

Hunts Grove, Haresfield, Gloucestershire

Landscape Management Plan
February 2017

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February 2017

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This document has been prepared and checked in accordance with ISO 9001:2000.

1.0 Introduction

1.1. Background

A full planning application was submitted 2013 and approved (subject to conditions) by Stroud District Council (SDC) in 2014, for a new signalised junction onto A38/B4008 (revisions to access approved under planning application S.09/1692/VAR) and works to Cross Keys roundabout, including junction widening and part-signalisation on northbound and southbound A38 arms at Hunts Grove, Gloucestershire (application reference S.13/2774/FUL).

The application included proposals for the landscape treatment of the A38 road corridor and development access together with proposals for a surface water attenuation pond. The approved landscape proposals are illustrated on drawings 365I_216C and 365I_217C which are included as Appendix 1 to this report.

1.2. The Purpose of the Landscape Management Plan

This Management Plan has been prepared in accordance with the requirements of Condition Ref 5, of planning permission S.09/1692/VAR.

Condition 5 requires that “*prior to the commencement of the development hereby approved, details of the schedule of works including a timetable for implementation and details of the ongoing management of the approved landscaping shall be submitted to and approved in writing by the Local Planning Authority. The works shall proceed in accordance with the approved details*”.

This report sets out the overarching management objectives and maintenance prescriptions for the range of vegetation types retained and proposed, and defines the methods to be put in place to ensure the landscape is managed to the standards expected by the client and local authority, ensuring successful establishment and aftercare of the implemented works.

An indicative timetable for implementation of the Landscape Proposals is set out in Section 1.6 below.

1.3. The Structure of the Landscape Management Plan

The Landscape Management Plan is divided into the following sections:

- 1) A vision for the development – sets out the overall vision and design objectives for the landscape design;
- 2) Management objectives and prescriptions – outlines the general landscape management requirements for the site and specific management objectives and prescriptions for different vegetation types;
- 3) Management Responsibilities and Review – identifies the intended strategy for long term management and maintenance of the landscape and outlines the intention that this strategy is a dynamic one which should undergo monitoring and review.

1.4. Associated Documents

The Management Plan should be read in conjunction with the following approved drawings and documents:

- A38 Access Landscape Proposals Plans:
 - Drawing 365I_216C

- Drawing 365I_217C
- A38 Access Vegetation Clearance Plans:
 - Drawing 365I_105C
 - Drawing 365I_106C
- A38 Access Junction Arboricultural Statement – December 2013;

1.5. Vegetation Retention and Removal

Areas of existing vegetation to be retained and removed as part of the approved works are shown on approved drawings 365I_105C and 365I_106C contained in Appendix 2.

These drawings are supported by an approved Arboricultural Statement (December 2013) contained in Appendix 3. The Arboricultural Statement provides a detailed description of the areas of existing vegetation to be retained and removed along with those measures proposed to protect existing trees and vegetation during site clearance and construction operations, in addition to procedures for the monitoring of tree protection measures during construction by suitably qualified personnel.

Existing areas of vegetation to be retained include mature trees along the Shorn Brook corridor, pockets of existing scrub woodland and grassland in the vicinity of the A38 junction and grass verges along the A38 road corridor.

The main areas of vegetation removal include a number of trees along the Shorn Brook corridor which are in very poor or a structurally unsound condition, and a substantial section of scrub woodland and overgrown grassland in the vicinity of the A38 junction necessary for the construction of the new junction and access road.

1.6. Schedule of works and Timetable for implementation

The landscape works proposed are set out on approved Drawings 365I_216C and 365I_217C which include detailed schedules of species proposed, planting specification and the areas proposed for different planting and seeding regimes reflecting the highway and attenuation pond design.

Implementation of the works will be undertaken on a phased basis in accordance with the construction programme. This is anticipated to start in April 2017 and will commence with the construction of the attenuation pond. Construction of the wider A38 junction will follow as a subsequent phase. Seeding and planting works will be undertaken in the first appropriate planting season following the phased completion of the civils engineering works:

- Amenity grass seeding - April to October
- Wildflower seeding – March-May or August-October
- Container grown shrub planting – any time of year if ground and weather conditions are favourable
- Marginal planting – either April or September-October
- Bare-root / root-balled trees and shrubs - mid-November to late-February

2.0 A Vision for the New Development and long term design objectives

2.1. Vision Statement

The overall objective for the site is to create an attractive and high quality landscape approach and arrival setting for new development. This includes the need to retain and incorporate existing mature trees where practical; reinforce existing tree planting; increase the overall tree cover; increase the diversity of tree and shrub species; and promote biodiversity.

