.1 Ash dieback is caused by the fungus *Hymenoscyphus fraxineus*. Part of the fungus life cycle was formerly known as *Chalara fraxinea*, hence the alternative names including chalara ash dieback or chalara.

In line with the latest recommendations from the Arboricultural Association - Ash Dieback Guidance for Tree Owners, Managers, Contractors and Consultants - Principal Author Michael Sankus which states ' Current knowledge does not provide clarity on the impact of ash dieback on the life expectancy of individual ash trees, although up to 5% of ash trees will show genetic tolerance to the disease and many trees growing in open sites may not succumb to the disease and are likely to persist indefinitely. On these grounds it would be unreliable and premature to downgrade a healthy ash tree or one showing tolerance when categorising trees in accordance with BS5837 simply because of a presumption that life expectancy will be shortened.' We have not downgraded the ash trees on site, we have however, restricted estimated remaining contribution to 10+ years as we believe this may aid forward planning.

9.0 Tree Survey Tables

Tree Survey Schedule

Client: Shell UK

Site: Shell Welwyn Garden City

Date: 18.05.21

Weather: Partly Cloudy, Light Rain

Surveyor: FS/CR-W

Tree Ref. No	English name	Height (m)	Single stem diameter (mm)	Multi-stemmed (Y/N)	Stem						Branch spread NESW	Crown clearance	Age class	Condition	Deadwood	Landscape contribution	RPR (m)	RPA (m2)	Estimated remaining contribution	BS category
					1	2	3	4	5	6										
T1	Ash	7.5	-	Y	120	120					2,2,2,1	3-E	SM	Fair	MD	Medium	2.1	14	10	C2
Comments/Preliminary management recommendations: Divergent at 1m, possible dieback																				
T2	Ash	9	-	Y #	110	110	110	110			3,3,3,3	2-S	SM	Fair	Twigs	Medium	2.7	23	10	C2
Comments/Preliminary management recommendations: Divergent at 0.5m and again at 1m																				
T3	Cherry	#8	#110	N							#3,3,3,3	1.5-W	SM	Fair	Twigs	Low	1.3	6	20	C2
Comments/Preliminary management recommendations: Somewhat etiolated																				
T4	Cherry	#10	-	Y #	180	180	110				#3,3,3,3	3-S	SM	Good	MD	Low	3.3	34	20+	C2
Comments/Preliminary management recommendations: Divergent at 1m																				
T5	Rowan	6	#150	N							2,2,2,2	-	SM	Fair	Twigs	Medium	1.8	10	20	C2
Comments/Preliminary management recommendations: Growing out of dense shrub so unable to measure stem diameter																				
T6	Ash	13.5	#225	N							4,4,4,4	-	EM	Good	Twigs	Low	2.7	23	10	C2
Comments/Preliminary management recommendations: Ivy covered to 10m																				
T7	Ash	4	100	N							1,2,2,2	-	Y	Poor	MJD	Low	1.2	5	<10	C2
Comments/Preliminary management recommendations: Severe lean to south, heavily ivy covered by variegated ivy																				
T8	Ash	14	#175	N							3,3,3,3	-	EM	Fair	Twigs	Low	2.1	14	10	C2
Comments/Preliminary management recommendations:																				

Notes

Age class	Y- Newly planted/Young – <i>not fully established and capable of being replanted or easily replaced < 150mm @ 1.5m</i> SM- Semi-mature – <i>in first third of usual life expectancy for species (LES)</i> EM- Early-mature – <i>in second third of LES</i> M- Mature – <i>Approximately half LES</i> OM- Late mature – <i>in last third of LES</i> V- Veteran – <i>over usual LES</i> D- Dead
Condition	Good/ Fair/ Poor/ Dead
Deadwood	Twigs (small material up to 10mm diameter)/ Minor deadwood -MD- (dead wood 10mm–50mm diameter) / Major deadwood-MJD (dead wood 50 mm + in diameter)
Landscape Contribution	High (prominent landscape feature)/ Medium (visible in landscape) / Low (secluded/among other trees)
BS Category	Refers to Tree/Group quality and value: A-High, B-Moderate, C-Low, U- Unsuitable for retention. Retention criteria 1- Arboricultural,2-Landscape,3-Cultural
Root Protection Radius	A minimum radius from the tree trunk that should be left undisturbed during the development process
Stem diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)
Crown spread (N,E,S,W)	Measured in metres with laser or estimated (*) when line of sight is poor. WC – indicates that the crown forms part of the woodland canopy

