DARLING ASSOCIATES
ARCHITECTS

Landscaping

PLANNING CONDITION 10

Site 2 - JDE

Ruscote Avenue, Banbury

June 2022
Revision A

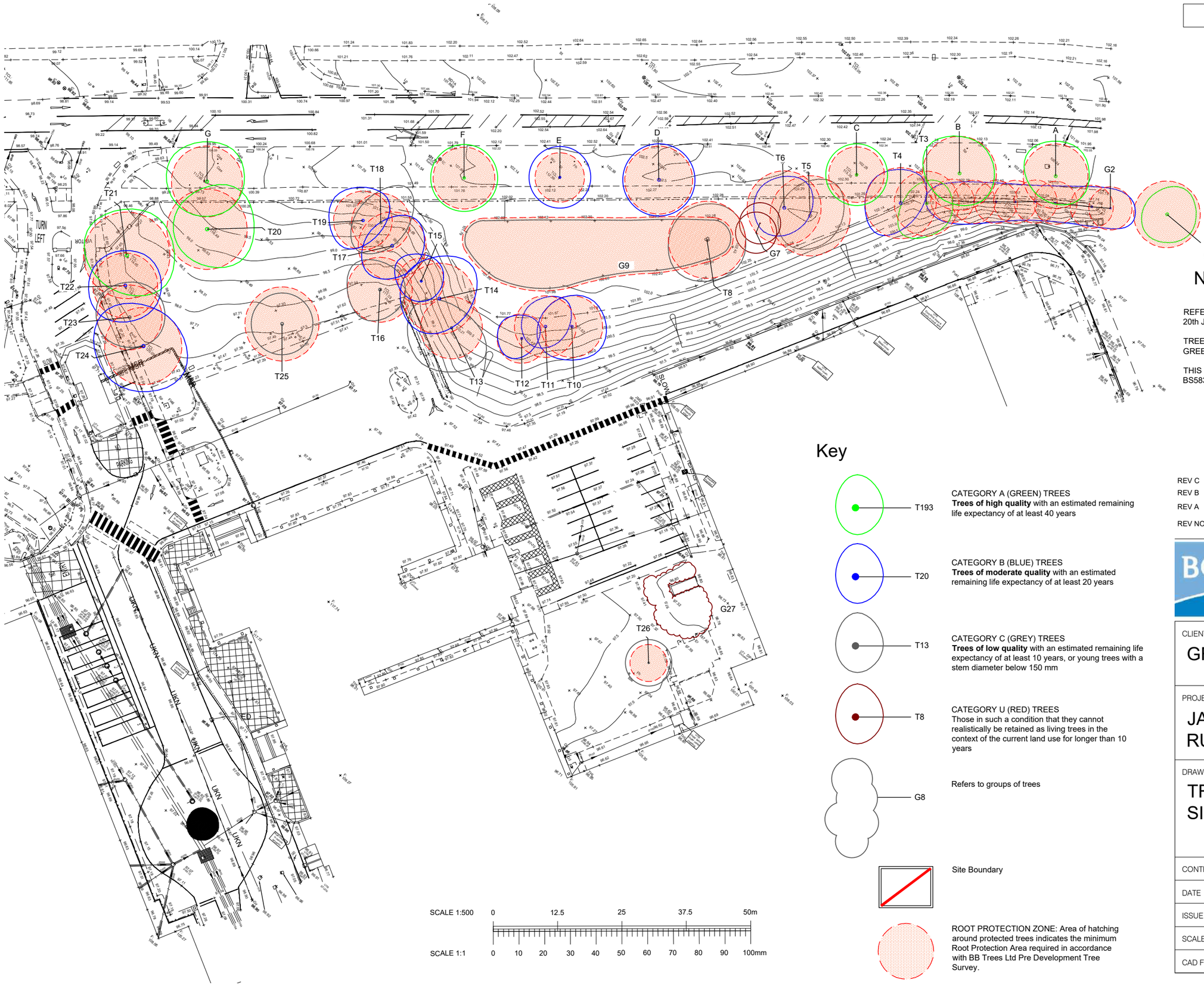
Condition 10

Overview

Prior to the commencement of the development hereby approved, and notwithstanding the submitted details, full details, locations, specifications and construction methods for all tree pits located within soft landscaped areas, to include specifications for the dimensions of the pit, suitable irrigation and support systems, tree protection (if appropriate) and an appropriate method of mulching, shall be submitted to and approved in writing by the Local Planning Authority.

Thereafter, the development shall be carried out in accordance with the approved details and specifications.

Landscaping



Existing Tree Constraints Plan

Key

T193
CATEGORY A (GREEN) TREES
Trees of high quality with an estimated remaining life expectancy of at least 40 years

T20
CATEGORY B (BLUE) TREES
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

T13
CATEGORY C (GREY) TREES
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

T8
CATEGORY U (RED) TREES
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

G8
Refers to groups of trees

Site Boundary

ROOT PROTECTION ZONE: Area of hatching around protected trees indicates the minimum Root Protection Area required in accordance with BB Trees Ltd Pre Development Tree Survey.

NOTES

REFER TO BB TREES LTD PRE DEVELOPMENT TREE SURVEY DATED 20th JULY 2021 FOR DETAILS OF EXISTING TREES.

TREE LOCATIONS SHOWN ARE BASED ON INFORMATION PROVIDED BY GREENHATCH SURVEYS

THIS DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH BS5837:2012.

REV C	Site renamed, tree survey updated	27-07-21 JG
REV B	Red line updated	01-10-19 JG
REV A	Drawing updated to planning status	30-05-19 MAB
REV NOTE		DATE AUTH

BARRY CHINN associates
Landscape Architects

CLIENT
GRAFTONGATE INVESTMENTS

PROJECT
JACOB DOUWE EGBERTS, RUSCOTE AVENUE, BANBURY

DRAWING
TREE CONSTRAINTS PLAN SITE 2

CONTRACT	1953/19			DRG NO. 01
DATE	15/04/19	DRAWN	MAB	
ISSUE	Planning	CHECKED	MG	
SCALE	1:500	ORIG SHEET	A2	REV C
CAD FILE	1953/19-01.dwg			

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NORTH

KEY

EXISTING TREES AND HEDGEROWS TO BE RETAINED
(Refer to the BB Trees Ltd Pre Development Tree Survey for detail)

EXISTING TREES AND HEDGEROWS TO BE REMOVED
(Refer to the BB Trees Pre Development Tree Survey for detail)

EXTRA HEAVY STANDARD TREES
18-20cm stem girth
4.5-6.5m height
1.8-2.1m clear stem
Rootballed
Double staked

AcSW	Acer campestre 'Streetwise'
Bp	Betula pendula
Tp	Tilia platyphyllos

PROPOSED FORMAL NATIVE HEDGEROW
(*300mm depth of topsoil*)
Planted at 450mm centres in a double staggered row. Rows to be 500mm apart.

%	Species	Common Name	Supply Size
10%	Carpinus betulus	Hornbeam	400-600mm 1+1 OG

PROPOSED ORNAMENTAL GROUND COVER SHRUB PLANTING
(*300mm depth of topsoil*)
Ultimate plant height is below 1m.

Species	Supply Size	Pot Size	Spacing
Cotoneaster dammeri 'Coral Beauty'	400-600mm	3L	500mm c/s
Ceanothus thyrsiflorus repens	300-400mm	3L	500mm c/s
Escallonia 'Red dream'	400-600mm	3L	500mm c/s
Hebe pinguifolia 'Sutherlandii'	200-300mm	3L	500mm c/s
Lonicera nitida 'Maygreen'	300-400mm	2L	500mm c/s
Persicaria affinis 'Darjeeling Red'	150-200mm	2L	450mm c/s
Potentilla dahurnica 'Abbotswood'	200-300mm	3L	500mm c/s
Prunus laurocerasus 'Cherry Brandy'	300-400mm	3L	500mm c/s
Parthenocissus tricuspidata 'Veitchii'	600-600mm	3L	600mm cts
Rosa 'Kent'	300-400mm	3L	450mm c/s
Spiraea japonica 'Candlelight'	200-300mm	3L	500mmc/s

PROPOSED AMENITY GRASS AREAS
In areas that have been regraded - as required by Engineer (*150mm depth topsoil*)
DLF Trifolium Promaster 120 Slowgrowth
Supplied by DLF Trifolium Seeds Ltd
Sowing rate: 35-50g/m2

EXISTING GRASS RETAINED AND MADE GOOD

PROPOSED RETAINING WALL
All to engineers details

PROPOSED FENCES & RAILINGS
See Darling Associates Architects drawing 16061-(03)-S-001-T04 for details

RED LINE BOUNDARY

PROPOSED TIMBER POST AND WIRE RABBIT FENCE

D SECTION LOCATION
Refer to BCA drawing no. 1953/19-06

REV H	Site reference amended, tree survey updated	28-07-21 JG
REV G	Layout amended to latest Architects layout	07-10-19 JG
REV F	Red line boundary updated	02-10-19 JG
REV E	Changes as requested by Client	24-09-19 JG
REV D	Amenity grass area seperated to retained & proposed seeded area	29-08-19 HC
REV C	Thicket removed, note for amenity grass updated	19-08-19 JG
REV B	Drawing updated to reflect latest architects base	17-06-19 MAB
REV A	Drawing updated to planning status	30-05-19 MAB
REV NOTE		DATE AUTH

BCA BARRY CHINN associates Landscape Architects

CLIENT
JACOB DOUWE EGBERTS

PROJECT
JACOB DOUWE EGBERTS,
RUSCOTE AVENUE, BANBURY

DRAWING
LANDSCAPE CONCEPT PLAN
SITE 2

CONTRACT	1953/19		DRG NO. 05
DATE	15/04/19	DRAWN MAB	
ISSUE	Planning	CHECKED MG	
SCALE	1:250	ORIG SHEET A1	REV H
CAD FILE	1953/19-05.dwg		

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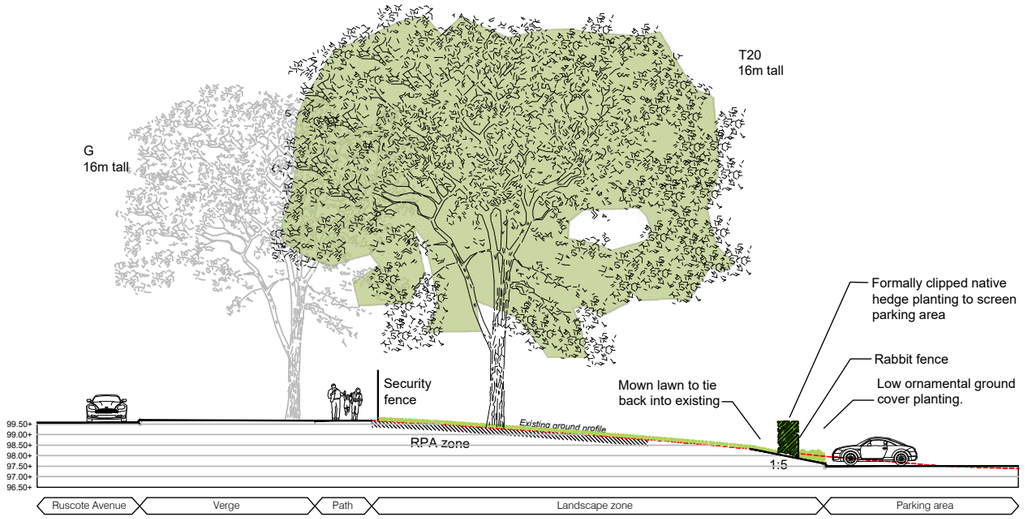
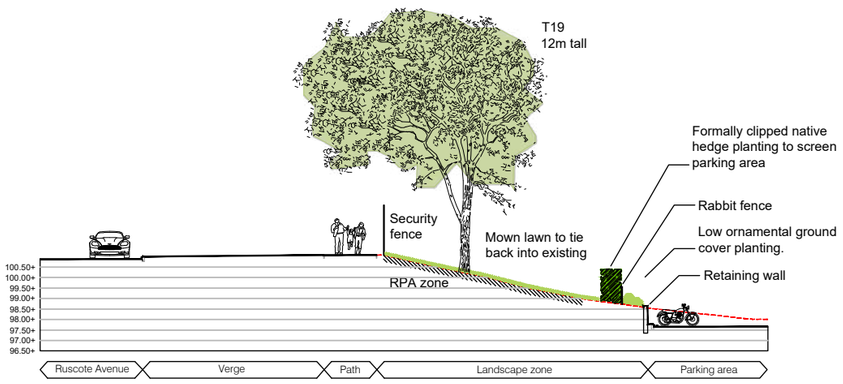
SCALE 1:250 0 6.25 12.5 18.75 25m
SCALE 1:1 0 10 20 30 40 50 60 70 80 90 100mm