2.2. Aims and Objectives

A summary of the key landscape and nature conservation objectives is provided below, to give an overview of the proposals against which management activities can be monitored in the future.

These design objectives include:

- Creating an attractive landscape setting to the entrance of the development;
- Ensuring the successful establishment and continual enhancement of the landscape and to increase the diversity of tree and hedgerow species, promoting biodiversity;
- Managing the landscape in a safe and appropriate manner for site users, including maintaining visibility splays and removing dead/dying branches;
- Protection of existing vegetation proposed for retention, with management to ensure long term survival.

The Landscape Management Plan will ensure the long term delivery of these objectives without compromising or ‘diluting’ the vision for the new development or the efficient operation of the site. The sensitive management approach will protect, manage and enhance the site for the benefit of landscape quality, character and biodiversity.

3.0 Management Objectives and Prescriptions

3.1. Management Objective:

The overall management objective is to ensure the effective establishment of new highway planting, conservation of existing woodland and tree planting, establishment of marginal planting at the attenuation pond, enhancement of biodiversity and to maintain an attractive, high quality and robust entrance to the development.

This following schedule sets out the specific management objectives and prescriptions for each of the vegetation types identified on the approved landscape drawings (3651-216C and 3651-217C in Appendix 1) and listed below:

- General Maintenance Operations
- Existing woodland
- Tree Planting
- Shrub Planting
- Marginal Planting
- Wildflower/Conservation Grass
- Grass verges

Schedule of Work	Frequency/Timing
General Management/Maintenance Items	
<p>Maintenance of tree supports: Supporting tree stakes, ties and tree guards for feathered trees will be maintained in good condition, replaced as necessary and removed when trees are self-supporting (normally after two years).</p> <p>Tree ties will be adjusted for tightness as necessary to avoid strangulation of the stem. Tree guards and other aids will be kept free of litter and weeds, and all arisings collected, removed and disposed of off-site.</p>	As necessary
<p>Control of Litter: The landscape areas should be kept free from litter and procedures will be put in place to ensure the site is kept clean and litter free and should include provision for a response to acts of vandalism and graffiti.</p>	Monthly Visits/As necessary
<p>Pests and disease control: All plant material shall be inspected for the presence of any pests or disease occurring on the site and appropriate action shall be taken to remedy the disease and eradicate pests. This includes the control of black spot and aphids on all Rosa species.</p> <p>All materials used in connection with these works shall be of an approved type and be applied and used in accordance with COSHH guidance for the use of herbicides.</p>	As necessary