Tree Survey Schedule

Client: Shell UK

Site: Shell Welwyn Garden City

Date: 18.05.21

Weather: Partly Cloudy, Light Rain

Surveyor: FS/CR-W

Tree Ref. No	English name	Height (m)	Single stem diameter (mm)	Multi-stemmed (Y/N)	Stem						Branch spread NESW	Crown clearance	Age class	Condition	Deadwood	Landscape contribution	RPR (m)	RPA (m2)	Estimated remaining contribution	BS category
					1	2	3	4	5	6										
T9	Ash	10	100	N							WC	-	Y	Poor	MJD	Low	1.2	5	10	C2
Comments/Preliminary management recommendations: Severe lean to north dominated by T10																				
T10	Ash	14	175	N							WC	-	EM	Good	Twigs	Medium	2.1	14	10	C2
Comments/Preliminary management recommendations: Trivergent at 3m																				
T11	Ash	10	110	N							WC	-	Y	Poor	MJD	Low	1.3	6	10	C2
Comments/Preliminary management recommendations: Very poor condition																				
T12	Cherry	9	175	N							WC	-	SM	Poor	MD	Low	2.1	14	20	C2
Comments/Preliminary management recommendations: Overshadowed by T10																				
T13	Ash	14	-	Y	180	140					5,5,5,5	-	EM	Good	Twigs	Low	2.7	23	10	C2
Comments/Preliminary management recommendations: Off site. Divergent at ground																				
T14	Sycamore	14	200	N							5,5,3,5	-	EM	Good	Twigs	Low	2.4	18	40	C2
Comments/Preliminary management recommendations: Off site																				
T15	Ash	13	160	N							3,4,4,4	-	EM	Good	Twigs	Low	1.9	12	10	C2
Comments/Preliminary management recommendations: Off site. Somewhat overshadowed by T14, Slight lean South, Divergent at 3m, somewhat etiolated																				
T16	Whitebeam	8	-	Y	220	120					4,4,4,4	2-W	EM	Good	Twigs	High	3.0	28	20+	B2
Comments/Preliminary management recommendations: Lean to east, divergent at 1.2m. Stock growing from base. Several old pruning cuts showing possible cavity formation. Past mowing damage to base. Some internal deadwood. Callousing over scarring to west side.																				

Notes

Age class	Y- Newly planted/Young – <i>not fully established and capable of being transplanted or easily replaced < 150mm @ 1.5m</i> SM- Semi-mature – <i>in first third of usual life expectancy for species (LES)</i> EM- Early-mature – <i>in second third of LES</i> M- Mature – <i>Approximately half LES</i> OM- Late mature – <i>in last third of LES</i> V- Veteran – <i>over usual LES</i> D- Dead
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Landscape Contribution	High (prominent landscape feature)/ Medium (visible in landscape) / Low (secluded/among other trees)
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Root Protection Radius	A minimum radius from the tree trunk that should be left undisturbed during the development process
Stem diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)
Crown spread (N,E,S,W)	Measured in metres with laser or estimated (*) when line of sight is poor. WC – indicates that the crown forms part of the woodland canopy

Tree Survey Schedule

Client: Shell UK

Site: Shell Welwyn Garden City

Date: 18.05.21

Weather: Partly Cloudy, Light Rain

Surveyor: FS/CR-W

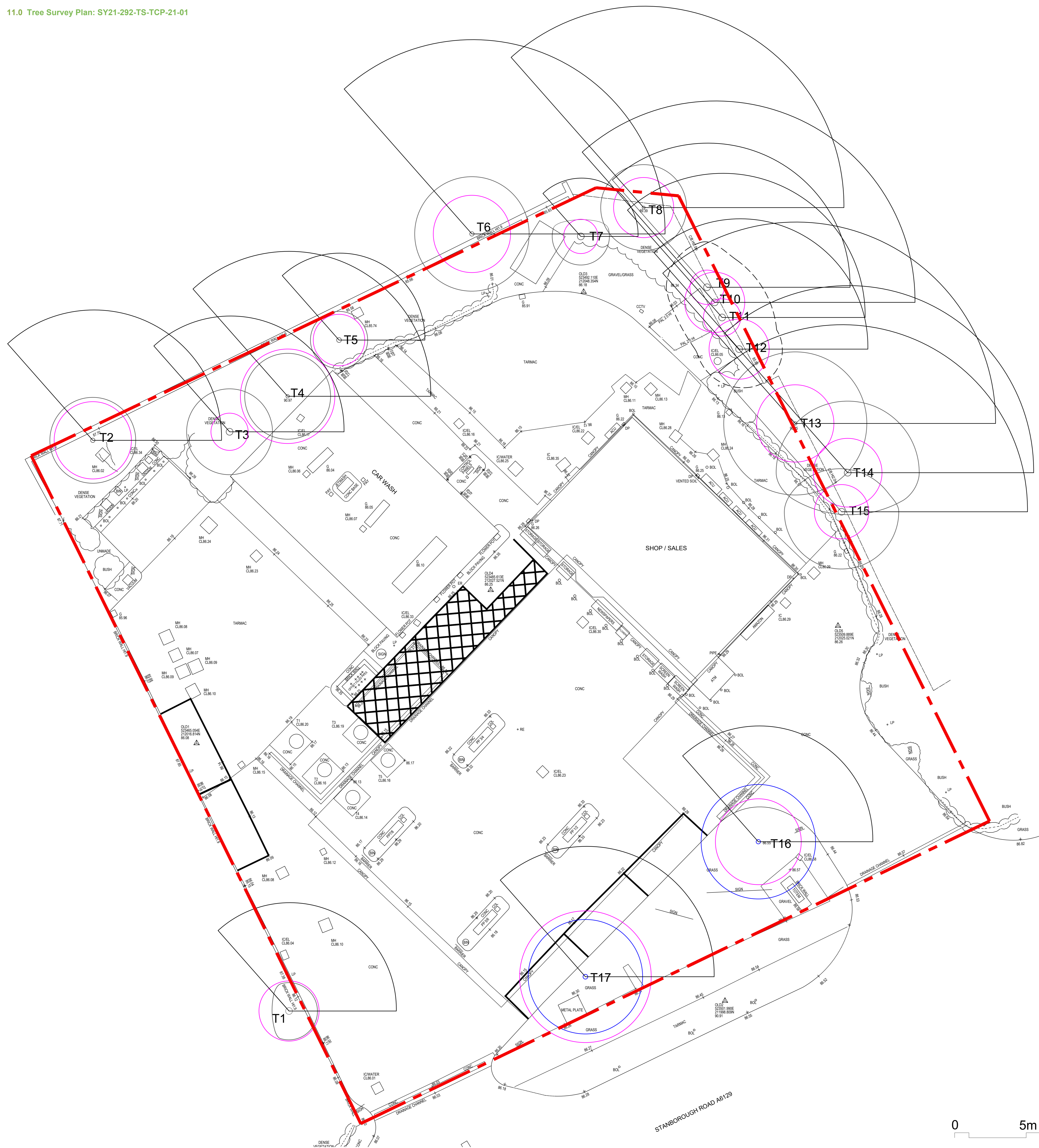
Tree Ref. No	English name	Height (m)	Single stem diameter (mm)	Multi-stemmed (Y/N)	Stem						Branch spread NESW	Crown clearance	Age class	Condition	Deadwood	Landscape contribution	RPR (m)	RPA (m2)	Estimated remaining contribution	BS category
					1	2	3	4	5	6										
T17	Whitebeam	8	-	Y	220	220	140	90			4,4,4.5,4	1.8-W	EM	Good	Twigs	High	4.6	66	20+	B2
Comments/Preliminary management recommendations: Lean to north then straightening. Prune back to avoid touching canopy. Numerous pruning cuts mostly healed but with possible cavity forming. Divergent at 1m. Remove plastic string from between trunks.																				
Comments/Preliminary management recommendations:																				
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Stem diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)
Crown spread (N,E,S,W)	Measured in metres with laser or estimated (*) when line of sight is poor. WC – indicates that the crown forms part of the woodland canopy