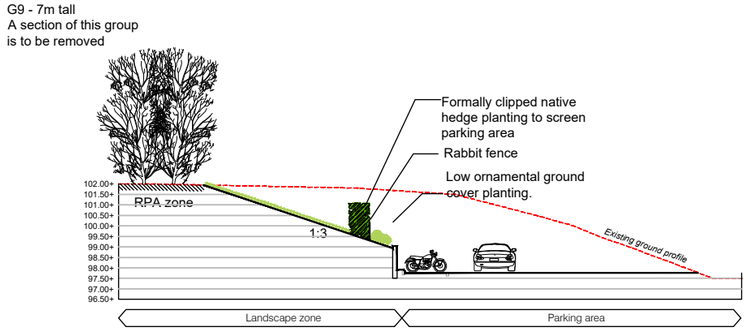
Proposed Site Landscaping Plan



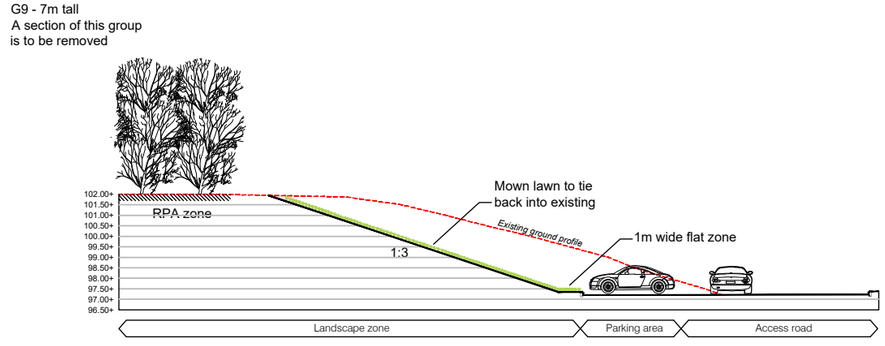
SECTION A-A 1:200



SECTION B-B 1:200



SECTION C-C 1:200



SECTION D-D 1:200

LOCATION PLAN

REV E	Site reference amended, tree survey updated	28-07-21 JG
REV D	Red line boundary updated, layout amended	02-10-19 JG
REV C	Thicket removed, note for amenity grass updated	16-08-19 JG
REV B	Drawing updated to reflect revised base plan	17-06-19 MAB
REV A	Drawing updated to planning status	30-05-19 MAB
REV NOTE		DATE AUTH

BARRY CHINN associates Landscape Architects

CLIENT
JACOB DOUWE EGBERTS

PROJECT
JACOB DOUWE EGBERTS, RUSCOTE AVENUE, BANBURY

DRAWING
LANDSCAPE CONCEPT SECTIONS, SITE 2

CONTRACT	1953/19		DRG NO. 06
DATE	15/04/19	DRAWN MAB	
ISSUE	Tender	CHECKED MG	
SCALE	1:200	ORIG SHEET A2	REV E
CAD FILE	1953/19-05.dwg		

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Proposed External Works Layout

Tree Protection

SPECIFICATION FOR FENCING:-
All trees to be retained on site shall be protected by Heras type panel fencing (2m high) affixed to scaffold pole framework in accordance with the requirements of BS5837:2012 as shown. The location of the protective fence to be in accordance with the details contained on this BCA drawing 1953/19-04 - 'Tree Retention, Protection and Removal Plan'.

The protective fencing shall be erected before any machinery or materials are brought onto site and before any demolition and or development commences. No construction works, excavation, or ground alterations shall be carried out within the protected area.

The protective fencing shall not be removed, or its line altered, without prior agreement. The protective fencing shall be maintained for the duration of all construction works. Care should be exercised when using cranes or similar equipment in vicinity of the tree to avoid damage to the tree canopy.

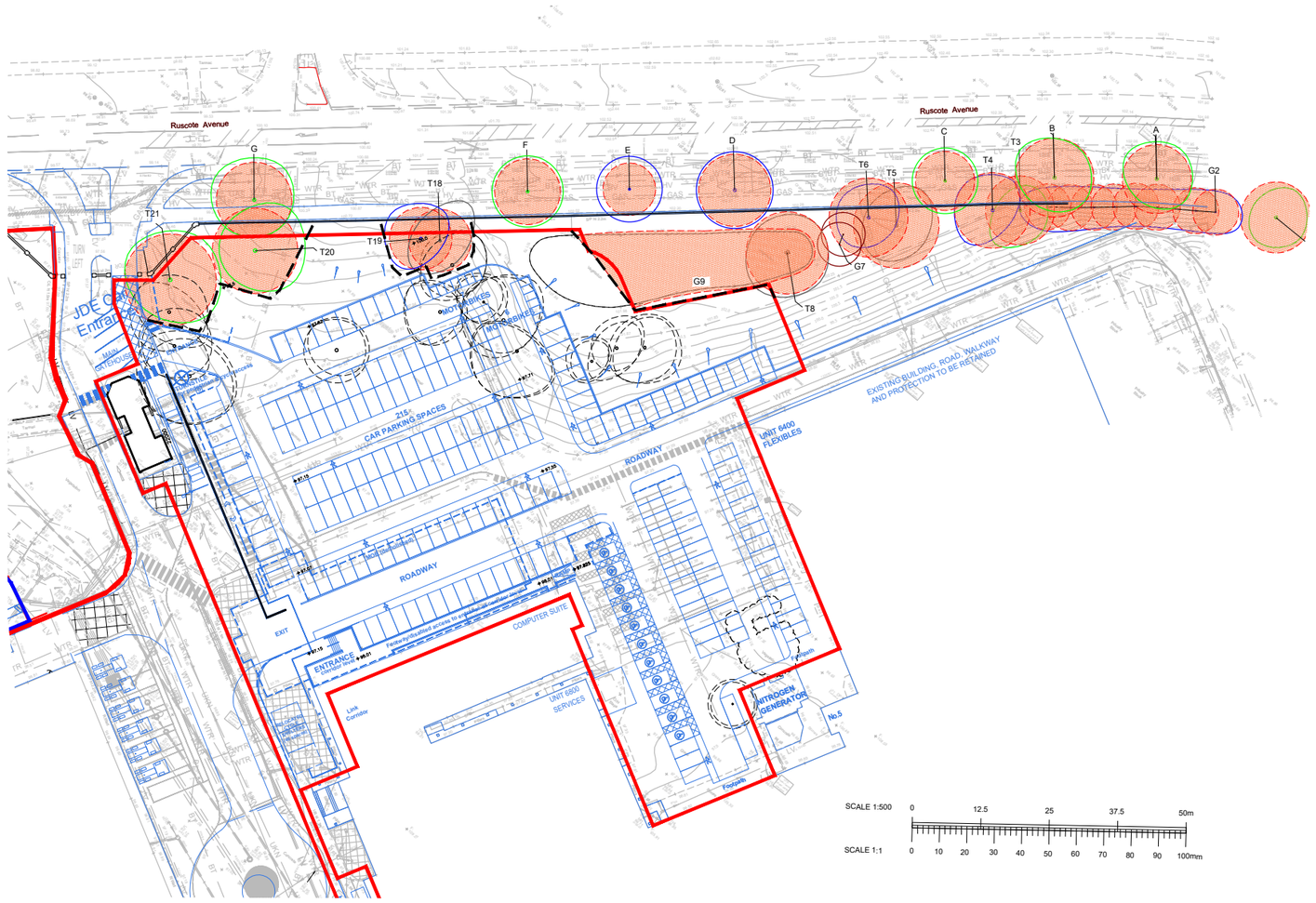
The objective of the protective fencing is to protect as large an area around the trees as possible in order to minimise the risk of damage to trees during construction. However if, after consideration of all alternatives, it proves essential for construction, excavation or service trench works need to be carried out within the defined protected area around the tree, specialist design advice shall be sought from the contract supervisor who will consult an Arboricultural Consultant / Engineer to minimise disturbance to the tree and its root system.

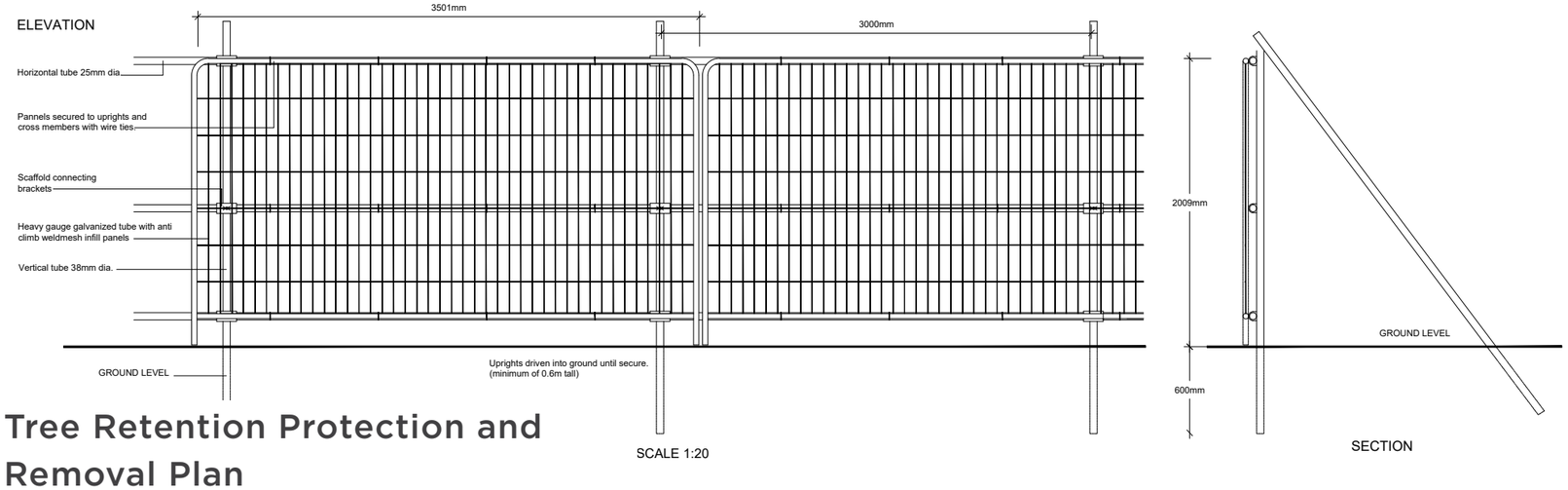
HERAS TYPE PANEL PROTECTIVE FENCING
TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF BS5837:2012
2000mm high to be installed in the location indicated on plan. Signage is to be fixed to the protective fencing to deter access within protective zone. Fencing is to remain in place and be maintained throughout the contract period.

Within protected areas:
Existing soil levels shall remain undisturbed and any works required shall be carried out only by hand, under supervision of arboriculturalist. All haulage routes and contractors compounds, storage facilities etc shall be kept outside the protected areas.

PROTECTION OF EXISTING TREES: GENERAL REQUIREMENTS
In compliance with good practice, during all design and construction works and in accordance with BS5837 (2012) "Trees in relation to design, demolition and construction - recomendations" and BS3998 (2010) "Recommendations for Tree Work", the following precautions must be considered to avoid damage to trees:

- Site construction access;
- The intensity of and nature of construction activity;
- Contractors car parking over the root system;
- Phasing of construction works;
- The space needed for foundation excavations and construction work;
- The availability of special construction techniques;
- The location and space needed for all temporary and permanant apparatus and service runs, including foul and surface water drains, land drains, soakaways, gas, oil, water, electricit, telephone, television or other comunication cables;
- All changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls and backfilling;
- Working space for cranes, plant scaffolding and access during work;
- Space for site huts, temporary toilet facilities (including their drainage) and other temporary structures;
- The type and extent of landscape works which will be needed within the protected areas, and the effects these will have on the root system;
- Space for storing (whether temporary or long term) materials, spoil and fuel and the mixing of cement and concrete shall be stored a minimum of 10m from all trees;
- The effects of slope on the movement of potentially harmfull liquid spillages towards or into protected areas;
- No traffic over the root system;
- No soil, debris or building material to be deposited against the trunk of a tree;
- No fires to be lit below branches. No generators or static machinery to be operated below branches;
- No cutting of branches or roots except by a specialist firm;
- No trees to be used as an anchor for winching purposes;
- Dead, diseased and dying branches will be removed from trees being retained;
- Where necessary tree crowns will be thinned to reduce weight and improve shape;
- Concrete mixing to occur a minimum of 10m from all trees.
- No site/signage boards, telephone cables or any other services shall be attached to a tree;
- Tree Surgery work to trees to be retained, will be carried following advice from a qualified arboriculturalist.





Tree Retention Protection and Removal Plan

DA
A

NORTH

NOTES

REFER TO BB TREES LTD PRE DEVELOPMENT TREE SURVEY DATED 20th JULY 2021 FOR DETAILS OF EXISTING TREES.

TREE LOCATIONS SHOWN ARE BASED ON INFORMATION PROVIDED BY GREENHATCH SURVEYS

THIS DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH BS5837:2012.

LAYOUT BASED ON DARLING ASSOCIATES ARCHITECTS DRAWING 16061-(03)-S-001-PL1

ROOT PROTECTION ZONE: Area of hatching around protected trees indicates the minimum Root Protection Area required in accordance with the Tree and Woodland Consultancy Pre Development Tree Survey dated July 2021.

PROTECTIVE BARRIER: Existing trees to be retained shall be protected by protective barrier erected in accordance with the specification figure 2 of BS5837:2012. Barrier to be erected on the edge of the root protection area for each tree to be protected. To be erected prior to the commencement of any construction works on site.