Schedule of Work	Frequency/Timing
<p>Weeding: In the interests of wildlife, hand weeding (including mechanical methods) should take precedence and herbicides should not be used unless essential to ensure the complete removal of noxious weeds or other very significant weed growth. If essential, herbicide application is only to be carried out by a suitably trained person, in periods of low winds, and with careful directional application to ensure no spray/drift onto tree/shrub species. Only suitable herbicide products under current regulations will be used. Where work is near water/swales it must comply with the DEFRA 1995 'Guidelines for the use of herbicides on weeds in or near water courses and lakes'. All precautions recommended by the manufacturer must be observed and containers removed from site immediately after they have been emptied or are no longer required.</p>	<p>Monthly Visits/As necessary</p>
<p>Watering: Water to ensure successful establishment and on-going growth for all shrubs and trees. The need for watering in years 1 and 2 following planting will be determined by the landscape contractor and/or site manager based upon site and prevailing weather conditions as assessed through routine maintenance visits and annual planting inspections.</p>	<p>As necessary during establishment years 1 and 2</p>
<p>Existing Trees and Scrub (generally inspected on a 3 yearly basis with minimum 1 routine maintenance visit per year)</p>	
<p>The majority of the areas to be retained comprise scrub and dense tree belt vegetation with few larger individual mature trees. It is recommended however that the larger trees along the Shorn Brook edge nearest the attenuation basin are subject to a tree condition survey on an annual basis following commencement of the works. This survey should identify any requirements for surgery to be undertaken to ensure that retained trees do not present an unacceptable risk to users of the adjacent roads and areas of open space.</p>	<p>Annual inspection or as required following periods of extreme weather.</p>
<p>Any requirement for tree surgery or pruning will be undertaken outside of the bird nesting season, which is typically taken as March to August inclusive. Carry out any works as required for health and safety immediately. Where no health and safety risk is posed, deadwood should be retained in selected locations to provide resources for saproxylic invertebrate fauna and features which may be exploited by roosting bats and nesting birds.</p>	<p>Annually as necessary</p>
<p>Tree surgery works are to be preceded by an assessment of potential impacts to roosting bats to be undertaken by a suitably qualified bat ecologist, and guidance provided on bat related constraints and recommendations, in line with legal requirements.</p>	<p>Annually as necessary</p>
<p>Carry out remedial tree surgery as necessary to any trees within publically accessible areas, including trees adjacent to roads and footpaths. Remove any dead, dying or diseased branches to minimise risk to highways safety and allow the tree to achieve full stature. Tree works to be carried out by an Arboricultural Association approved contractor and in accordance with BS 3998: 'Tree Works' (2010) or more recent guidance where applicable.</p>	<p>As necessary in accordance with approved Arboricultural Statement and outside bird nesting season.</p>

Schedule of Work	Frequency/Timing
Undertake selective thinning of understorey to remove the poorer multi-stemmed and suppressed trees, especially where they are situated in close proximity to the new road.	As necessary
Undertake supplementary whip planting amongst existing trees where space requires. Individual trees planted within or to the edge of the woodland to be checked every two months and tree ties, guards and stakes adjusted as necessary within the first two years during establishment. Remove stakes and ties after 5 years or when no longer required. Prune, water and feed as required.	Monitor and adjust tree stakes and ties every two months/as required.
Control natural regeneration of invasive species within wooded area, e.g. Sycamore and Poplar species, by physical removal	As necessary
Tree Planting (including areas of native tree mix planted as feathered trees, minimum 4 routine maintenance visits per year)	
Check, adjust, replace stakes (where used), guards and ties as necessary. Remove stakes after 5 years, or when no longer required.	Minimum twice annual visits (Inspections once every two months recommended)
Carry out formative pruning of establishing trees as necessary to develop a well-balanced canopy. Remedial tree surgery to be carried out as necessary to remove any dead, dying or diseased branches and allow the tree to achieve full stature. Tree works to be carried out by an Arboricultural Association approved contractor and outside bird nesting season, typically taken as March to August inclusive. Carry out any works as required for health and safety immediately	As necessary (outside bird nesting season)
Inspect annually when trees are in full leaf and after storms to monitor health of trees. Replace any trees which have been removed, uprooted, destroyed or have died after planting with trees of the same species and size as originally planted at the same place within 1 year, unless the Local Planning Authority gives its written consent for any variation.	Annually
Water during prolonged dry spells to prevent tree deaths, during first two years following planting.	Years 1-2 as required
Maintain tree surrounds in a weed free condition, and with neat edges to amenity grass areas.	Years 1-2 as required
Shrub Planting (including native shrub and ornamental grass mixes, minimum 4-6 routine maintenance visits per year)	
Keep planting beds clear of weeds. Maintain a weed free area around each shrub/shrub bed area. Fork over bed to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch layer. Maintain the inside of shrub guards (where used) in a weed free condition by hand weeding.	As necessary /Monthly through Spring and Summer.