10.0 Cascade Chart for Tree Quality Assessment

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<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 category U trees (e.g. 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, or very low quality trees suppressing adjacent trees of better quality 		
<i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or 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)
Category B 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 growing 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
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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



Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

Trees to be considered for retention

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

Shadow effect calculated as per BS 5837

Calculated Root Protection Area

Woodland Canopy (WC)

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

Project Title: Shell Welwyn Garden City Tree Survey and Tree Constraints Plan

Scale: 1:100 @ A0
Dwg No.: SY21-292-TS-TCP-21-01
Date: 18.05.21

Revision: 0
Revision Date:




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Bedgebury Estate, Goudhurst, Kent TN17 2QZ
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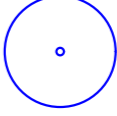
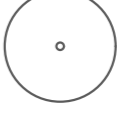





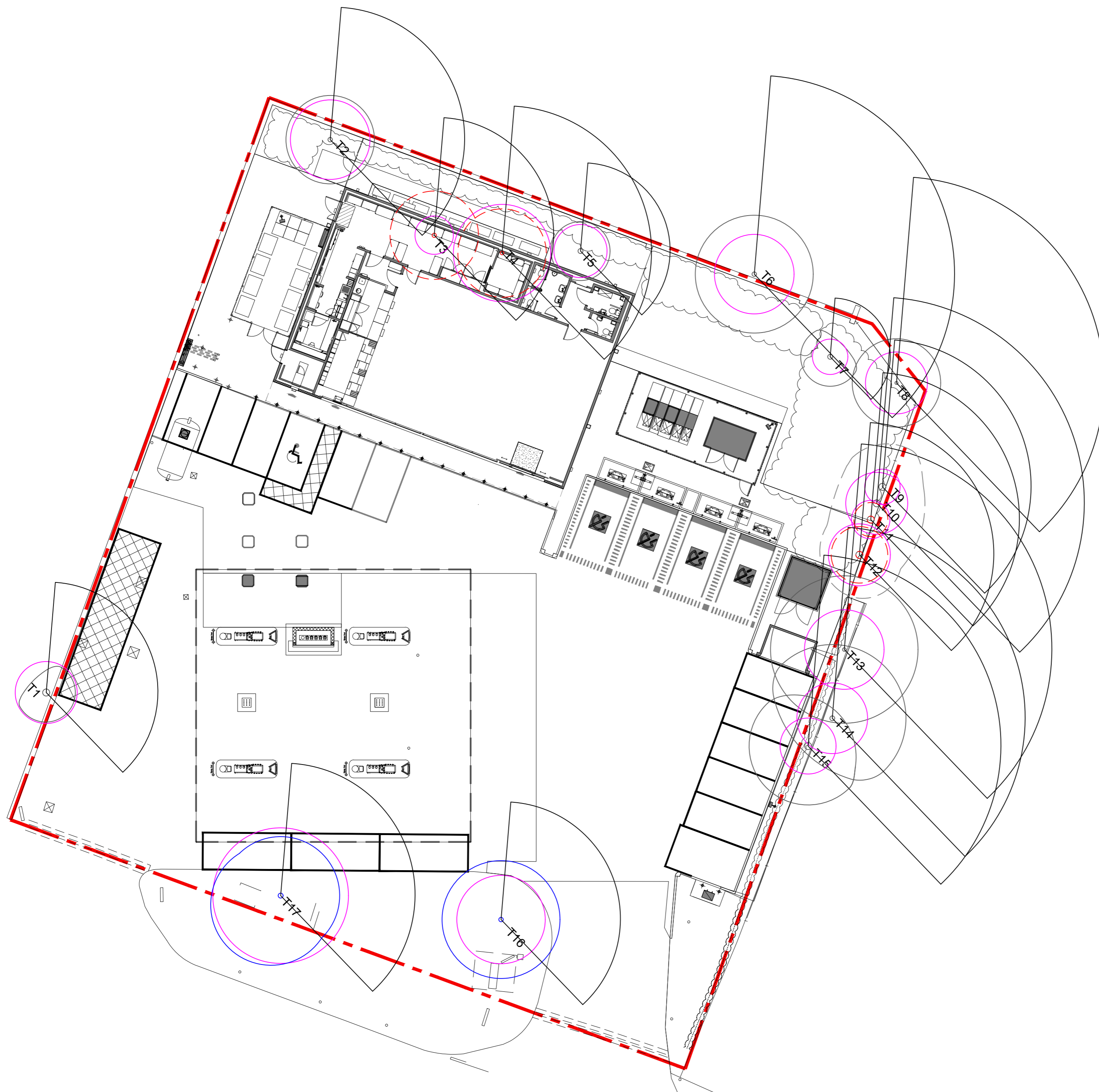
12.0 Arboricultural Impact Assessment

- 12.1 The proposed works shown on drawing No.12038629 PSL2 21 produced by MBH Design Studio Ltd. were drawn up after the production of our Tree Survey and Tree Constraints drawing SY21-292-TS-TCP-21-01.
- 12.2 The application proposes the demolition of the existing sales building and car wash. Construction of a new sales building and the reorganisation of car parking and the installation of four high speed EV charging points together with associated infrastructure.
- 12.3 Drawing SY21-292-AIA-TRR-21-06 shows that four trees are to be removed to allow works to take place these are T3 C rated Cherry, T4 C rated Cherry, T11 C rated Ash and T12 C rated Cherry.
- 12.4 Drawing SY21-292-AIA-RPA-21-05 shows the calculated Root Protection Areas together with the proposed works.
- 12.5 Drawing SY21-292-AIA-TPP-21-07 shows the draft positions of Tree Protection fencing to protect the retained trees and Landscaped areas. Any personnel involved in demolition or construction works will not be allowed access to these areas unless under arboricultural supervision. It is important that these areas are not used for the storage of any materials or machinery even on a temporary basis. An initial position of TPF is shown close to T9 to T11, after the removal of the fenced compound and associated hard surfaces the TPF will be relocated to the line shown