T13 EXISTING TREES TO BE TO BE RETAINED AND PROTECTED AS PART OF THE PROPOSALS

APPLICATION SITE BOUNDARY

PROPOSED BUILT FORM

REV	NOTE	DATE AUTH
REV D	Site renamed, tree survey updated	27-07-21 JG
REV C	Drawing updated to reflect latest boundary line	01-10-19 JG
REV B	Drawing updated to reflect latest architects base	17-06-19 MAB
REV A	Drawing updated to planning status	30-05-19 MAB

BCA BARRY CHINN associates Landscape Architects

CLIENT
GRAFTONGATE INVESTMENTS

PROJECT
JACOB DOUWE EGBERTS, RUSCOTE AVENUE, BANBURY

DRAWING
TREE RETENTION, PROTECTION AND REMOVAL PLAN - SITE 2

CONTRACT 1953/19			DRG NO. 03
DATE 15/04/19		DRAWN MAB	
ISSUE Planning		CHECKED MG	
SCALE 1:500		ORIG SHEET A1	REV D
CAD FILE 1953/19-03.dwg			

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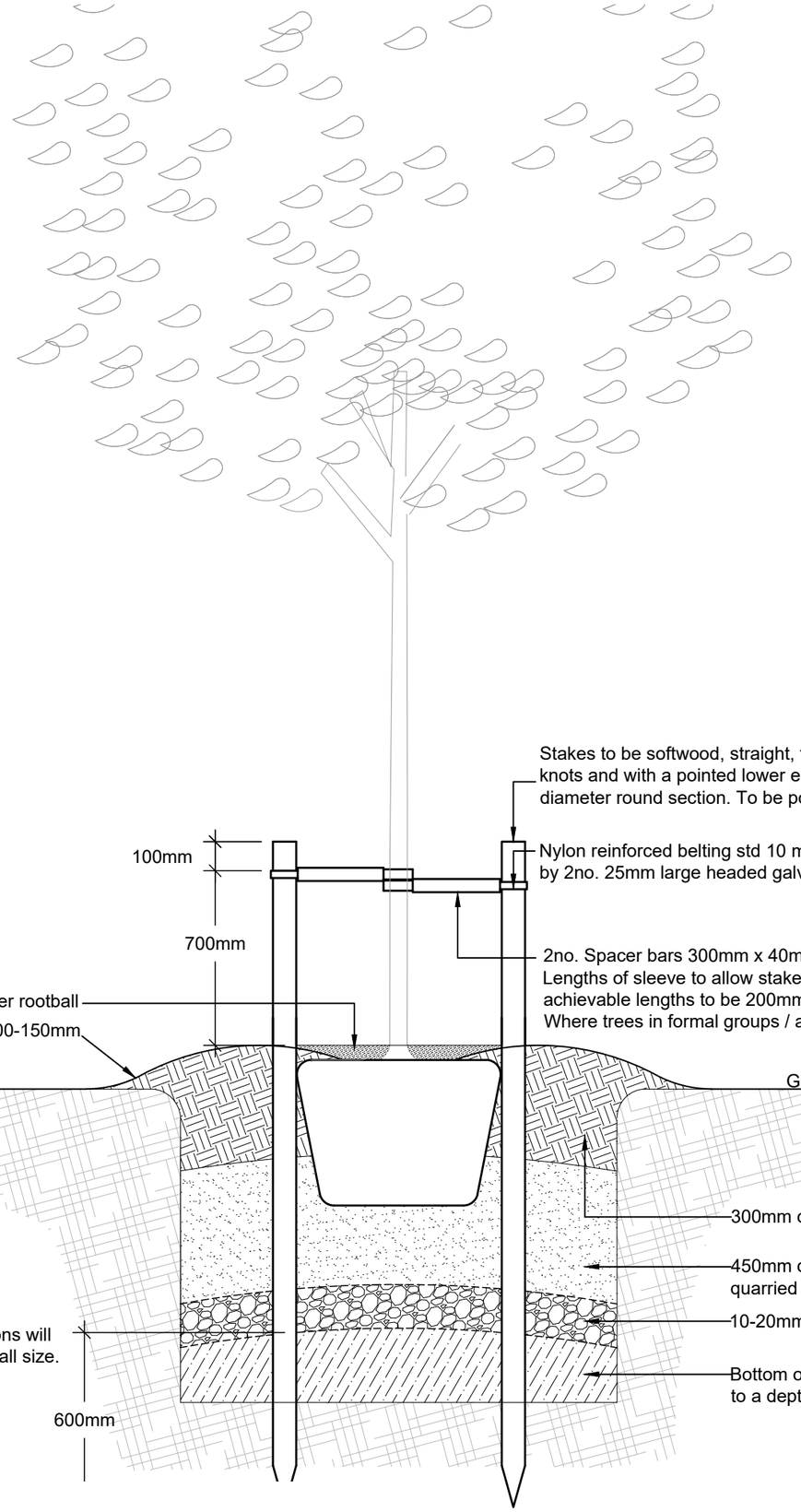
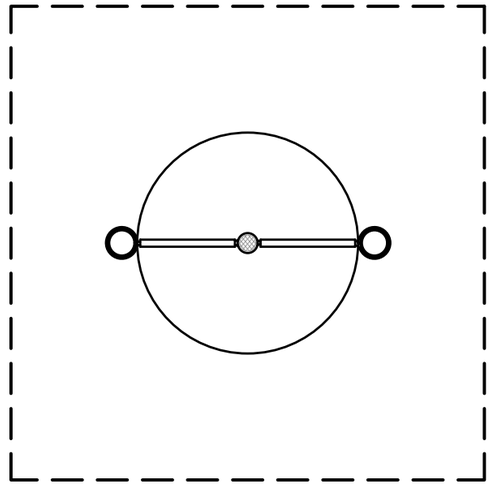
NOTES

Belting and spacer bars supplied by:

Amenity Land Solutions Limited
Units 2/3
Allscot
Telford
Shropshire
TF6 5DY
Tel: 01952 259281

Applicable for use on trees with stem girths from between 12cm and 20cm inclusive.





PLAN

Tree Pit Details

REV NOTE | DATE AUTH

BARRY CHINN associates
Landscape Architects

CLIENT
JACOB DOUWE EGBERTS

PROJECT
JACOB DOUWE EGBERTS,
RUSCOTE AVENUE, BANBURY

DRAWING
TREE PIT CONSTRUCTION
WITH DOUBLE STAKING
IN SOFT LANDSCAPE AREAS

CONTRACT 1953/19			DRG NO. 09
DATE 20/06/22		DRAWN MB	
ISSUE Planning		CHECKED MB	
SCALE 1:20		ORIG SHEET A3	REV -

Arboricultural Impact Assessment

BB Trees Ltd
Tree and Woodland Consultancy
ben@bbtrees.co.uk
www.bbtrees.co.uk

Arboricultural Impact Assessment:
Jacobs Douwe Egberts, Ruscote Avenue, Banbury – Site 2

Prepared for:
Barry Chinn Associates Ltd
Harbury Road
Deppers Bridge
Southam
Warwickshire
CV47 2SZ

Document reference: 614-21, Revision 0

1. Introduction

1.1 I received instruction from Project Landscape Architects Barry Chinn Associates Ltd to prepare an Arboricultural Impact Assessment in respect of the Site 2 proposal at the Jacobs Douwe Egberts factory off Ruscote Avenue, Banbury, Oxfordshire, OX16 2QU. The intended development consists of the demolition of the existing vacant office building and erection of a surface level car park, providing 215 replacement car parking spaces, cycle parking and associated landscaping.

1.2 National recommendations for the consideration of existing trees within a development context are set out within BS5837:2012 *Trees in relation to design, demolition and construction - Recommendations*.

1.3 I undertook a Pre-Development Tree Survey in accordance with section 4 of the above Standard in order to detail the arboricultural constraints associated with potential development work at the site. This process was undertaken objectively without any regard to a particular development layout and has provided the arboricultural baseline information which has been built upon within this assessment.

1.4 The process of an Arboricultural Impact Assessment is set out within section 5.4 of the Standard and, wherever applicable, this document has been structured to accord with these recommendations.

1.5 Having regard to the arboricultural constraints identified during the initial survey I have been provided with the proposed layout and have assessed this in terms of the potential arboricultural impact.

1.6 This assessment is to be read in conjunction with the following drawings:

- Barry Chinn Associates Ltd Landscape Architects (Contract number: 1953/19):
  - Drawing number: 01 - Tree Constraints Plan
  - Drawing number: 03 - Tree Retention, Protection and Removal Plan

1.7 In addition, my Pre-Development Tree Survey is shown at Appendix 1.

1.8 The application site is located to the south east of Ruscote Avenue and to the eastern side of an extant site entrance and security lodge, being located at grid reference SP 450 416.

1.9 Trees at the site are not understood to be the subject of any local authority administered statutory protection in the form of either a tree preservation order or by virtue of being located within a conservation area.

1.10 Trees planted within the public highway verge along Ruscote Avenue were identified at an early stage as an important amenity feature and have been included in the tree assessment with an alphabetical reference being assigned to the individual trees to differentiate them from those within the application area.

1.11 Referring to the British Geological Surveys' Geology of Great Britain Viewer, the bedrock geology is that of the Charnmouth mudstone formation being sedimentary bedrock. No superficial deposit has been recorded. However, from observations on site, there appears to be a deep, relatively structured topsoil which clearly supports adequate tree growth on the site and, in a precautionary manner, is considered potentially susceptible to compaction.

1.12 Given the nature of the site, the Forestry Act 1967 (as amended) currently applies to the land, in particular the potential requirement for a Forestry Commission felling licence should a significant volume of trees be proposed for removal. Upon the granting of full detailed planning permission, it is most likely that such a requirement will no longer be appropriate. However, future arboricultural advice should be sought.

1.13 This report is presented in the following format:

- Section 2: Review of tree cover
- Section 3: Development impact
- Section 4: Construction phase protection
- Section 5: Conclusions
- Appendix 1: Pre-Development Tree Survey
- Appendix 2: Preliminary Arboricultural Method Statement

2. Review of tree cover

2.1 The Pre-Development Tree Survey took account of 27 arboricultural features within the application site (excluding those on the highway verge which were surveyed as trees A to G inclusive).

2.2 Within the site, there were four groupings of trees with the remainder being surveyed individually. Of the individual trees, four were awarded the highest Category A value, 11 Category B value and eight Category C. No individual trees were classified as Category U meaning that they would be recommended for removal irrespective of development.

2.3 For the groups, a single group was classified as Category B, whilst two groups were Category C with the final group having a collective value of Category U, being recommended for removal at this stage (albeit not effected by any potential development).

2.4 In terms of highway trees, the majority were Category A with only two being downgraded to Category B value.

2.5 The tree cover is illustrated below with the aid of photographs taken at the same time as the pre-development tree assessment unless otherwise stated.

2.6 Trees 1, G2, 3 and 4 grow to the rear of the boundary palisade fence at the upper crest of a steep sided embankment located beyond the existing perimeter road to the factory.

Photograph 1: Boundary trees on top of embankment viewed from the east.

2.7 Tree 8 is coppice regeneration from a previously felled ash tree and grows amongst an outgrown shrubbery surveyed as group G9, for which the arboricultural elements are mainly restricted to younger self-sown trees of mediocre only form.

Photograph 2: Showing coppiced base of ash tree 8 (photograph taken in May 2019 when more visible).

Photograph 3: Part of group G9 viewed from the south.

2.8 Trees 10 to 19 have a collective impact growing upon either the sloping embankments or the upper level of the landscaping mound.

Photograph 4: Showing trees 10 to 12 viewed from the north.

Photograph 5: Showing trees 10 to 19 inclusive viewed from the south.

2.9 Tree 20 is a prominent frontage, high value London plane tree that has co-evolved with Norway maple tree G growing in the public verge.

Photograph 6: London plane tree 20 viewed from the south east with Norway maple tree G visible in the background (photograph taken in May 2019).

2.10 Plane trees 21 to 24 inclusive form one half of an avenue feature to either side of the main access into the site with the security lodge in the centre. The north western tree, tree 21, is the best developed and grows in the most conspicuous location.

Photograph 7: Plane trees 21 to 24 viewed from the east (photograph taken in May 2019).

2.11 Apple tree 26 and group G27, formed from cypress and yew, are located within the amenity space set back slightly within the factory footprint close to the nitrogen production plant.

Photograph 8: Apple 26 viewed from the west.

Photograph 9: Group G27 showing the declining trees within.

2.12 By way of summary, only those trees growing closer to the boundary are prominent in amenity terms with the primary visual amenity role being played by the trees planted upon the highway verge itself. In the main, the trees form part of deciduous cohesive groups. However, certain trees such as plane trees 20 and 21 are more prominent and conspicuous in individual terms.

2.13 The trees are in varying condition but typically are only in early maturity meaning that many of them have considerable intrinsic longevity. Some, however, are transitional with only a limited contribution and there are obvious gaps in the frontage enabling potential replanting, increasing diversity and, importantly, the age structure to secure long term amenity provision.

3. Development impact

3.1 The proposal is constrained by the existing highway access and location of the security lodge plus the sloping embankments, reducing in level down to the extant car park.

3.2 In order to retain as many trees as is practicable, retaining structures have been incorporated with careful consideration as to their location in relation to the root protection areas of retained trees and ensuring that existing ground levels around the bases of retained trees are not disturbed.

3.3 The new entrance into the car park, carefully informed by vehicle tracking, is located to the south east of retained plane tree 21 with all the construction occurring sufficiently beyond the crown spread and its root protection area to ensure it will not be negatively impacted and may be successfully protected during the construction period.