Schedule of Work	Frequency/Timing
Maintain mulch level and coverage to shrub / tree beds (Typical depth 50mm), top up as required, typically after 2 years.	As necessary, years 1-2 or until canopies close.
Prune planting to promote healthy growth and natural shape, remove dead, dying and diseased wood and suckers. Carry out work as appropriate to the species and remove all arisings.	As necessary
Cut down ornamental grasses. Carry out work as appropriate to the species and remove all arisings.	As necessary, typically November-December
Remove dead and damaged plants without disturbing the roots of adjacent plants. Replace plants to original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.	As necessary
Ensure shrubs are maintained within the areas designated on the plans to uphold the design intent.	As necessary
Apply fertiliser or compost if necessary to encourage vigorous, healthy growth.	As necessary
Maintain neat edges to grass areas and sweep up any mulch encroaching onto adjacent surfaces.	As necessary
Re-firm plants after high winds and frosts.	Years 1-4 as required
Water during prolonged dry spells to prevent plant deaths, during the first two years after planting.	Years 1-2 as required
Thin out selected species where appropriate e.g. where more vigorous species are taking over others.	Year 5 onwards
Marginal Planting (to attenuation areas)	
<p>Thin plants annually to avoid excessive growth and dominance of certain species. Cut vegetation at 30cm above ground level by hand or machine capable of cutting vegetation below water line. Do not excavate base or clay lining of the pond.</p> <p>Annual management of the pond edge vegetation should be rotated in areas to avoid excessive impact upon the habitat. Over the winter months, excess plant material should be cut and removed, along with all clippings and weeds.</p> <p>All cut vegetation to be removed should be left on the banks of the pond for sufficient time as to allow pond dwelling invertebrates to re-enter the water/remaining vegetation.</p>	Annually, –Winter months
Remove loose debris and rubbish and skim surface to remove duckweed by hand if required. (Do not use chemical herbicides in these areas.)	As necessary
Cut back vegetation directly in front of outfall pipes to prevent blockage and remove arisings.	As necessary

Schedule of Work	Frequency/Timing
Wildflower / Conservation Grass (For wildflower mixture, regular management and monitoring visits during meadow establishment, years 1 & 2, then minimum 2 routine maintenance visits / year)	
Prepare the seed bed by eradicating any existing vigorous grasses / weeds using a broad band systemic herbicide during active growing season (March to September). After a fallow period, plough the seedbed during dry conditions (at least twice) to create a fine tilth suitable for germination of wildflower seed	Year 1 (Mar-Sept)
Sow seed across the prepared area in either spring or autumn when moisture levels and temperatures are adequate to allow germination. Roll to increase germination success	Year 1 (Spring or Autumn)
During the first year of germination undertake regular management of the sward to no longer than 200mm, until the end of June when the sward should be left to flower and set seed	Year 1
Regular (every 2 weeks) management of any perennial weeds (e.g. via spot spraying / manual pulling) will be essential during the establishment phase. Where work is near water, comply with the DEFRA 1995 'Guidelines for the use of herbicides on weeds in or near water courses and lakes'	Years 1 and 2
Initial hay cut to be taken at the end of July / start of August of the first year (All arisings from cutting should be collected and removed to avoid raising fertility levels which can encourage vigorous species to dominate)	Year 1
Re-growth after the hay cut should be removed in autumn, to prevent a dense thatch building up at the base of the sward, and arisings removed.	Year 1
Success of meadow creation to be evaluated at the end of the first year and the need for alterations to management or additional seeding assessed	Year 1
Remove litter, twigs and debris prior to each cut.	Before each cut
Once established, the meadow areas shall be cut twice a year after flowering in July/August and September to 40mm high.	Twice annually (year 2 onwards) in early July/August and September
Monitor grass erosion and regularly reinstate damaged or worn areas as required	As necessary post establishment
Water regularly during establishment particularly during dry periods.	As necessary
NOTE: Fertilisers will not be used in wildflower areas and herbicide use will be limited to the spot control of invasive weeds once the grass has established. Where work is near water, comply with the DEFRA 1995 'Guidelines for the use of herbicides on weeds in or near water courses and lakes'.	