- 12.6 Drawing SY21-292-AIA-TPP-21-07 also shows where proposed works will take place within the RPA of retained trees and these works should be carried out under arboricultural supervision. The works within the RPA of T2 is the installation of a gravel permeable path and this should take place with minimal excavation. The works within the RPAs of T9 to T11 are the removal of fencing and hard surfaces to be replaced by soft landscaped area, again these works should be carried out under arboricultural supervision.
- 12.7 T13 to T15 are off-site trees whose RPAs may be impacted by proposed works. Tree Protection Fencing is indicated to remind contractors that minimal excavation should take place within these areas. Works proposed within the RPA of T13 again should be carried out under arboricultural supervision, an initial position of TPF is indicated.
- 12.9 TPF is shown to protect the B rated trees T16 and T17, as the existing canopy is retained works should be able to be carried out without impacting these retained trees.

- 12.8 BS 5837:2012 states 'Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. Barriers should be maintained to ensure they remain rigid and complete.'
- Barrier details are to be found on the drawing. In this case we recommend the following specification of fencing to protect the TPO'd trees and trees close to the proposed works - 2m tall welded mesh panels on rubber or concrete feet or attached to scaffold poles driven into the ground. The panels should be joined together with 4 no. non-releasable plastic ties. All weather notices (min.A4 size) marked 'Construction Exclusion Zone No Access' (or similar) should be attached to the barriers. It is important that these notices are fixed where they are visible to the site construction labour force, so the majority of these signs should be fixed to the site side of the barrier and not on the 'public' side. It is important that all of the site labour force are aware that these barriers are not to be removed, even temporarily, without permission of the Local Planning Authority or Site Arborist. After erection any Tree Protection fencing should be examined by ourselves to ensure that it fulfils the recommendations of BS5837:2012.

- 
Category U
 Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

- Trees to be considered for retention**
- 
Category A
 Trees of high quality with an estimated remaining life expectancy of at least 40 years
- 
Category B
 Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- 
Category C
 Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- 
 Woodland Canopy (WC)
- 
 Calculated Root Protection Area
- 
 Shadow effect calculated as per BS 5837



The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

Project: Shell Welwyn Garden City
 Title: Arboricultural Impact Assessment Tree Constraints Plan

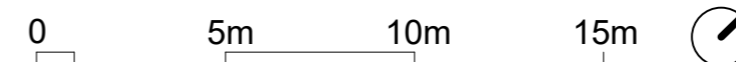
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 Date: 05.07.21

Revision: 0
 Revision Date:



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Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