3.4 The remainder of the plane trees to the north east of the lodge are to be removed to facilitate the proposals. However, the most significant specimen, tree 21, is retained alongside trees 18, 19 and 20, meaning that collectively there will be only limited negative visual impact as a result of the works as the most conspicuous trees are protected and retained.

3.5 Further trees growing upon the slopes of the embankment are to be removed in order to create a level zone for the car park formation.

3.6 A small section of group G9 to the south western tip is also to be removed. However, provision will be made for new woodland thicket mix planting once the ground levels have been remodelled. Trees to the north east of this point remain entirely unaffected by the proposals with the only other area of tree loss being that in the easternmost section where Category C apple tree and Category U group G27 will be lost to facilitate the development.

3.7 Sufficient Landscaping sections have been drawn through the boundary where trees are retained in order to demonstrate where existing ground levels are successfully maintained but also showing the construction zone for the retaining structures as being sufficiently beyond the root protection area to allow for its adequate protection.

3.8 Remaining trees have no significant crown overhang beyond the areas of construction, reducing the likelihood of any conflict during the earthworks and construction process itself.

3.9 New deciduous tree planting is proposed, in particular utilising any opportunity along the site frontage, and in addition a new native hedgerow will be formed beyond the retaining structures and without any detriment to the root protection areas of retained trees.

3.10 Plane tree 21 has a slightly asymmetric crown due to it having co-evolved with further plane trees adjacent to the security lodge. However, being an end of line tree, this specimen has the better developed crown and when viewed from the public frontage will remain visually unaltered.

3.11 By way of summary, tree loss to facilitate the development is shown in Table 1 below.

Tree survey reference	BS5837 Retention Category	Comments
Individual trees		
10	B	
11	B	
12	B	
13	C	
14	B	
15	B	
16	C	Indications of crown decline
17	B	
22	B	
23	B	Suppressed
24	B	Footpath being displaced by near-to-surface rooting
25	C	
26	C	
Groups of trees		
G9	C	South western tip of group removed only.
G27	U	Obscured from frontage. Majority of group dying/compromised.

3.12 All other trees and groups remaining will be protected against negative impact during the development period as per the section below.

4. Construction phase protection

4.1 Following the granting of all necessary permissions, trees approved for removal should be removed (dismantling where required) and self-set groups cleared ahead of construction related activity. The timing of tree works in relation to ecological restrictions will need to be further considered and the methodology for the works will be further considered within a finalised arboricultural method statement.

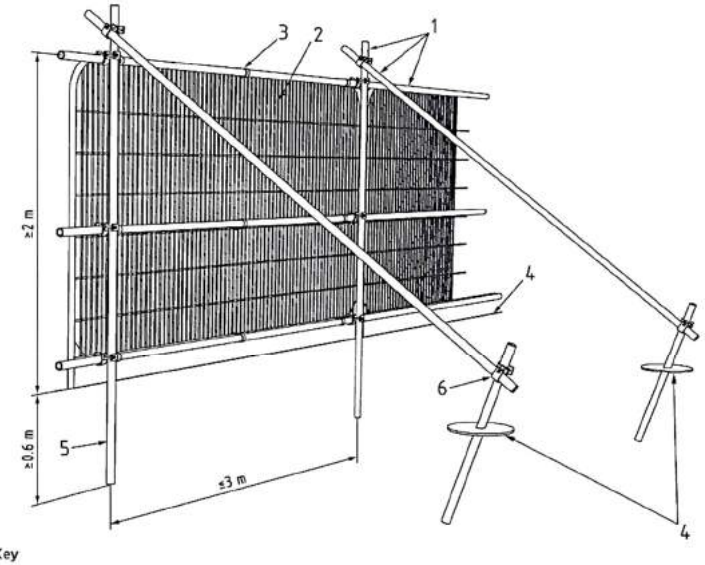
4.2 Immediately following tree works and ahead of any other construction related activity on site, a robust tree protection scheme shall be implemented to protect all remaining trees and their secured root protection areas and/or structural landscaping zones from construction related activity.

4.3 In the unlikely event that any temporary working access is required which encroaches into protected areas, appropriate ground protection measures would be required. Presently, the full extent of the construction exclusion zone is safeguarded.

4.4 The alignment of the tree protection barriers is to accord with the Tree, Retention Protection and Removal Plan.

4.5 The default barrier is to accord with Figure 2 of BS5837:2012.

Extract from BS5837: 2012 *Trees in relation to design, demolition and construction – Recommendations*, Figure 2 Default specification of protective barrier



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

4.6 This robust protection barrier is based upon a scaffold framework with driven vertical posts and diagonal bracing where necessary to ensure the barrier remains fit for purpose throughout the duration of the construction period.

4.7 Once erected, the barrier must be considered sacrosanct and protected areas must not be subject to any form of development related activity, in particular excavation or any ground alterations.

4.8 The protection barrier shall not be removed or the alignment altered or temporarily dismantled without the agreement of the Project Arboriculturalist and, where necessary, the consent of the local planning authority.

4.9 At approximately 10m linear intervals, waterproof signs are to be affixed to the barrier with wording facing the side of construction activity stating: Construction Exclusion Zone – Keep Out.

4.10 The responsibility for monitoring the protection barriers and maintaining them in an appropriate condition throughout the course of development will be clearly assigned to site management personnel and augmented by independent arboricultural monitoring.

4.11 Sheet material and/or wooden hoarding shall not be attached to the barriers where this would hinder monitoring of protected areas behind.

4.12 When working beyond the barrier, consideration must still be given towards activities that may negatively affect the protected soil beyond. This includes the possible spillage of phytotoxic fluids including herbicides, chemicals and oils/fuels along with alkaline concrete/mortar slurry. Such precautions are particularly pertinent due to the sloping ground.

4.13 No fires are to be lit within 10m of any tree protection barriers.

4.14 Whilst welfare facilities may potentially be incorporated into the tree protection barrier, there must be no temporary service connections both above and below ground into protected soil zones.

4.15 Static internal combustion engines such as those associated with generators should not be positioned so that exhaust emissions are directed towards remaining trees.

5. Conclusions

5.1 To implement the scheme, it is necessary to remove a number of Category B and Category C trees. Although retention of these Category B trees would be desirable, they are typically trees set back from the frontage and/or growing at a lower level. In landscaping terms, trees identified for removal are subservient to the more prominent trees towards the boundary of the site, again augmented by the high quality highway trees in the public verge.

5.2 Despite considerable effort at the design stage, greater tree retention is prohibited by the necessary changes in level with many of the existing trees growing upon sloping ground.

5.3 All high value Category A trees are retained and have a suitable juxtaposition to the new car park. In addition, opportunities have been taken for new, high quality tree, hedge and woodland thicket mix planting to help sustain the high contribution of the site's well-landscaped frontage in the long term.

5.4 The development proposals have been sufficiently interrogated to ensure that all retained trees may be robustly and fully protected in accordance with best practice with such safeguarding being secured by conditions attached to any planning grant.

5.5 On the basis that the proposed development accords with the principles of acceptable development and given the scheme ensures the retention of all higher value boundary trees, then upon assessment, the proposal is considered acceptable on arboricultural grounds.

Signed:

Ben Bennett BSc (Hons) For, Cert Arb (RFS), MArborA
Director, BB Trees Ltd

Appendix 1: Pre-Development Tree Survey of July 2021

A1. Tree survey assessment notes

A1.1 This tree survey has been structured to accord with the requirements of Sections 4.4 and 4.5 of British Standard 5837 of 2012: *Trees in relation to design, demolition and construction – recommendations*. The columns in the tree survey assessment refer to the following items:

Tree/Group number: Tree reference number as shown on the associated drawings.

Common name *Botanical name*: Identifies individual species by common name. For avoidance of doubt the botanical name is shown *in italics*.

Tree height: Estimated height of the tree in metres.

Stem diameter: Diameter of the trunk(s) measured in accordance with Annex C of the Standard and expressed in millimetres.

Branch spread: Measured radial spread of the crown broken down into the four main compass points and expressed in metres.

Height above ground level of: Estimated measurement (in metres) to inform on ground clearance, crown/stem ratio and shading presented in two sub-categories:

- First significant branch (at point of attachment with parent stem) and direction of growth (eg 2.4 N).
- Canopy ie assessment of clearance above ground of lowest branch tips. Where irregular, and potentially significant towards development proposal, direction of assessed crown height has been added.

NB: For tree height, stem diameter and branch spread, the measurement conventions are as follows:

- Height and crown spread are recorded to the nearest half metre (crown spread being rounded up) for dimensions up to 10m and the nearest whole metre for dimensions over 10m.
- Stem diameter is recorded in millimetres (using a calibrated girth tape), rounded up to the nearest 10mm (0.01m).
- Estimated dimensions (eg for off-site or otherwise inaccessible trees where accurate data cannot be recovered) are identified by being suffixed with a #.

Life stage: The estimated age: young, semi mature, early mature, mature or over mature, shown as Y, SM, EM, M or OM respectively.

Physiological condition: Physiological condition being good, fair, poor or dead, shown as A, B, C or D respectively.

Structural condition: Structural condition being good, fair, poor or dangerous (eg collapsing, the presence of decay and physical defects), shown as A, B, C or D respectively.

General observations, including preliminary management recommendations: Particularly of structural and/or physiological condition, including further investigations of suspected defects that require more detailed assessment and potential for wildlife habitat.

Estimated remaining contribution in years (RC): <10, 10–20, 20–40 or >40.

Retention category (RC): Categorisation of survey trees in accordance with Section 4.5 and Table 1 of the Standard.

- **U (dark red)**: 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 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 (eg 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.

  NOTE: Category U trees can have existing or potential conservation value that it might be desirable to preserve.

- **A (light green):** Trees of high quality with an estimated remaining life expectancy of at least 40 years.

  Mainly arboricultural qualities: Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups or of formal or semi-formal arboricultural features (eg the dominant and/or principal trees within an avenue). Indicated by 1 in brackets after the appropriate category classification.

  Mainly landscape qualities: Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Indicated by 2 in brackets after the appropriate category classification.

Mainly cultural values, including conservation: Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg veteran trees or wood-pasture). Indicated by 3 in brackets after the appropriate category classification.

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

- **B (mid blue):** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

  Mainly arboricultural qualities: Trees that might be included in category A, but are downgraded because of impaired condition (eg 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. Indicated by 1 in brackets after the appropriate category classification.

  Mainly landscape qualities: 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. Indicated by 2 in brackets after the appropriate category classification.

  Mainly cultural values, including conservation: Trees with material conservation or other cultural value. Indicated by 3 in brackets after the appropriate category classification.

- **C (grey):** Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

  Mainly arboricultural qualities: Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. Indicated by 1 in brackets after the appropriate category classification.

  Mainly landscape qualities: 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. Indicated by 2 in brackets after the appropriate category classification.

  Mainly cultural values, including conservation: Trees with no material conservation or other cultural value. Indicated by 3 in brackets after the appropriate category classification.

Tree 1 to tree G were inspected by Ben Bennett from ground level only on Tuesday 20 July 2021. Weather conditions were dry and bright with good visibility from ground level.