Schedule of Work	Frequency/Timing
Grass verges	
Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt and reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills. Repair trampling, abrasion or scalping as necessary. Spike any compacted areas to maintain a good sward and free drainage.	As necessary.
Water regularly during establishment particularly during dry periods.	Year 1
Once established mow fortnightly between March and October, allowing 16 cuts per year. Maintain a sward height of between 25mm-50mm. Arisings to be removed. Allow for the mowing regime to be adjusted to ensure there is no excessive cutting during dry periods and that mowing continues until the grass stops growing.	Fortnightly during the growing season and as necessary
Relax the management regime where appropriate, e.g. under individual trees and trees groups, to twice annual cuts in Autumn and early Spring.	As necessary
Remove litter, twigs and debris prior to each cut.	Before each cut
Apply approved fertiliser dressing to grass areas in spring and autumn.	Spring and autumn.
Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.	As necessary
Maintain neat and well defined edges to wildflower areas, in clean straight lines or smooth flowing curves appropriate to the location and type of character/seed mix.	As necessary
Spot treat any pernicious weeds in grass verges using selective trans located herbicide.	April to May

4.0 Management Responsibilities and Review

4.1. Management Responsibilities

Crest Nicholson will appoint a management company/contractor to carry out routine management and maintenance operations across the site in accordance with the objectives and prescriptions set out within this Strategy.

Maintenance operations will include an annual inspection of newly planted areas which will identify the need for any required replacement planting. In accordance with Planning Condition 6 or unless otherwise agreed, any trees or plants which, within a period of five years from the completion of the development, die, are removed, or become seriously damaged or diseased, shall be replaced in the next planting season with others of similar size and species.

It is anticipated that the A38 highway works and the areas of associated planting along the road corridor will be adopted by Gloucestershire County Council as the Highways Authority 2 years after completion of the works. At this point the responsibilities for ongoing management of the landscape works will be taken forward by Gloucester County Council (GCC) in accordance with their standard highway maintenance procedures and/or the Transport Asset Management Plan.

4.2. Implementation, Monitoring and Review

This LMP incorporates objectives and prescriptions for the approach to be adopted in the maintenance and management of the landscape features which are to be incorporated into the landscape structure of the site. The aim is to promote a sensitive management approach, which protects and improves the landscape and visual amenity value of the site, and is compatible with the proposed development.

The LMP is a dynamic document that should be reviewed regularly and developed or amended as circumstances change and the site evolves. A review of the LMP should be carried out after five years of the commencement of the maintenance and aftercare scheme.

Appendix 1. A38 Access Landscape Proposals Plans:

- DWG 365I_2I6C
- DWG 365I_2I7C

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Key Plan N.T.S.

Plant List

Native Tree Mix			
Species	Common Name	% mix	Size
Acer campestre	Field Maple	15%	Planted as feathered trees, 175,200, RB, X2
Betula pendula	Birch	10%	
Larix decidua	Larch	15%	
Pinus spp.	Pine	25%	
Prunus avium	Wild Cherry	10%	
Quercus robur	Oak	10%	
Sorbus aucuparia	Rowan	15%	

Planted in groups of six to twelve on a 3.4m grid.

Existing woodland Enhancement Mix			
Species	Common Name	% mix	Size
Malus sylvestris	Crab apple	35%	Planted as whips amongst existing trees where space allows
Pyrus communis	Common pear	35%	
Sorbus domestica	Service tree	30%	

Native Shrub and Ornamental Grass Mix			
Species	Common Name	Size (girth)	Additional Information
Cornus sanguinea	Dogwood	40-60cm ht, transplants	Planted in groups of six to twelve on a 1m grid.
Rubus idaeus	Raspberry		
Rosa canina	Dog Rose		
Miscanthus sinensis	Chinese silver grass	30-40cm ht, container grown	Planted in groups of six to twelve on a 0.5m grid.
Pennisetum casian	'Cassian's Choice'		

Shade Tolerant Mix for Shorn Brook Corridor		Conservation Grass Mix	
British Seed Houses (or equiv) Ag General Outfield Mix	40% Perennial Ryegrass spp Cadix	DLF Trifolium (or equiv) Country Meadow Mix Pro Flora 8	20% Flora Birdfoot Trefoil, Black Knapweed, Black Medick, Common Vetch, Meadow Buttercup, Monk Mallow, Ox eye Daisy, Ribwort Plantain, Red Campion, self Heal, White Campion, Yarrow
30% Perennial Ryegrass spp Lucius	30% Strong Creeping Fescue spp Aniset	80% Grass Crested Dogtail, Red Fescue, Browntop Bentgrass, Smooth Stalk Meadow Grass, Meadow Fescue	
10% Smooth Stalked Meadow Grass spp Panduro			