Trees to be considered for retention

Category A

Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B

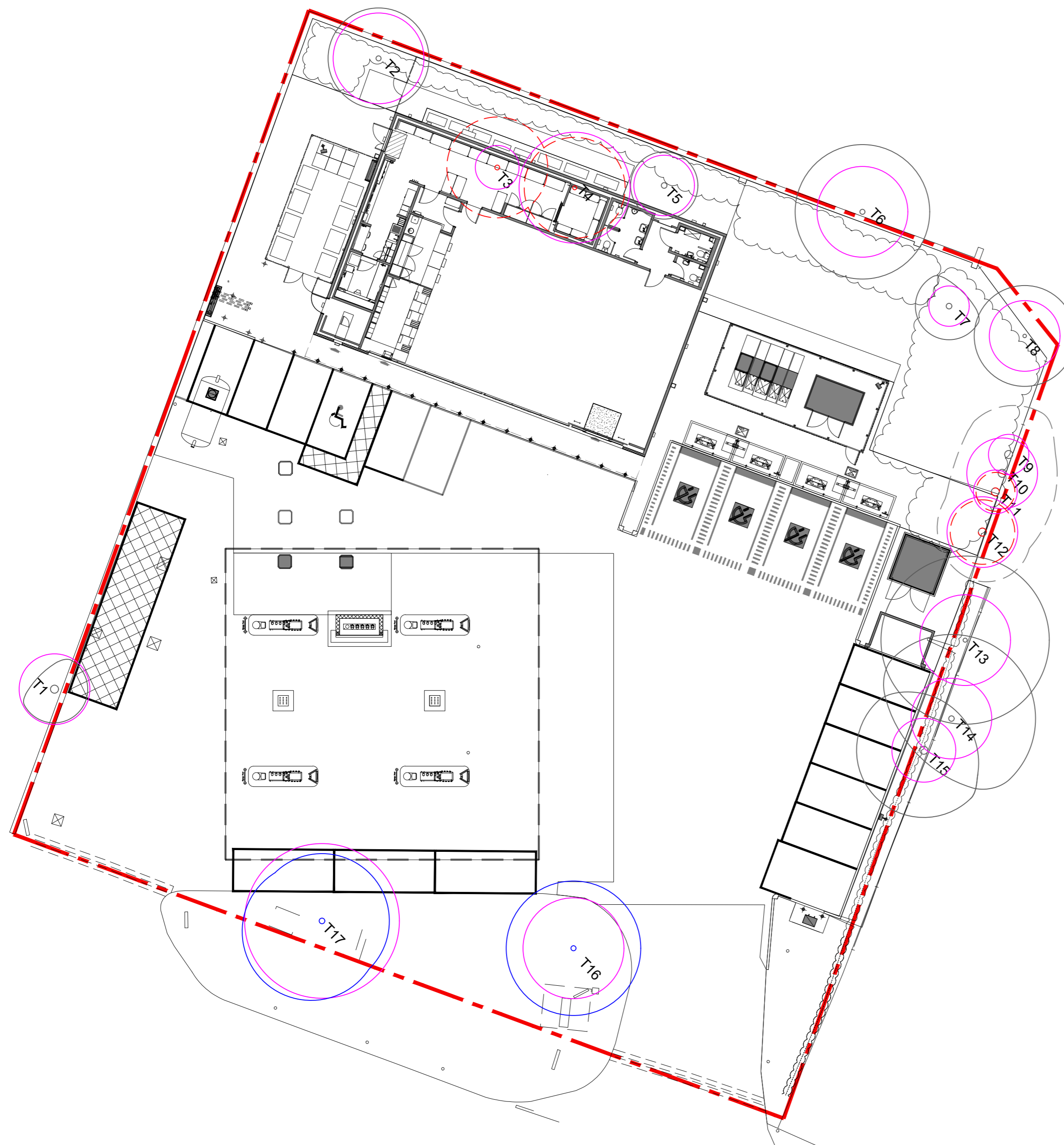
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Category C

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

Woodland Canopy (WC)

Calculated Root Protection Area



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Project: Shell Welwyn Garden City
Title: Arboricultural Impact Assessment Root Protection Areas

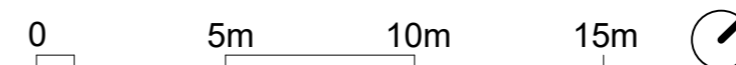
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Date: 05.07.21

Revision: 0
Revision Date:




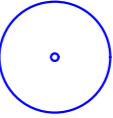
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Trees to be considered for retention