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
1	Broad leafed lime *Tilia platyphyllos*	15	560	N 6.5# E 6.5 S 5 W 5#	2.4 W	0–2.5	EM	A	A	Set back from palisade frontage fence separating survey site from public footpath with crest of steep sided embankment at around 1m on southern side. Congested crown exhibiting good vigour but with only very small diameter deadwood which is not a health and safety concern at present. **Remove basal suckers. Shorten secondary growth over footpath to maintain around 3m clearance.**	>40	A (1+2)
G2	8no birch *Betula spp*	Up to 14	Up to 360	N Up to 5.5 E Up to 5.5 S Up to 5.5 W Up to 5.5	N/A	2–4	EM	B	B	Trees have been established immediately to the rear of the palisade fence with a steep sided 1:1 to 1:2 embankment on the southern side. Trees previously crown lifted on fence side giving significant clearance over public footpath, typically with a slight growth bias into the site. Minor deadwood only. **For tree closest to tree 1, cut back basal suckers and epicormic growth from lowest 2.5m of trunk.** **Remainder of group require no works at present.**	20–40	(B) (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
3	Small leafed lime *Tilia cordata*	12	510	N 5 E 5.5 S 7.5 W 4	1.9 S	2 S	EM	A	B	Restricted rooting architecture with significant near-to-surface roots extending down embankment on southern side. Congested crown with a number of acute branch unions exhibiting some included bark, however crown relatively well sheltered. Small diameter crossing and chafing branches, however crown retains high vigour. **No works required at present.**	>40	A (2+3)
4	Small leafed lime *Tilia cordata*	12	560	N 6.5# E 4 S 7.5 W 7	1.6 S	1 S	EM	C	B	Near-to-surface roots, particularly on western side. Co-dominant crown structure. Suffering slightly from suppression, although generally fair. Reduced crown density, which is less than optimum. However, no current dieback. **Avoid mowing damage to near-to-surface roots.**	>40	B (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
5	False acacia *Robinia pseudoacacia*	14	640	N 8# E 6 S 7 W 6	2.3 S	2–3	M	B/C	C	Heavily reliant upon companion shelter provided by adjacent acacia. Acute main fork at 1.8m. Self-set saplings growing from build up of detritus suggesting likelihood of some decay. **Pay particular attention to main fork during future assessments.** **Retain only alongside dominant acacia tree 6.**	20–40	C (2)
6	False acacia *Robinia pseudoacacia*	17	580	N 6.5# E 5 S 6 W 6	3.5 W	3	EM	A	B#	Dominant false acacia. Trunk bifurcates at 2.2m resulting in an acute main fork with clear open lipped bark seam on southern side (similar but to a lesser extent to the north) indicating a lack of stem fusion. Small to medium sized deadwood within crown, however maintaining fair vigour. **Remove dead and defective branches.** **Install three low stretch cable braces uniting the three stems at around 9–10m above ground level in a triangular configuration.** **Pay particular attention to main fork during future monitoring.**	>40	B (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
G7	False acacia *Robinia pseudoacacia*	Up to 7.5	Up to 110	Up to 4	N/A	0	SM	B	C	Basal sucker regrowth from around perimeter of old felled stump. Inappropriate for future growth in this location. **Cut all suckers to near ground level and chemically treat to abate future regrowth.** **Opportunity for additional replanting adjacent.**	<10	(U)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
8	Ash *Fraxinus excelsior*	17	440# 330# 290# 420#	N 7.5# E 8 S 8.5 W 7#	3 N	1.5–2	EM	B/C	C#	Omitted from topographical survey and approximate only position shown on associated Tree Constraints Plan. Since the previous assessment, the tree has become heavily clad in ivy preventing thorough inspection/ measurement of trunk dimensions. Tree is clearly of coppice regeneration following the felling of a parent tree many years ago located within the dense overgrowing shrubbery. Initially, it appears highly likely that there is a degree of dysfunction and/or decay in the lower trunk structure. Minor deadwood only present in crown. Very early indications of peripheral crown thinning, likely associated with the onset of ash dieback. **Sever and strip ivy from lowest 2m of trunks. Clear any remaining vegetation away from lower trunks and remove any build up of detritus, allowing a thorough inspection.** **Tree appears unsuitable for retention into full maturity due to the heightened risk of individual stem collapse due to its lapsed coppice form.** **RC provisional only.**	10–20	C (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
G9	Norway maple *Ace platanoides* Wild cherry *Prunus avium* Ash *Fraxinus excelsior* Hawthorn *Crataegus monogyna* Hazel *Corylus avellana*	Up to 7	Up to 130	N/A	0	0–1	Y–SM	A–C	B (average)	Group entry relates to self-set tree species present within overgrown shrubbery. All trees have self-seeded with some clearly being of poor and compromised form, rendering them inappropriate for retention into full maturity. **Rogue out inappropriate self-set trees while modest in size, ensuring that cut stumps are directly treated with an appropriate herbicide to limit regrowth.** **Any retained trees should be assessed for suitable formative pruning to maximise their potential long term value.**	10–20	(C) (2)
10	Small leafed lime *Tilia cordata*	10	490	N 6.5 E 7 S 7 W 6	1.8 W	2 (average)	EM	B	B	Somewhat contorted crown that is co-dominant with adjacent lime. Indications of pruning during early establishment at mid-crown height. Lacking a central dominant leading stem above 4.5m. Occasional chafing branches. **No works required at present.**	>40	B (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
11	Small leafed lime *Tilia cordata*	12	480	N 6.5 E 4 S 7 W 4.5	1.8 N	0 S	EM	A	B	Co-dominant crown structure. Significant root flare with disrupted bark but no indications of any dysfunction. Congested crown with small diameter crossing and chafing branches but free from significant defect. **No works required at present.**	>40	B (2+3)
12	False acacia *Robinia pseudoacacia*	13	400	N 4.5 E 3 S 4.5 W 5	2.2 W	2	EM	A	B	Slightly suppressed crown on eastern side, however retaining good form. Small diameter deadwood only in centre of crown. **No works required at present.**	>40	B (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
13	False acacia *Robinia pseudoacacia*	9.5	480	N 4 E 8.5 S 9 W 8#	1.7 S	3 (average)	EM–M	B/C	B	Tree grows to edge of group with a strong bias in a southerly direction. At the base of the trunk on the southern side, there is the start of a necrotic seam of minor decay. First branch at around 1.7m appears to have a less than ideal union with the parent stem and is heavily end weighted. A further fork at 2.2m is acute with a build up of detritus from which there is a self-set hawthorn growing. Viewing the tree within the active growth season, the crown density is considered fair. There is considered to be an increased likelihood of the lowest branch potentially subsiding and shedding, particularly as outer growth becomes more end weighted. Overall, the tree benefits significantly from shelter provided by the following lime. **Acceptable at present as part of wider group. Limited longevity.** **It is recommended that peripheral growth on the lowest primary branch on the southern side be shortened by around 2m in length.** **Deadwood should be removed at the same time.** **Tree should be paid particular attention during future monitoring.**	10–20	C (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
14	Small leafed lime *Tilia cordata*	13–14	560	N 9 E 6 S 7.5 W 8	2.5 W	2.5–3	EM	A	B	Dominant lime tree in immediate grouping. Crown based upon co-dominant stems emerging from around 2.5m above ground level, however union partially obscured from inspection. Crown appears free from any significant defect but is somewhat congested. **No works required at present.**	>40	B (2+3)
15	Small leafed lime *Tilia cordata*	14	370	N 5 E 4 S 5 W 6	2.5 W	3	SM/ EM	B	B	Narrow, drawn up tree with limited radial crown spread but maintaining good vigour. Occasional chafing branch in the southern side of the crown. **No works required at present.**	>40	B (2+3)
16	False acacia *Robinia pseudoacacia*	13	510	N 5 E 5 S 6.5 W 7	1.8 W	3–4	EM	B	B	Growing from the edge of a shrubbery with some shrub stems climbing up against lower trunk. Deadwood beginning to accumulate within crown including on the car park side. Some suspected crown recession noted during previous survey. However, current vigour fair. **Remove dead and defective branches and monitor vigour.**	20–40	C (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
17	Small leafed lime *Tilia cordata*	16	550	N 7 E 6 S 7 W 6.5	1.8 N	3 (average)	EM	A	B	Dominant tree within grouping. Main trunk bifurcates at around 2.6m whereby the co-dominant stems share a slightly acute union with clear signs of included bark to the east. Congested crown with a number of crossing and rubbing branches. **No works required at present. Pay particular attention to main fork during future monitoring.**	>40	B (2+3)
18	Small leafed lime *Tilia cordata*	10	460	N 8.5# E 5 S 7 W 5	1.9 E	2–3	EM	B	B	Low spreading habit due to low fork at 1.8m which has produced a potentially weak union, albeit relatively well sheltered within the group. Tree reliant upon companion shelter. Superficial bark wound on downhill side of trunk. **Crown lift branches hanging low over pavement to give 3m clearance and monitor root heave within pavement surface.** **Retain only as part of wider group. Pay particular attention to main fork during future monitoring.**	>40	C (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
19	Small leafed lime *Tilia cordata*	12	470	N 6.5# E 4 S 6.5 W 7#	1.8 W	2.5	EM	A	B	Asymmetric crown due to being on edge of group. Near-to-surface roots, some of which have inevitably been damaged during mowing operations. Part reliant upon companion shelter. **Retain as part of wider group. No works required at present.**	>40	B (2+3)
20	London plane *Platanus x hispanica*	16	640	N 10 E 9 S 8 W 7.5#	2.4 SW	1	EM	A	A	An open grown specimen with a slight growth list to the north. Previous service trenching at around 5m due east, however no indications of any impact upon the crown. Free from any significant defect. **Crown lift branches hanging low over pavement to give 3m clearance and monitor root heave within pavement surface.**	>40	A (1+2)
21	London plane *Platanus x hispanica*	17	680	N 9.5 E 9.5 S 7 W 9	3 W	3–4	EM	A	A	End specimen in a line of four contemporary plane trees. Recently installed service chamber at around 2.5m. Occasional dead branch including some small hung up dead branches. Light ivy now cladding trunk to 3m above ground level. **Crown lift all round to give approximately 4m clearance above ground level. Remove remaining significant deadwood.**	>40	A (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
22	London plane *Platanus x hispanica*	16	510 over light ivy	N 7 E 7 S 6.5 W 7	2.8 SE	3 (average)	EM	B	B	A drawn-up tree with a co-dominant crown structure that has previously been pruned on the road side, however often cutting internodally. Part reliant upon companion shelter and its value is as a component of a wider group. Lightly clad in ivy to around 3m above ground level. Regenerating well following previous pruning. **Sever ivy.**	>40	B (2)
23	London plane *Platanus x hispanica*	15–16	510 over ivy	N 7 E 6 S 6 W 7#	3.5 E	3–4	EM	B/C	B/C	Suppressed tree with flattened crown architecture. Numerous dead/dying back lower branches; some with the saprophytic fungus Jew's ear present. Ivy growing rampantly, indicating tree is heavily suppressed. **Remove dead and defective branches. Sever ivy and allow to die back.** **Pay particular attention to tree during future monitoring.** **Tree's value is as a component of a wider group rather than individual contribution.**	20–40	C (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
24	London plane *Platanus x hispanica*	16	620 over ivy	N 7.5 E 9.5 S 9# W 9–10#	2.5 N	3 (average)	EM	A	B	An end specimen in a line of four plane trees with a slightly suppressed crown on the northern side. Ivy growth becoming dense to around 5m above ground level. To a distance of 2.5m on the southern side, a substantial (130mm in diameter) near-to-surface root is evident. It is apparent that an area of localised footway repair has been required, however the current cast-in-situ concrete is becoming displaced, likely due to near-to-surface rooting. Branches previously selectively shortened on the side of the security lodge. Minor deadwood only present. **Clear shrubbery from around base. Sever ivy and strip from lower trunk.** **Remove dead and defective branches.**	>40	B (2+3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
25	False acacia *Robinia pseudoacacia*	15	580# over ivy	N Up to 6 E Up to 6 S Up to 6 W Up to 6	3.6 N	3 (average)	M	B	B#	Becoming festooned in ivy, obscuring the lowest 6m of the main structure from assessment/measurement. Where visible, the upper crown retains reasonable vigour with only very small diameter deadwood. **Cut back shrub bed. Clear ground ivy and strip as much as is practicable from the trunk of the tree.** **Pay particular attention to tree during future monitoring. RC provisional only.**	20–40	C (2)
26	Apple *Malus domestica ssp*	4.5	280	N 4.5 E 4.5 S 4.5 W 4.5	N/A	0.5	M	B	B	Trunk has a list to the south east towards adjacent nitrogen production plant. Low mop-headed crown with limited room for mowing beneath. Heavily congested with multiple crossing and chafing branches but maintaining good vigour. Minor woolly aphid infestation. **No works required at present.** **If required, crown lift to give around 1.3m clearance beneath circumference.**	10–20	C (3)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Height above ground level (m) of: Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	General observations, including preliminary management recommendations: Structural condition	General observations, including preliminary management recommendations	RC (years)	Category
G27	Cypress *Cupressus spp* Elder *Sambucus nigra* English yew *Taxus baccata*	Up to 7	140–290#	2–3 (average)	N/A	0–1	SM–EM	C–D	B–D	Planted as what is assumed to have been a low level screen around underground tank. Elder of self-set origin and it appears likely the yew is also self-set. Trees on the northern side of the group, in particular, show significant crown stress which has been ongoing for a number of years, likely due to hostile rooting environ. The trees to the northern side of the group have continued to decline, currently being between 70% and 80% dead and approaching a moribund state. **Collectively, the grouping is of minimal arboricultural merit.** **Dying/dead trees should be removed.**	<10	(U)

Trees growing within the public highway verge with alphabetical reference as shown on associated Tree Constraints Plan

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
A	Norway maple *Acer platanoides*	11	520	N 7 E 6.5 S 5 W 7	2.8 W	2.5–3	EM	A	B	Minor damage to root buttresses. Small diameter internal deadwood. **Deadwood should be removed.**	>40	A (2)
B	Norway maple *Acer platanoides*	14	580	N 7 E 7 S 6 W 8	2.4 W	2.5	EM	B	A	Dominant tree of excellent form. Slight girdling root buttress. Small diameter deadwood. **Remove deadwood from crown.**	>40	A (2)
C	Norway maple *Acer platanoides*	14	450	N 6 E 6 S 6 W 6	2.6 W	2.5–3	EM	B/C	B	Small diameter deadwood in crown only including some failed and hung up branches. Minor damage to root buttresses. Slight peripheral crown dieback. However, current crown density appears fair. **Remove dead and defective branches and monitor.**	>40	A (2)
D	Norway maple *Acer platanoides*	14	530	N 7 E 7 S 7 W 7	2.6 S	2.5	EM	B	B	Minor historic damage to root buttresses. Minimal heave to tarmac pavement surface. **Crown lift all round to give 3m clearance. Remove dead and defective branches.**	>40	B (2)

Tree/ Group number	Common name *Botanical name*	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of: First branch	Canopy	Life stage	General observations, including preliminary management recommendations: Physiological condition	Structural condition		RC (years)	Category
E	Norway maple *Acer platanoides*	9–10	390	N 6 E 6 S 6 W 6	2.6	2.5	EM	B	B	Four runs of light deflection by way of tarmac heave within the footway surface. **Crown lift to give 3m clearance over pavement. Monitor tarmac heave.**	>40	B (2)
F	Norway maple *Acer platanoides*	9.5	490	N 6.5 E 6.5 S 6.5 W 6.5	2.6 S	2.5	EM	B	B	Minor runs of tarmac heave within footway surface with roots clearly spreading into adjacent Jacobs Douwe Egberts site. Low consolidated crown. Slight thinning of crown, particularly on northern side. Crown hanging low over pavement. **Crown lift to give 3m clearance over pavement. Monitor tarmac heave.**	>40	B (2)
G	Norway maple *Acer platanoides*	16	560	N 8 E 7# S 7 W 8	2.8 S	2.5 (average)	EM	A	A	Runs of surface heave within adjacent footway and historic damage to near-to-surface roots/buttress region. Minor deadwood within centre of crown. Existing services within root protection area radius. **Crown lift all round to give 3m clearance. Monitor tarmac heave.**	>40	A (2)

Appendix 2: Preliminary Arboricultural Method Statement

Pre-commencement tree works

A2.1 Tree removal is strictly to be in accordance with the Tree Retention, Protection and Removal Plan. The need for any access facilitation pruning is unlikely but is to be further considered in light of detailed design.