Wild Flower / Conservation Grass Mix to be agreed with ecologist and soil specialist

Native Marginal Mix		
Species	Common Name	Size
Lythrum salicaria	Purple loosestrife	2L pots
Carex acutiformis	Lesser pond sedge	
Glyceria fluitans	Floating sweet grass	
Glyceria maxima	Reed sweet grass	
Caltha palustris	Marsh marigold	
Lychnis flo-cuculi	Ragged robin	
Lysimachia vulgaris	Yellow loosestrife	
Veronica beccabunga	Brooklime	

Notes:
Refer to JMP drawings for highways, drainage and levels information.
All plant species to be agreed with ecologist and soil specialist.
For details on existing trees and vegetation along Shorn Brook and at the A38 junction refer to Arboricultural Statement ref. 3651L0_700.
Management Notes:
1. All Trees and Shrubs protected with rabbit guards/fencing as appropriate during establishment.
2. Weed control around base of trees.
3. All plant material shall comply with BS 3395 Nursery stock.
4. All planting shall be undertaken in accordance with BS 4428 (1988) Code of Practice for general landscape operations.

- Key**
- Application boundary
 - Existing trees and scrub vegetation retained, and supplemented with native whips where space allows
 - Existing trees retained along Shorn Brook Corridor - Refer to Arboricultural statement for details
 - Existing trees recommended for removal on Arboricultural grounds following 2013 survey; refer to arboricultural statement for details
 - Existing grass verges retained
 - Proposed amenity grass verges
 - Proposed wildflower grass mix - to be agreed with ecologist
 - Temporary amenity grass to verge and embankment - subject to detailed design as part of future Reserved Matters Application
 - Proposed native tree mix
 - Proposed native shrub and ornamental grass mix
 - Proposed marginal mix to edge of attenuation basin
 - Proposed embankment/ slope - refer to JMP drawings for details
 - Proposed road restraint - refer to JMP drawings for details