- 

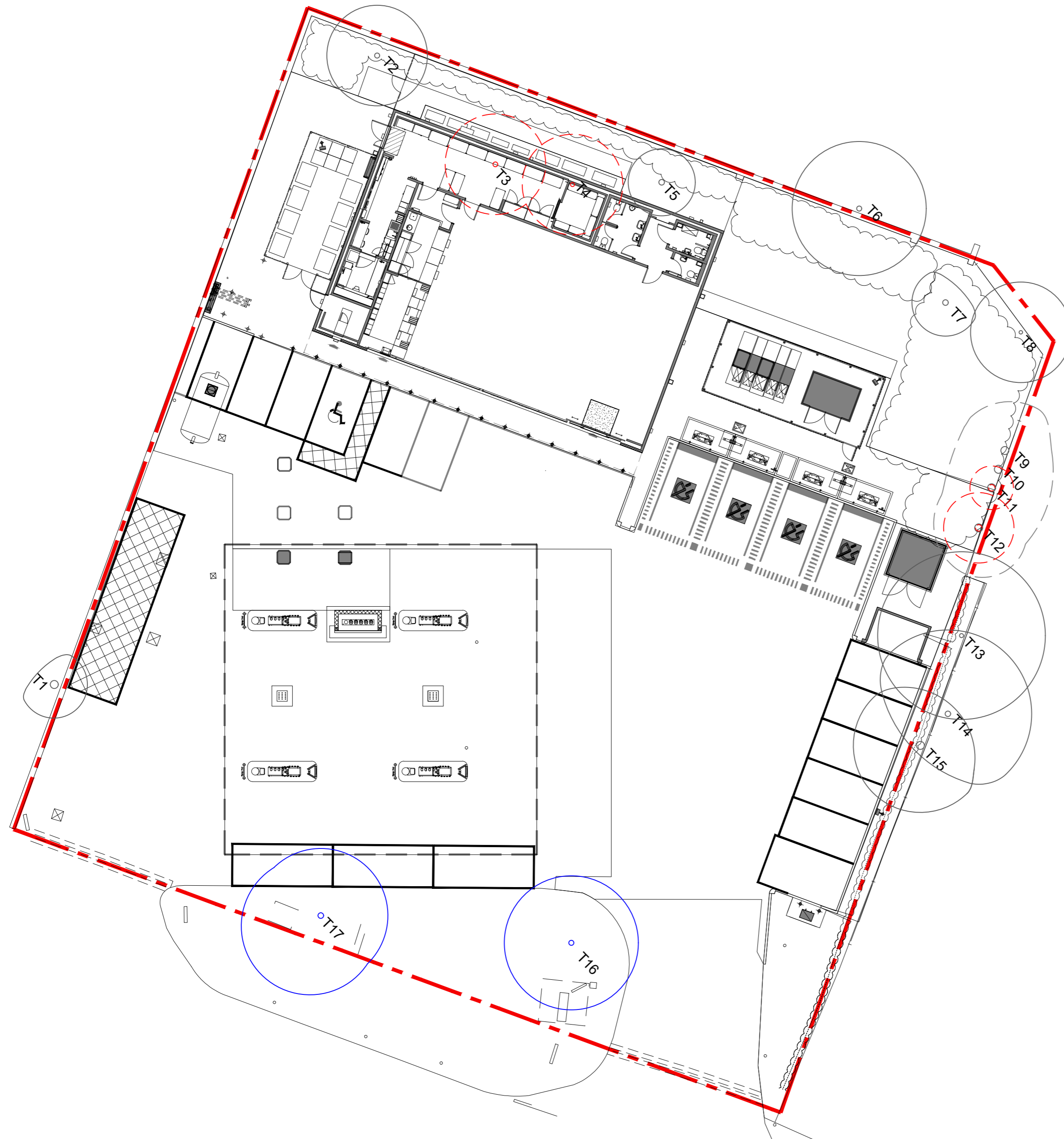
Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- 

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- 

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- 

Woodland Canopy (WC)
- 

Trees to be removed to allow development works to take place
 T3 C rated Cherry
 T4 C rated Cherry
 T11 C rated Ash
 T12 C rated Cherry



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Project Shell Welwyn Garden City
 Title Arboricultural Impact Assessment
 Trees Removed Retained

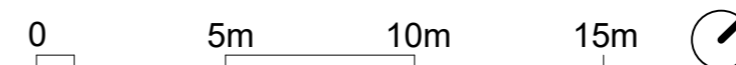
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 Date 05.07.21

Revision 0
 Revision Date



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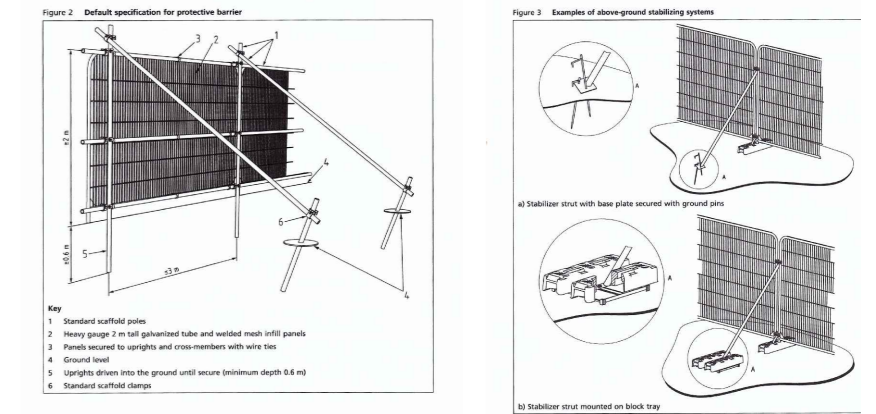






The retained trees and planting will require protection
Landscape & Tree Protection fencing- as per details shown below

Fencing will be installed before any demolition or construction works take place and be removed after construction works are completed to allow landscape works to be carried out.

2m high panels to be joined together with two metal joiners 1m apart (or 4 plastic ties). Signage to be fixed to the panels (facing towards site operations) saying- 'CONSTRUCTION EXCLUSION ZONE- NO ACCESS' or similar.

The purpose of this fencing is to remind contractors of the importance of avoiding damage to the retained trees and to protect the retained landscape areas.