A2.2 In general terms, all tree works are to comply with BS3998:2010 *Tree work – Recommendations* wherever applicable and is to be undertaken by a specialist and suitably qualified arboricultural contractor.

A2.3 Wherever possible, tree works, in particular the removal of dense tree groups with overgrown ground vegetation, are to be specified for actioning outside of the closed bird nesting season, typically extending from March until July. Should any tree works be required within this period then further specialist ecological advice should be sought. It is also appropriate to consider any other ecological restrictions due to protected species which may apply to the site.

A2.4 Tree works are to be subject to future arboricultural advice to ensure that any necessary consents are in hand, which is particularly pertinent to tree works to be undertaken ahead of the granting of full detailed planning permission.

A2.5 Should stump removal be required within the root protection area of any remaining trees (including those within the highway verge), such stumps should be removed using a specialist arboricultural stump grinder to ensure roots for remaining trees are not unacceptably damaged.

Ground protection

A2.6 It is intended to fully safeguard all protected zones by virtue of a robust protection barrier erected to the outer edge of the root protection area. Should temporary construction access be required into these areas then the need for ground protection must be further considered.

A2.7 Any excavation for trenches associated with new services are to occur beyond the root protection area of any remaining tree or group as identified on the Tree Constraints Plan.

Landscaping within root protection areas

A2.8 Substantial planting pits associated with new trees have been avoided within the root protection area of any remaining trees or vegetation. Any landscaping proposed within protected zones is to be undertaken without deep mechanical cultivation, typically being restricted to planting of only small whips or cell grown trees or shrubs.

Arboricultural monitoring

A2.9 Arboricultural monitoring and future input is envisaged. This shall include providing a detailed specification for any necessary tree works including the identification of trees on site if necessary. The Project Arboriculturalist shall also confirm the correct installation of the tree protection scheme prior to the commencement of the main construction activity and will also undertake monitoring visits.

A2.10 Should at any stage of construction activity, it appear that to proceed with the approved development will result in conflict with retained trees then further arboricultural advice must be sought by contacting Ben Bennett at ben@bbtrees.co.uk or 07949 797656.

Earthworks Specification

LANDSCAPE EARTHWORKS SPECIFICATION

SITE 2 BANBURY

Jacobs Douwe Egberts,

Ruscote Avenue

Banbury

OX16 2QU

Barry Chinn Associates Limited
Harbury Road, Deppers Bridge
Southam, Warwickshire, CV47 2SZ

Reference:	1953/19/SP01 Rev A
Date:	29/07/21
Author:	JG
Checked:	MB

1.0 DRAWING REFERENCES

This Earthworks Specification is to be read in conjunction with Barry Chinn Associates earthworks drawings 1953/19/09 & 10 (*when available*).

2.0 EXISTING SITE TOPSOIL AND SUBSOIL

The existing site topsoil and subsoil has not been tested, it is not known if there is any existing topsoil of suitable quality available on site for re-use in the soft landscape areas.

NOTE:

The Main Contractor must confirm to Whiting Landscape Ltd in writing prior to commencement of the soft works that the earthworks have been prepared in accordance with the earthworks drawings.

Failure to do so will invalidate Whiting Landscape Ltd's Defects Liability under the contract.

3.0A TOPSOIL

TOPSOIL SHALL HAVE THE FOLLOWING CHARACTERISTICS FOR SUITABLE PLANT DEVELOPMENT:

1. Texture

   Sand (0.063-2.00mm) - maximum 85%, minimum 50%
   Silt (0.002-0.063mm) - maximum 45%, minimum 5%
   Clay (< 0.002mm) - maximum 27%, minimum 5%

2. Stone Content

   Stone content to be not more than 35% by dry weight of which the fraction 2 mm - 5 mm must not exceed 20% by dry weight. Maximum particle size in any dimension 50mm for trees and shrubs, and 20mm for turfing or seeding.

3. Organic Matter

   Organic content to be 4-15% by dry weight to BS3882:2015 method.

4. Soil Reaction

   pH to be between 5.5 and 8.5.

5. Electrical Conductivity Values

   Conductivity to be between 100-1500 microSeimens per cm when expressed on a 1:2.5 (w/v) soil/water extract.

   Conductivity to be below 3300 microSeimens per cm when expressed on a 1:2 (w/v) soil/$CaSO_4$ extract.

6. Nitrogen

   Nitrogen (N) content to be not less than 0.15% by the Dumas method.

7. Phosphorus

Extractable phosphorus (P) content to be between 26 - 100 mg/kg by the MAFF Handbook RB 427 method.

8. Potassium

Extractable potassium (K) content to be between 240 – 1500 mg/kg by the MAFF Handbook RB 427method.

9. Magnesium

Extractable magnesium (Mg) content to be not less than 50 mg/kg by the MAFF Handbook RB 427 method.

10. Foreign Matter

Soil to be free from non-soil material, brick and other building materials and wastes, potential sharps, hydrocarbons, plant matter, roots of perennial weeds and any other foreign matter.

11. Structure

Soil to have a clearly defined crumb, granular or blocky structure and not to be waterlogged, anaerobic or over compacted.

12. Potential Contaminants

The Soil Analysis suite specified in Clause 6.0 includes commonly occurring potential contaminants. In accordance with BS3882:2015 Table 1, Notes 3 and 4: *concentrations of contaminants shall not present excessive risk to human health or the environment.* The contaminants analysed should reflect the intended end use of the site where the topsoil is to be used, for example residential or commercial use.

(See Appendix A for list of Generic Assessment Criteria for commercial and residential use. Exceedence of relevant criteria should be reviewed by soil consultancy through quantitative risk assessment relating to site end use).

3.0B IMPORTED SUBSOIL (IF REQUIRED)

Imported subsoil shall have the following characteristics:

1. Texture

Sand (0.063-2.00mm) - maximum 90%, minimum 65%
Silt (0.002-0.063mm) - maximum 35%, minimum 5%
Clay (< 0.002mm) - maximum 20%, minimum 5%

2. Stone Content

Stone content to be not more than 35% by dry weight. Maximum particle size in any dimension 75mm.

3. Organic Matter

Organic content to be less than 1.5% by dry weight to BS8601:2013 method.

4. Soil Reaction

pH to be between 5.5 and 8.5.

5. Electrical Conductivity Values

Conductivity to be below 1500 microSeimens per cm when expressed on a 1:2.5 (w/v) soil/water extract.

Conductivity to be below 3300 microSeimens per cm when expressed on a 1:2 (w/v) soil/$CaSO_4$ extract.

6. Foreign Matter

Soil to be free from non-soil material, brick and other building materials and wastes, potential sharps, hydrocarbons, plant matter, roots of perennial weeds and any other foreign matter.

7. Structure

Soil to have a clearly defined crumb, granular or blocky structure and not to be waterlogged, anaerobic or over compacted.

8. Potential Contaminants

The Soil Analysis suite specified in Clause 6.0 includes commonly occurring potential contaminants. In accordance with BS8601:2013 Clause 4.2, Notes 2 and 3: *concentrations of contaminants shall not present excessive risk to human health or the environment.* The contaminants analysed should reflect the intended end use of the site where the subsoil is to be used, for example residential or commercial use.

(See Appendix A for list of Generic Assessment Criteria for commercial and residential use. Exceedence of relevant criteria should be reviewed by soil consultancy through quantitative risk assessment relating to site end use).

4.0 SOURCE

The Main Contractor shall advise Whiting Landscape of the supply source and existing use of the topsoil and subsoil. If requested the Main Contractor shall take Whiting Landscape to view the proposed topsoil/subsoil at source.

5.0 TOPSOIL ASSESSMENT

Each source shall be analysed by an approved soil science consultancy. A copy of this document, together with details of the proposed landscape design (drawings, planting list, etc) and any ground investigation reports, shall be provided with the samples for review by the soil scientist and for reference within the topsoil/subsoil assessment report.

Each sample shall be truly representative of the topsoil/subsoil being offered. A composite sample shall be taken for every 250m^3 of soil being offered, with a minimum of 3 No. samples per source. Each composite sample is to be made up of 10 No. sub-samples taken from evenly spaced locations across the field / stockpile. The sub-samples shall be mixed together to form a 2kg composite sample.

The Main Contractor shall obtain a sample load of each approved topsoil/subsoil source of not less than five cubic metres for inspection by Whiting Landscape. The accepted sample is to be retained on site for comparison with the subsequent loads. Prior to inspection by Whiting Landscape the sample must have been analysed in accordance with the requirements of the soilanalysis clause below.

6.0 SOIL ANALYSIS

The Main Contractor shall provide a topsoil/subsoil analysis report from the soil science consultancy. Each composite topsoil/subsoil sample shall be placed in a plastic bag, labelled with name and details of origin and sent to the soil science consultancy with a request for the following tests to be carried out:

1. Visual examination to record: Munsell colour, structure, consistency, stone size and shape, presence of any deleterious materials
2. pH Value
3. Electrical Conductivity (water and calcium sulphate extracts)
4. Mechanical Analysis (clay, silt, sand)
5. Stone Content (>2mm, >20mm, >50mm)
6. Total Nitrogen (topsoil only)
7. Extractable Phosphorus, Potassium & Magnesium (topsoil only)
8. Organic Matter
9. Heavy Metals - As Cd Cr Pb Hg Se Cu Ni Zn B
10. Total Cyanide
11. Phenol
12. PAHs (speciated US EPA 16)
13. Aliphatic and aromatic TPH banding (C5-C35)

The results shall be presented in an interpretive report which shall comment on the suitability of the topsoil/subsoil for the proposed landscape design. The report shall also provide recommendations to improve the topsoil/subsoil, where necessary, including compost, fertiliser and lime applications.

Whiting Landscape may ask for additional tests (eg. permeability, detailed sand analysis, porosity), should it be considered necessary.

7.0 APPROVED SOIL SCIENCE CONSULTANCIES

Tim O'Hare Associates LLP
Howbery Park
Wallingford
Oxon
OX10 8BA
T: 01491 822653
E: tim.ohare@toha.co.uk
W: www.timohare-associates.com
Contact: Tim O'Hare

Land Research Associates Ltd.
Lockington Hall
Lockington
Derby
DE74 2RH
T: 01509 670570
E: mike.palmer@lra.co.uk or laura.thomas@lra.co.uk
W: www.lra.co.uk
Contact: Mike Palmer or Laura Thomas

8.0 VEGETATION TO BE RETAINED

The Main Contractor shall take the necessary measures to prevent damage to existing vegetation, and unless otherwise instructed by Whiting Landscape, retain existing levels beneath the canopy of existing trees.

Where so instructed by Whiting Landscape the Main Contractor shall protect existing vegetation by the erection of fencing in accordance with the Tree Protection Fencing drawings or in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations.

9.0 TOPSOIL STRIP

The site topsoil which is to be retained for later use shall be stripped and stock piled. The following method shall be used:

1. During suitable dry weather conditions the existing vegetation shall be treated with herbicide in accordance with the clause for herbicide treatment below.

2. Clear site of foreign materials.

3. During suitable dry weather conditions (ie when the topsoil is friable and not plastic) strip topsoil down to its full natural depth, taking care to avoid contamination with subsoil or foreign materials.

10.0 TOPSOIL STORAGE

Storage Period

Topsoil for use on the site shall be stored for as short a period as practicable. Existing topsoil shall not be stored for more than 18 months.

Stockpile

Topsoil stockpiles shall be graded to shallow falls over as large an area as practical, to a maximum height of 3 metres unless otherwise instructed by the Soil Scientist.

Weed Control

The Main Contractor shall carry out broad-leaved weed control to the topsoil storage mound using a suitable selective, translocated, non-residual herbicide spray. Herbicide spray to be carried out 3 no times during early May, early July and early September. Refer to clause for herbicide treatment below.

11.0 FORMATION LEVEL AND SUBSOIL PREPARATION

Prior to preparation of formation level, the subsoil shall be completely cleared of all weed growth by the main contractor using an approved herbicide in accordance with the clause for herbicide treatment below.

The site shall be brought to formation level by the main contractor using an approved subsoil material. All soil handling should be carried out when the soil is sufficiently dry and not plastic.

The subsoil shall be decompacted to a depth of at least 300mm in grass and ornamental shrub areas and 300mm in woodland/thicket/hedge planting areas (increased to 600mm for heavy/ clay soils) to ensure the areas are free draining and be completely free of all rubbish, bricks and concrete.