Refer to 3651_217 for continuation



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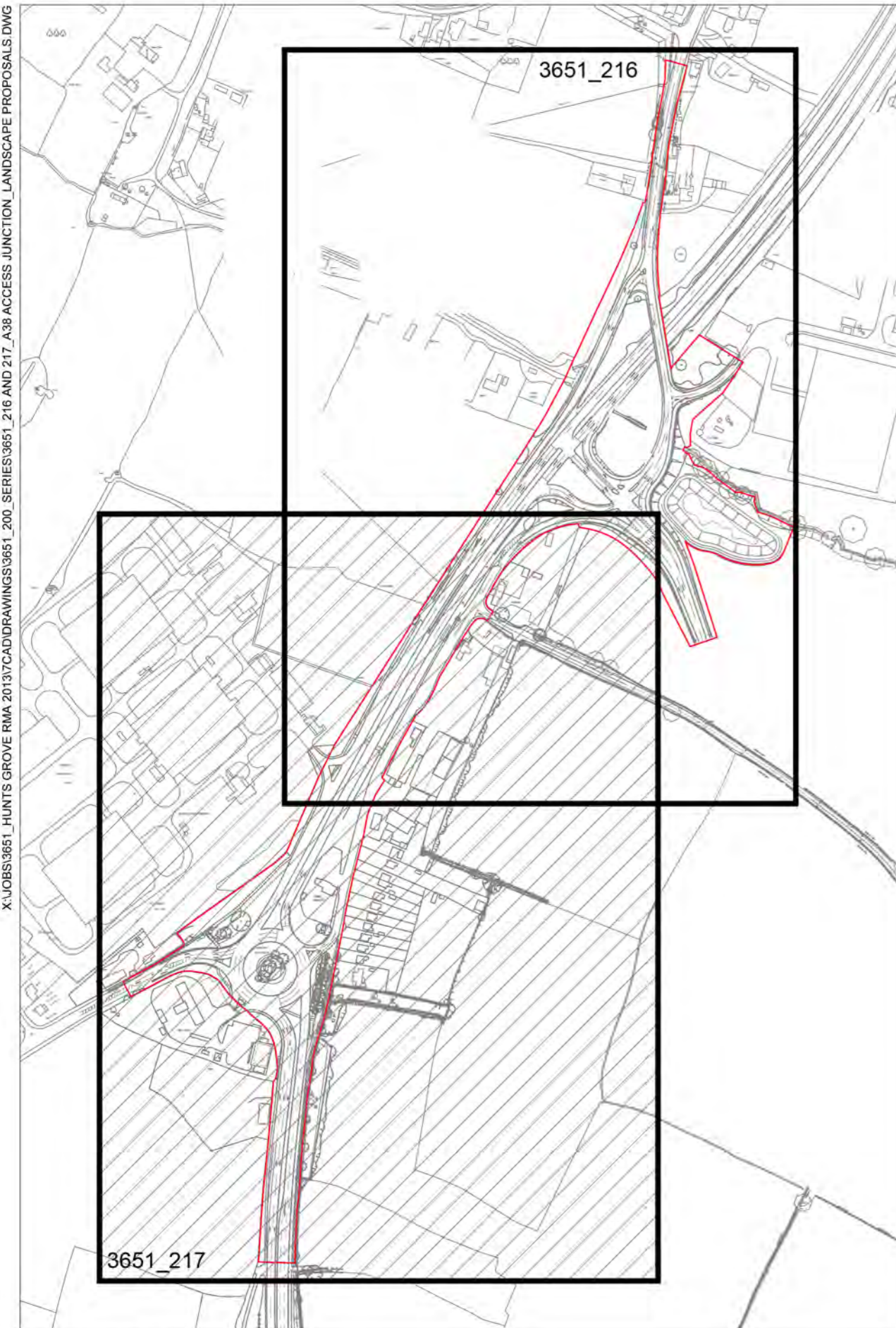
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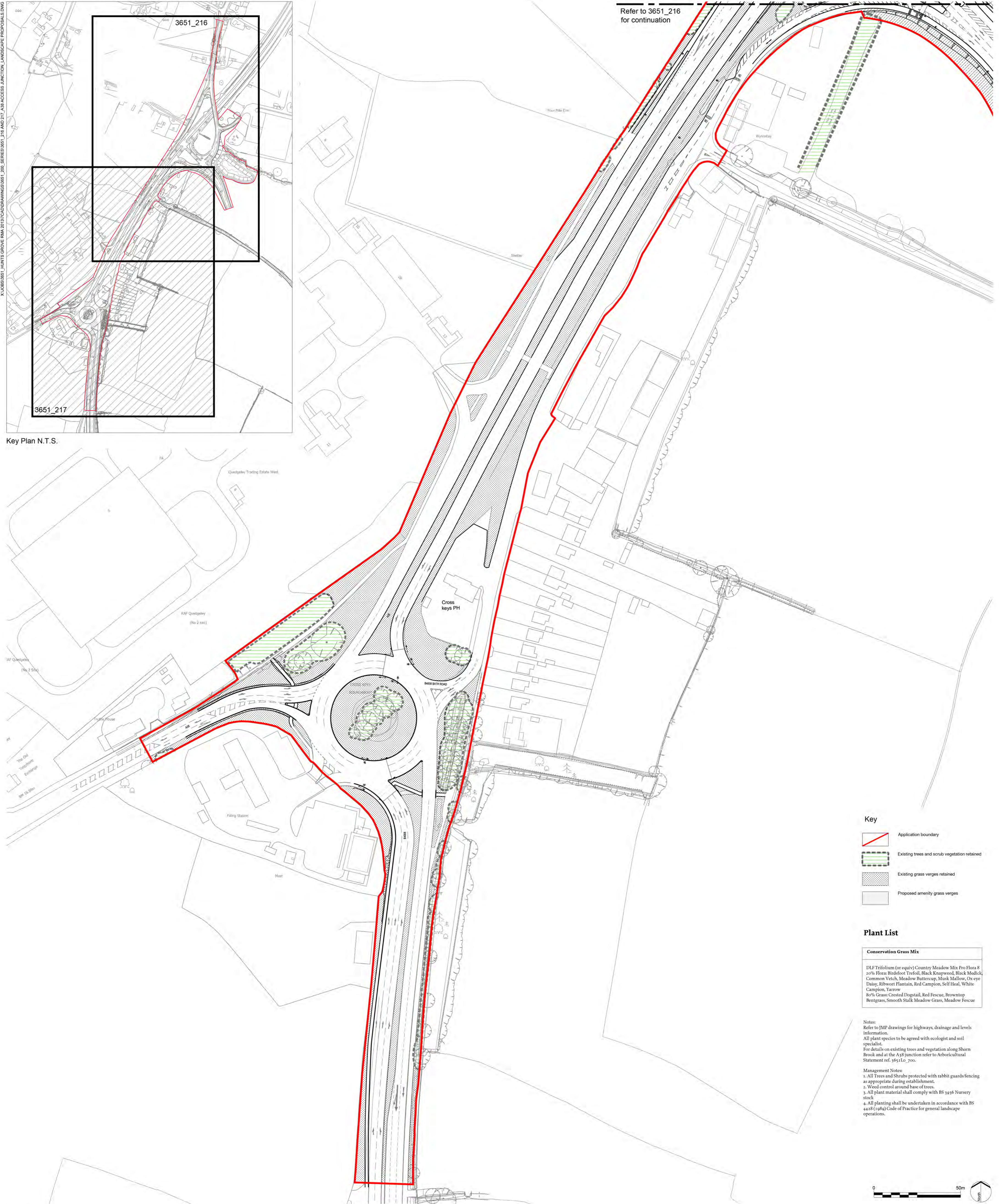
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DRAWING TITLE
A38 Access_Landscape Proposals Plan 2 of 2