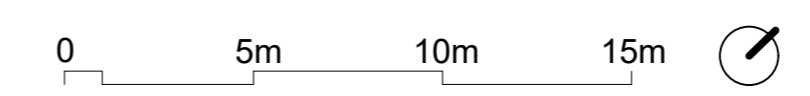
-  Final position of fencing
-  Initial position of fencing
-  Proposed works within RPA of retained trees
-  Calculated Root Protection Area

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

Project	Shell Welwyn Garden City
Title	Arboricultural Impact Assessment Tree Protection Plan
Scale	1-200 @ A2
Dwg No.	SY21-292-AIA-TPP-21-07
Date	05.07.21
Revision	0
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Trees to be planted in positions shown:

- AC Acer campestre 12-14 45l (Barchams//l Tree Carbon credit score rating B)
- LJ Ligustrum japonicum 10-12 35l 1.9m clear stem (Credit score B)
- UL Ulmus Lobel 12-14 45l (Barchams//l Tree Carbon credit score rating A)

Trees to be supplied by Barcham Trees or alternative UK supplier with similar biosecurity protocols also with Plant Healthy Certificate of Conformity

All trees should have double all round short stakes with a half round bar between them. The trees should be fixed to this bar with 'Naturetie' biodegradable tree tie material. All trees in grass to have a 2 metre diameter tree pit with 70mm chipped bark cover

Thoroughly water each tree on completion of planting to expel air pockets and to settle soil around roots.
 Apply at the following rates:
 50 litres per tree.
 The existing topsoil should be used for tree planting with 5% mushroom compost and 2.5kg Carbon Gold Tree Soil Improver (BioChar) per tree.

Shrub planting:
 PL Prunus lusitanica 100-125 10l planted as hedge 1m apart in double row 0.75m apart
 All planted areas to be topsoiled to a minimum depth of 600mm using topsoil saved from the site.
 If topsoil needs to be imported it must be to BS 3882:2015
 All planted areas to be mulched with 70mm of chipped bark mulch

Landscape Maintenance
 It is the responsibility of the new buildings owners to ensure that the Landscape Maintenance is carried out as detailed in the following notes for the life of the development.
 The following notes relate to the maintenance of the soft landscaping areas as it may be that maintenance of the hard surfacing may not be the responsibility of the Landscape Contractor. If this is the case the contractor responsible for the hard surface maintenance should be advised that the use of residual herbicide is not acceptable. Hard surfaces can be kept weed free by mechanical means and, if necessary, the use of herbicides.
 During the five year period annual visits by the implementing Landscape Architect should be made to check that all maintenance works are being carried out properly and as detailed.

Soft Landscape Maintenance Details for Shell Welwyn Garden City
 Establishment Period – 12 months from Practical Completion
 To be carried out by the Landscape Contractor and thereafter by the appointed maintenance team.

Watering During periods of reduced rainfall all planting should be irrigated to maintain a moist and healthy root zone. This shall be carried out by hand from a bowser or by hose from permitted water points.

Weed Control All areas of planting must be kept weed free. Inspect mulches on each visit and maintain to a depth of 70mm thereby assisting water retention and suppressing weed growth. Herbicide use should be kept to a minimum particularly in areas of ground cover which should be weeded by hand.

Tree support Check for any sign of wind rocking, frost heave, settlement or human interference and ensure that trees remain stable and secure.

Pruning of shrubs Little pruning of shrubs should be required in the establishment period and after as follows. However any aberrant, uncharacteristic or reverted growth should be removed and all pathways, roadsides and sight lines kept clear.

Protection of planting Visits should be used to observe and where appropriate obstruct any desire paths that may appear or alternatively manage them in a constructive way. Also areas that show wear or erosion at the periphery should be restored and if required protected by temporary fencing.

Pests and Diseases On each visit inspect for any sign of disease, pest infestation or damage by vermin and take appropriate control measures if required.

Litter Litter picking in both planted areas and hard surfaces should be carried out on each visit.

Plant failures On each visit note should be taken of any dead or missing plants and these replaced before the end of the five year period.