For small planting beds and areas of restricted access, decompaction may be carried out by hand or a small (1-5 tonne) to medium sized (13 tonne) tracked excavator, fitted with a ripper tine attachment, shall be used. On larger, open areas a tractor mounted rigid tine harrow (300mm depth) or subsoiler (600mm depth) shall be used.

The base of tree pits should be decompacted to a depth of at least 300mm and checked to ensure that they are free draining.

The Main Contractor shall obtain Whiting Landscape acceptance of formation levels and subsoil preparation prior to the commencement of topsoiling.

Soil Depths

Minimum subsoil depths are to be as follows:

i in shrub bed areas 300mm

ii in thicket areas 600mm

iii in grassed areas 300mm

iv in wildflower areas 150mm

Topsoil depths are to be as follows:

i in tree pits 300mm

ii in shrub bed areas 300mm

iii in thicket areas 300mm

iv in grassed areas 150mm

Tree Pits

The Main Contractor shall provide short stakes to mark the exact positions of tree pits for acceptance by Whiting Landscape prior to pit excavation and retain in the same position after topsoiling.

(Refer to Appendix C; Typical Tree Pit Detail In Soft Landscape).

Tree pits are to be:

1500 x 1500 x 900 overall depth; (18-20cm)

12.0 SPREADING TOPSOIL

Soil Handling & Weather

Soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency (at least 5% below the Lower Plastic Limit).

Topsoil shall not be unnecessarily compacted by trampling or trafficking by site machinery. Topsoil handling shall be stopped during and after heavy rainfall, and not continued until the soil is again non-plastic in consistency.

Depths

Topsoil depths and finished levels are to be as indicated on the Earthworks Layout and Sections drawings.

Ground Modelling

(Refer to Appendix B; Typical Section Through Ground Modelling). There shall be no ponding hollows within ground modelling.

Gradients

Finished gradients are to be smooth, flowing, free of minor hollows and high spots and marry in neatly with paving, kerbs, edgings, manhole covers and existing levels. Refer to Earthworks Layout and Sections drawings for landform levels and profiles.

Inspection Covers

Inspection covers to be inclined to marry with adjacent earthworks profiles and levels.

The minimum topsoil depth to be achieved over concrete manhole slabs (where constructed) shall be 300mm depth in shrub areas and 150mm depth in grass areas. This should be achieved by raising covers on brickwork (refer to attached typical section through ground modelling).

Inspection covers should be located in either shrub or grass areas a minimum of 750mm from the edge of either finish.

If the covers are square or rectangular they should be positioned so they are parallel to the adjacent edge (grass edge, kerb edge, footpath edge, building line, etc.). If distant from edges covers shall be parallel to the contours.

Contamination

Any areas of topsoiling that are contaminated with subsoil, rubbish, bricks, concrete, tarmac and other deleterious material shall be removed by the Main Contractor in the course of carrying out the earthworks.

The Main Contractor shall be required to carry out stone picking to all topsoiling to ensure it is free from all stones greater than 50mm.

Compaction

Topsoiled areas shall be in an uncompacted and uncontaminated state prior to setting out of shrub and grass areas.

13.0 SUBSOIL MATERIAL FOR WILDFLOWER/GRASSLAND AREAS

Areas to be wildflower seeded are to be covered with 300mm depth well graded selected low fertility material which shall be suitable for the cultivation operations proposed, to achieve a fine tilth for seeding. Proposed material may be tested to confirm that it is suitable for use for the specified seed mixes and free from contamination and injurous, notifiable or noxious weeds.

The subsoil shall be decompacted to a depth of at least 200mm to ensure the areas are free draining and be completely free of all large lumps of clay, rubbish, bricks and concrete. Subsoiled areas shall be completely cleared of all weed growth using an approved herbicide in accordance with the clause for herbicide treatment below. A sample area of subsoil shall be prepared for approval prior to preparation of remaining areas.

14.0 HERBICIDE TREATMENT

Use of chemicals shall comply with the **Plant Protection Products (Sustainable Use) Regulations 2012** and **Codes of Practice** prepared jointly by the Department for Environment, Food and Rural Affairs (DEFRA), the Health and Safety Commission (HSC) and the National Assembly for Wales Environment, Planning and Countryside Department. All herbicides shall be on current list of approved products.

Storage, handling and application of chemical shall be in accordance with the manufacturers' instructions. The Contractor shall be responsible for any damage caused by spray drift and will make good at own expense.

Sufficient time for herbicide to be effective shall be allowed to elapse between application of herbicide and the commencement of any stripping or grading works.

APPENDIX A; POTENTIAL CONTAMINANTS – GENERIC ASSESSMENT CRITERIA (GAC)

The following Generic Assessment Criteria (GAC) should be used as Tier 1 screening values for the assessment of topsoil and subsoil, unless Site-Specific Assessment Criteria (SSAC) are available for the site where the soil(s) is to be used. In circumstances where any of these values are exceeded, further risk assessment and/or testing should be undertaken to confirm the significance of the non-compliance.

	Commercial	Residential	
Inorganic Arsenic	<640	<37	mg/kg
Cadmium	<190	<11	mg/kg
Chromium III	<8600	<910	mg/kg
Chromium VI	<33	<6	mg/kg
Lead	<2330	<200	mg/kg
Inorganic Mercury	<58	<1.2	mg/kg
Selenium	<12000	<250	mg/kg
Copper	<100	<100	mg/kg
Nickel	<60	<60	mg/kg
Zinc	<200	<200	mg/kg
Soluble Boron	<3	<3	mg/kg
Total Cyanide	<20	<20	mg/kg
Phenol	<760	<550	mg/kg
Acenaphthene	<84000	<210	mg/kg
Acenaphthylene	<83000	<170	mg/kg
Anthracene	<520000	<2400	mg/kg
Benz[a]anthracene	<170	<7.2	mg/kg
Benzo[a]pyrene	<35	<2.2	mg/kg
Benzo[b]fluoranthene	<44	<2.6	mg/kg
Benzo[ghi]perylene	<3900	<320	mg/kg
Benzo[k] fluoranthene	<1200	<77	mg/kg
Chrysene	<350	<15	mg/kg
Dibenzo[ah]anthracene	<3.5	<0.24	mg/kg
Fluoranthene	<23000	<280	mg/kg
Fluorene	<63000	<170	mg/kg
Indeno[123-cd]pyrene	<500	<27	mg/kg
Naphthalene	<190	<2.3	mg/kg
Phenanthrene	<22000	<95	mg/kg
Pyrene	<54000	<620	mg/kg

***Petroleum Hydrocarbons**

	Commercial	Residential
Aliphatics	mg/kg	mg/kg
EC 5-6	<3200	<42
EC >6-8	<7800	<100
EC >8-10	<2000	<27
EC >10-12	<9700	<130
EC >12-16	<59000	<1100
EC >16-35	<1600000	<65000

Aromatic		
EC 5-7 (benzene)	<26000	<70
EC >7-8 (toluene)	<56000	<130
EC >8-10	<3500	<34
EC >10-12	<16000	<74
EC >12-16	<36000	<140
EC >16-21	<28000	<260
EC >21-35	<28000	<1100

APPENDIX B; TYPICAL SECTION THROUGH GROUND MODELLING

Formation level shall be completely free off all rubbish, bricks and concrete and shall be decompacted using a tined ripper (300mm depth or subsoiler (which should be increased to 600mm depth for heavy/ clay soils) prior to any topsoiling taking place to ensure free drainage and plant root penetration. For small areas de-compaction may be carried out by hand or tracked excavator fitted with ripper tine attachment.

300mm depth topsoil to shrub, native thicket and hedge planted areas.

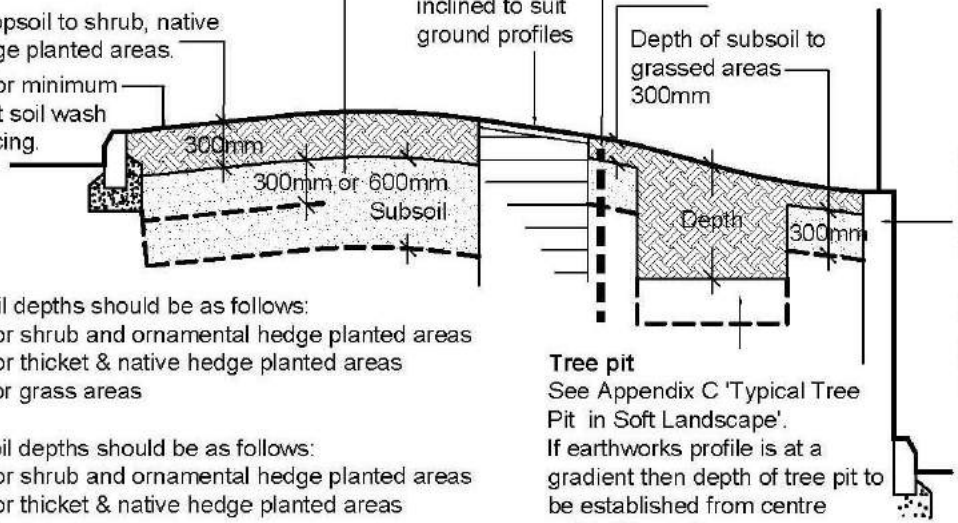
1 in 10 margin for minimum of 1m to prevent soil wash onto hard surfacing.

Rootbarrier installation if required to protect drainage apparatus, ducting or utilities if within 3m of proposed tree pits (Main Contractor site Engineer to confirm requirement)

Manhole covers inclined to suit ground profiles

Depth of topsoil to grassed areas 150mm

Depth of subsoil to grassed areas 300mm



Slopes to be concave, not convex, without ponding and hollows

Unless advised otherwise by Engineer: 1 in 3 max. gradient for slopes to accomodate grass/shrub planting, 1 in 3 max. gradient for slopes to accomodate tree planting.

Engineer to input advise on slope / topsoil stability at whatever gradient.

Slope stabilisation/retaining structure required if unsupported earthworks profile gradient exceeds 1 in 3 subject to landscape treatment.

Slope stabilisation/retaining structure to have specialist design input. Safety rail to top of structure to be provided if required.

Generally topsoil depths should be as follows:
300mm Depth for shrub and ornamental hedge planted areas
300mm Depth for thicket & native hedge planted areas
150mm Depth for grass areas

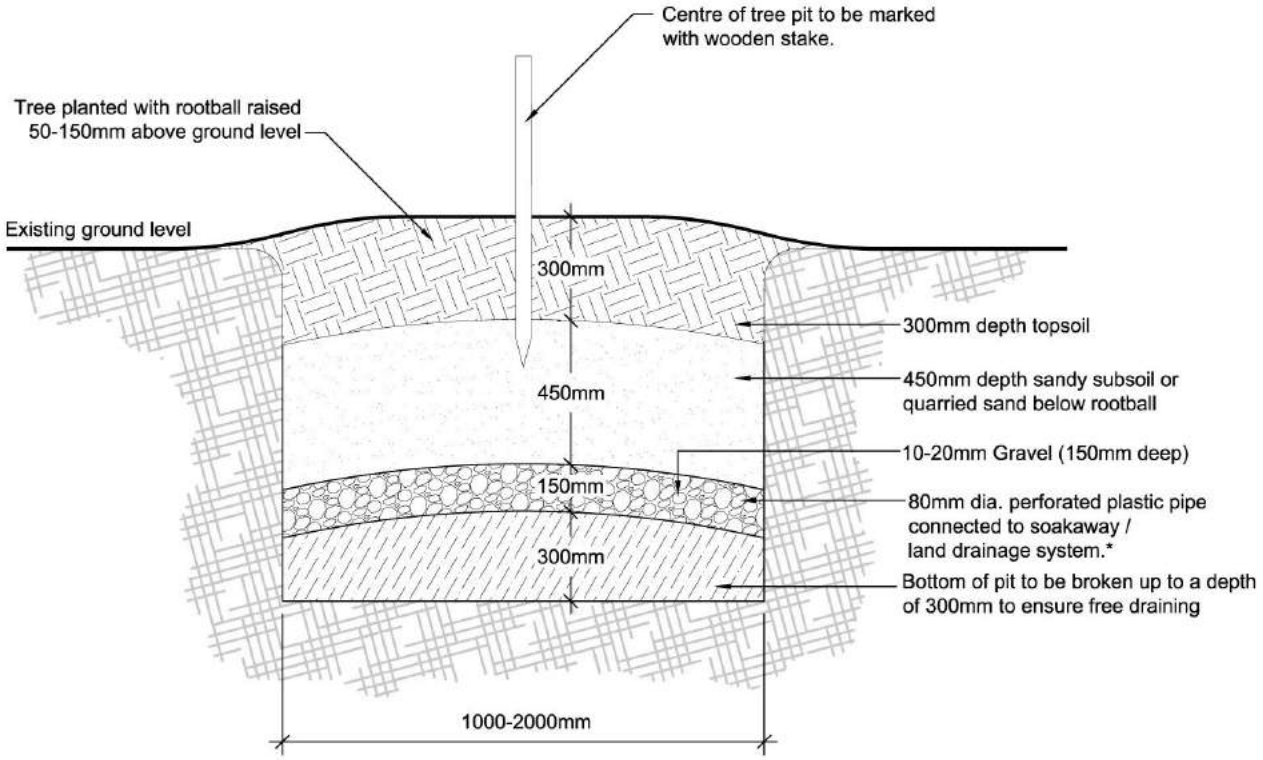
Generally subsoil depths should be as follows:
300mm Depth for shrub and ornamental hedge planted areas
600mm Depth for thicket & native hedge planted areas
300mm Depth for grass areas

Tree pit
See Appendix C 'Typical Tree Pit in Soft Landscape'.
If earthworks profile is at a gradient then depth of tree pit to be established from centre point of tree pit.