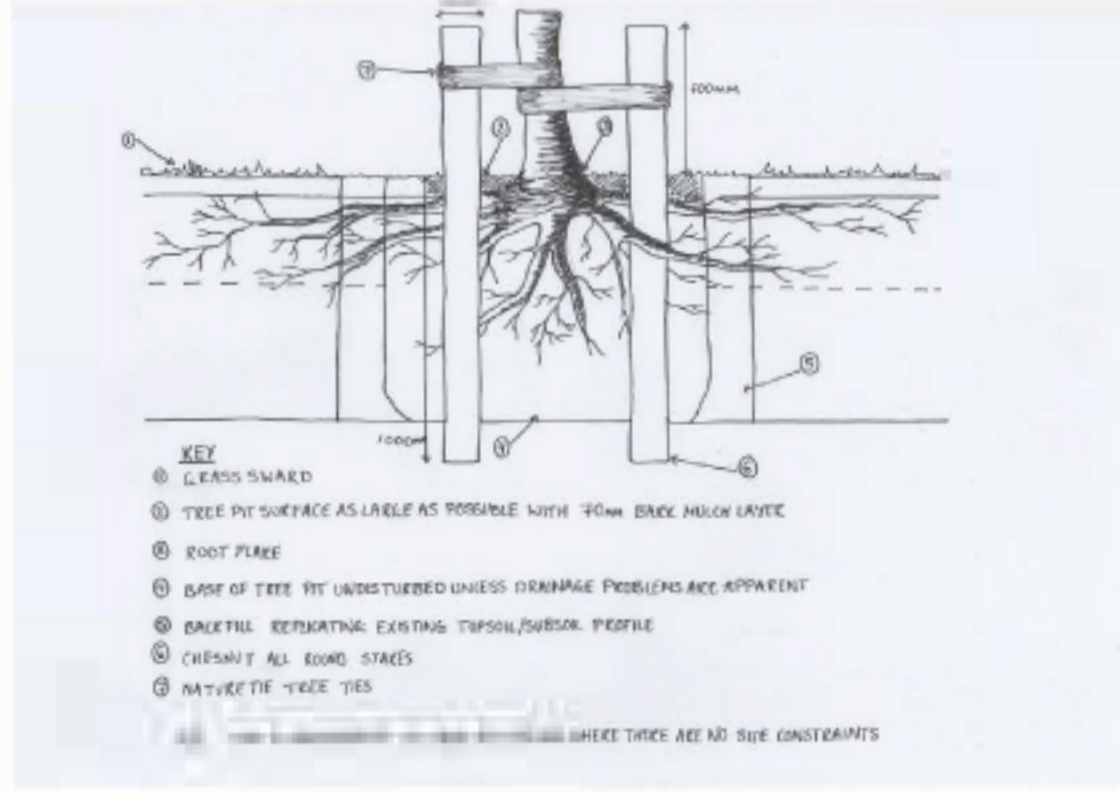
Grass See maintenance notes on this drawing.

Frequency of visits
 December/January/February/March – 1 visit each month.
 April – November – 2 visits each month.
 This schedule of visits may need to be altered if any period of extreme weather occurs such as drought, excessive rain or high wind.
 Further maintenance years 2 – 5
 Maintenance during this period should be as detailed for the establishment period with the following additional details:

- Fertiliser application
- Years two, four: all trees to be given the following rate of Granulated sugar: 3 grammes per litre per square metre of crown spread
- Years three, five: all planted areas to be fertilised with Sierrablen Flora granular fertiliser at 70g/square metre
- After this period the fertilising regime should be reassessed by the Landscape Architect

Pruning of plants
 All pruning should be carried out to maintain the natural shape and form of plants and pruning to 'box' shapes should be avoided.

Perennial meadow grass.
 New grassed areas should be cultivated and have the soil raked to a medium tilth and sown with Emorsgate EM5 Meadow Mixture for Loamy Soils at a rate of 4g/m² and then trodden in.
 Year 1
 Mow the newly sown meadow grass regularly in the first year of establishment to a height of 40-60mm removing all arisings.
 Year 2 - 5
 Spring cutting in March can be carried out if deemed necessary, the mower should be set high (70-100mm).
 Weed out or spot treat any perennial weeds which appear.
 Cut in late July to a height of 40-70 mm. removing all cuttings.
 Remember to remove all cuttings to gradually reduce the soil fertility and to avoid leaving a thatch which will inhibit the growth of next years flowers.
 An additional late Summer to Autumn cut can take place if required.
No fertiliser should be applied



Ligustrum japonicum 10-12 with 1.9m clear stem planted at 1.5 m back from wall/fence and within Prunus lusitanica hedge which is to be kept to 1.8m high



- New trees planted
- Existing trees retained
- Perennial Meadow Grass
- Existing planting retained
- Existing planting retained but hard pruned down to 250mm high
- Prunus lusitanica hedge

The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This plan must be used with reference to Landscape Management Plan Document SY21-292-LMP-21-01

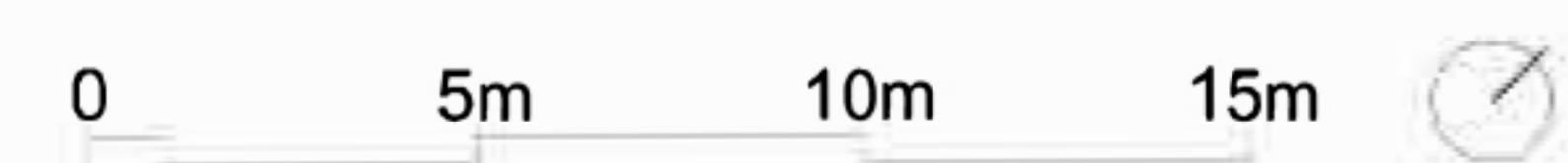
Project Title	Shell Welwyn Garden City Landscape Planting Plan
Scale	1-100 @ A0
Dwg No.	SY21-292-LPP-21-08
Date	19.07.21
Revision	0
Revision Date	



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General Reference Documents:
 British Standards Institution
 BS 3936 : Specification for Nursery Stock.
 BS 4428 : 1989 Code of practice for general landscape operations (excluding hard surfaces)
 BS 3882 : 2015 Specification for topsoil.
 BS 8545 : 2014 Trees: from nursery to independence in the landscape - Recommendations
 BS 5837 : 2012 Trees in relation to design, demolition and construction - Recommendations
 BS 3998 : 2010 Tree work - Recommendations
 All works to be carried out in accordance with the recommendations of the British Standards shown above.

As we have not had access to a full services drawing the Contractor should check for services before commencing works.



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