Finished levels are to be smooth and flowing, free of minor hollows and high spots, and to marry neatly with paving, kerbs, edgings, manhole covers and existing levels to be retained. Manhole covers to be inclined to marry with ground modelling.

Tree pit sizes to be as specification. To be 300mm depth topsoil with 450mm depth sandy subsoil or quarried sand below rootball (over 150mm depth gravel drainage layer if ground conditions require). Base of tree pit to be broken up/de-compacted to a depth of 300mm to assist free drainage

APPENDIX C; TYPICAL TREE PIT DETAIL IN SOFT LANDSCAPE



NOTE:
TREE PIT SIZES:

Tree pit dimensions will vary depending on rootball size as below:

1000 x 1000 x 750mm overall depth:
(300mm depth topsoil, 450mm depth subsoil, additional 150mm depth of gravel may be required if permeability poor)
Selected Standard Trees 10-12cm stem girth;
Heavy Standard Trees 12-14cm stem girth;
Extra Heavy Standard Trees 14-16cm stem girth.

1500 x 1500 x 900mm overall depth:
(300mm depth topsoil, 450mm depth subsoil, 150mm depth gravel)
Extra Heavy Standard Trees 16-18cm stem girth;
Extra Heavy Standard Trees 18-20cm stem girth.

2000 x 2000 x 1000mm overall depth:
(300mm depth topsoil, 550mm depth subsoil, 150mm depth gravel)
Semi-Mature Trees 20-25cm girth;
Semi-Mature Trees 25-30cm girth.

***TREE PIT DRAINAGE:**
Requirement for drainage will be dependent on permeability of the ground. To be confirmed when ground conditions are known.

Maintenance and Managment Plan

SOFT LANDSCAPE WORKS MAINTENANCE AND MANAGEMENT PROPOSALS

JACOB DOUWE EGBERTS, RUSCOTE AVENUE BANBURY – SITE 2

Prepared on behalf of

BCA BARRY CHINN associates Landscape Architects

Reference:	1953/19/RP01 rev F
Date:	29/07/2021
Author:	JG
Checked:	MB

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DRAWING TITLE	SCALE	DRAWING NO.	REV
LANDSCAPE CONCEPT PLAN	1:250	1953-19-05	H
LANDSCAPE CONCEPT SECTIONS	1:200	1953-19-06	E

MAINTENANCE AND MANAGEMENT STATEMENT
(REFER TO APPENDIX C FOR BCA DRAWING 1953-19-05H & 06E)

The establishment and future success of the external landscape is largely dependent on the standard and frequency of the subsequent maintenance and management it receives. Throughout the development period and thereafter a maintenance and management regime will be adopted with the following aims and objectives.

The aims and objectives of the landscape maintenance and management will be:

a. To ensure the successful establishment and continued growth through to maturity of the Soft Landscape scheme shown on drawing no. 1953-19-05H - Landscape Concept Plan.

b. To ensure the successful establishment and retention of effective landscape buffer planting, particularly along the Ruscote Avenue.

c. To secure a long term future for the existing trees and new tree and thicket planting with particular emphasis upon achieving enhancement of ecological potential, conservation and visual amenity.

d. To achieve rapid establishment of the plant material with resultant total ground cover, thereby suppressing weed growth and reducing maintenance requirements.

e. To retain the natural growth form and maximise the seasonal potential of individual species by the pruning methods adopted.

f. To manage the landscape in a manner convivial with the safety of site users, such as maintaining visibility splays and the removal of dead, dying or diseased tree branches.

g. To ensure the successful establishment and continual enhancement of the soft landscape areas in accordance with ecological principles to increase the overall bio-diversity of the site.

The soft landscape will, for the initial 1 year after Practical Completion, be maintained by the Landscape Contractor responsible for implementation of the works. The contract will include a defects liability clause to ensure replacement planting is carried out and successful establishment achieved. Refer to Appendix A for the schedule of maintenance for year 1. Thereafter maintenance contracts will be organised by facilities management on an annual basis.
The maintenance and management matrix (Appendix B) provides information the general techniques and methods to be adopted for the ongoing maintenance operations.

These will be reviewed at regular intervals to respond to natural or man-made changes in the environment which affect the landscape types (eg. tree disease).

The above approach will ensure that the quality of the landscape infrastructure created in the early years can be maintained for the benefit of visitors to Banbury – Site 2 as well as providing a benefit to persons who live near and pass by the boundaries. In addition it will ensure that the landscape develops to maximise the ecological potential of the proposals.

APPENDIX A

YEAR 1 MAINTENANCE SCHEDULE

	YEAR 1 LANDSCAPE MAINTENANCE SCHEDULE	**Frequency**
	DESCRIPTION	
	During the initial twelve month period after Practical Completion.	
	Note: Allow for twenty-two maintenance visits (18 during the growing season, 4 during the dormant season). A visit shall be defined as the period of time required by the Contractor to carry out all maintenance items specified in the Schedule of work below.	
A	**GENERAL**	
A.1	Tidy up areas removing rubbish, litter, etc., from planted and grassed areas.	At each visit
A.2	Check that the plant material is firmly planted and firm in where required.	6 times
A.3	Treat pests and diseases by agreement with the Contract Administrator.	As necessary
A.4	Prune woodland transplants / shrubs as necessary to avoid conflict with footpaths, grass mowing, etc.	As necessary
A.5	Ensure herbicide is not a 'Round Up' product	At each visit
B	**EXISTING TREES**	
B.1	Selective pruning and any other required arboricultural works to be carried out on any dead and dangerous trees / branches, particularly within falling distance of buildings and footpaths as necessary. (If achievable works to be targeted outside of the bird nesting season (March – September inclusive) Arising's to be relocated locally to a suitable location and formed into deadwood piles for use by species living on dead and decaying wood. Excessive arising's to be removed from the site.	As necessary
C	**TREE PLANTING**	
C.1	To extra heavy standard trees: Check, adjust and replace stakes and ties as necessary. Prune, water and feed where required. Target removal of stakes and ties after year 5, subject to review	As necessary
C.2	Check spiral guards and replace when required.	Four times
C.3	Any vandalised, unhealthy and dead trees and shrubs will be replaced each year at the next available planting season and any underlying causes remedied. Where possible dead trees to be cut up and retained in neat piles to provide dead wood resource. Subject to health and safety concerns.	
	Continued on Page 6	

	YEAR 1 LANDSCAPE MAINTENANCE SCHEDULE (CONTINUED)	**Frequency**
D	**FORMAL NATIVE HEDGEROW**	
D.1	Keep areas clear of weed growth by hand weeding and spot herbicide as appropriate from mid April to late September in accordance with ecologist's recommendations.	Four times
D.2	Check shelter / spiral guards and refirm/replace when required. Remove weed growth from within if necessary. Target removal of rabbit guards after 5 years subject to review.	Four times
D.3	Check integrity of rabbit fencing to ensure suitability.	Four times
D.4	Prune hedges as necessary to maintain height at 1.5m. Any pruning works to be undertaken outside of bird nesting season (March until September inclusive).	As necessary
E	**SHRUB PLANTED AREAS**	
E.1	Water ornamental shrub beds to maintain healthy growth.	As necessary
E.2	Prune shrubs as required to achieve desired form and prevent invasive species smothering less aggressive species.	As necessary
E.3	Prune dead, dying or diseased wood from plant material.	As necessary
E.4	Keep shrub areas clear of weed growth by hand weeding and spot herbicide treatment as appropriate.	12 times
E.5	Apply a slow release fertilizer, Enmag CRF or similar approved, composition NPK 11 + 22 + 9 + 6.0% Mg, to shrub areas at a rate of 30 gms / m^2 (timing to be agreed with Contract Administrator).	Once only
E.6	Edge up planted areas to maintain soil level 25mm below adjacent hard surfaces and kerbs. Any soil washed onto hard surfaces to be cleaned off. Repeat at each maintenance visit.	At each visit
E.7	Lightly cultivate all shrub beds, breaking up soil evenly. Once only. Timing to be agreed with the Contract Administrator.	Once only
	Continued on Page 7	

	YEAR 1 LANDSCAPE MAINTENANCE SCHEDULE (CONTINUED)	**Frequency**
F	**MAINTENANCE OF GRASS AREAS (close mown)**	
F.1	Grass will be mown as required . Litter will be collected immediately prior to mowing. Note: at each cut excessive arisings shall be removed from site.	12-18 times/year dependent on location & season
F.2	Fertilizer will be applied.	As necessary
F.3	PROVISIONAL Supply and apply a selective herbicide in accordance with manufacturer's recommendations.	As necessary
F.4	Water grass as necessary to achieve establishment and maintain healthy growth.	As necessary
F.5	Shape grass edge with half moon spade. Timing to be agreed with Contract Administrator.	Two times
F.6	Worn areas will be re-seeded.	May or September
G	**GRAVELLED AREAS**	
G.1	Check weed barrier is present and has not been exposed and damaged.	Four times
G.2	Supply and apply a selective herbicide in accordance with manufacturer's recommendations.	As necessary

APPENDIX B

MAINTENANCE SCHEDULE MATRIX FOR 5 YEAR PERIOD

5 YEAR PERIOD LANDSCAPE MANAGEMENT SCHEDULE OF WORK MATRIX

ITEM OF WORK	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5 ONWARDS
GENERAL					
Tidy up areas removing rubbish, litter, etc, from planted and grass areas	✓	✓	✓	✓	✓
Treat pests and disease as necessary	✓	✓	✓	✓	✓
Ensure herbicide is not a 'Round Up' product	✓	✓	✓	✓	✓
Water all plant material and grass as necessary to maintain healthy growth	✓	✓	✓		
Check plant material is firmly planted and firm in where required.	✓	✓	✓		
Dead, dying or diseased wood to be pruned out	✓	✓	✓	✓	✓
Check shelter guards / rabbit protection and refirm / replace as required including removing weed growth from within. Consider removal at years 4 to 5.	✓	4 times	4 times	2 times	2 times
Removal of diseased or dead plants with replacements as appropriate	✓	✓	✓	✓	✓
EXISTING TREES					
Selective pruning and any other required arboricultural works to be carried out on any dead and dangerous trees / branches, particularly within falling distance of buildings and footpaths as necessary. (If achievable works to be targeted outside of the bird nesting season (March – September inclusive) Arising's to be relocated locally to a suitable location and formed into deadwood piles for use by species living on dead and decaying wood. Excessive arising's to be removed from the site.	✓	✓	✓	✓	✓
TREE PLANTING					
Check, adjust, replace stakes and ties as necessary. Remove stakes after approximately 3 years if appropriate. Prune, water and feed as necessary.	✓	✓	✓	✓	✓
Remedial tree surgery as necessary to remove any dead, dying or diseased branches and to allow the tree to achieve full stature. All works to be carried out by an Arboricultural Association approved contractor in accordance with BS3998: Recommendations for Tree Work.	✓	✓	✓	✓	✓

FORMAL NATIVE HEDGE PLANTED AREAS

Keep areas clear of weed growth by herbicide treatment as appropriate from mid April to late September.	4 times	4 times	4 times	4 times	2 times
Remove branches that overhang footpaths or prevent access for grass cutting.	✓	✓	✓	✓	✓
Prune formal native hedges to heights stated on landscape drawings. Any pruning works to be undertaken outside of bird nesting season (March until September inclusive).	✓	✓	✓	✓	✓

SHRUB PLANTED AREAS

Keep ornamental shrub areas clear of weed growth by hand weeding or spot herbicide treatment.	12 times	12 times	12 times	10 times	10 times
Prune shrubs as necessary to prevent invasive species smothering less aggressive species and to prevent shrubs overhanging footpaths and other areas of hard paving.	✓	✓	✓	✓	✓
Slow release fertilizer application as appropriate to ensure establishment of planting.	✓	✓	✓		
Lightly cultivate all planted areas, breaking up soil evenly. Once only.	✓	✓			
Edge up planted areas to maintain soil level 25mm below adjacent hard surfaces and kerbs. Any soil wash onto hard surfaces to be cleaned off.	✓	✓	✓	✓	✓

CLOSE MOWN GRASS AREAS

Grass cutting with edge trim (where required). Frequency of grass cutting operations to be commensurate with location and visual importance of grass area: Up to 18no. cuts per year	✓	✓	✓	✓	✓
Shape grass edge as necessary with half-moon spade. 2 times per year.	✓	✓	✓	✓	✓
Application of fertilizer and selective weed killer as appropriate	✓	✓	✓	✓	✓
Re-seeding of worn areas	✓	✓	✓	✓	✓

APPENDIX C

DRAWINGS

DRAWING TITLE	SCALE	DRAWING NO.	REV
LANDSCAPE CONCEPT PLAN	1:250	1953-19-05	H
LANDSCAPE CONCEPT SECTIONS	1:200	1953-19-06	E

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