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Key Plan N.T.S.



Refer to 3651_216 for continuation

Key

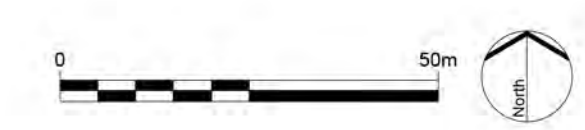
	Application boundary
	Existing trees and scrub vegetation retained
	Existing grass verges retained
	Proposed amenity grass verges

Plant List

Conservation Grass Mix
DLF Trifolium (or equiv) Country Meadow Mix Pro Flora 8
20% Flora: Birdsfoot Trefoil, Black Knapweed, Black Medick, Common Vetch, Meadow Buttercup, Musk Mallow, Ox-eye Daisy, Ribwort's Plantain, Red Campion, Self Heal, White Campion, Yarrow
80% Grass: Crested Dogtail, Red Fescue, Browntop Bentgrass, Smooth Stalk Meadow Grass, Meadow Fescue

Notes:
Refer to JMP drawings for highways, drainage and levels information.
All plant species to be agreed with ecologist and soil specialist.
For details on existing trees and vegetation along Shorn Brook and at the A38 junction refer to Arboricultural Statement ref. 3651/LA_700.

- Management Notes**
- All Trees and Shrubs protected with rabbit guards/fencing as appropriate during establishment.
 - Weed control around base of trees.
 - All plant material shall comply with BS 3398 Nursery stock.
 - All planting shall be undertaken in accordance with BS 4484 (1984) Code of Practice for general landscape operations.



Appendix 2. A38 Access Landscape Proposals Plans:

- DWG 365I_105C
- DWG 365I_106C

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SCALE@A1	1:1,000	CHECKED	DW
STATUS	Planning	APPROVED	MF



Key Plan N.T.S.

Survey Notes from 2013 arboricultural survey:

Area 1: Embankment planting comprising Cherry, Ash, Oak, Dogwood, Field Maple & Hawthorn. Branches starting to overhang pavement boundary edge and around street lamp. Vegetation to be removed where required to facilitate A38 access into site.

Area 2: Mixed planted area including hawthorn hedge located between main A38 and access road. Area generally dominated by Field Maple and Ash with trees evident at their original planting density. Small clearing within area which is smothered by impenetrable Bramble, branches adjacent to access road starting to encroach over road edge. Vegetation to be removed to facilitate A38 access.

Area 3: Mixed planted area located between main A38, flyover and factory complex access road. Southern and western edges of area dominated by Bramble and other scrub shrub growth, area of planted A38 roadside woodland dominated by Field Maple and Ash with trees evident at their original planting density.

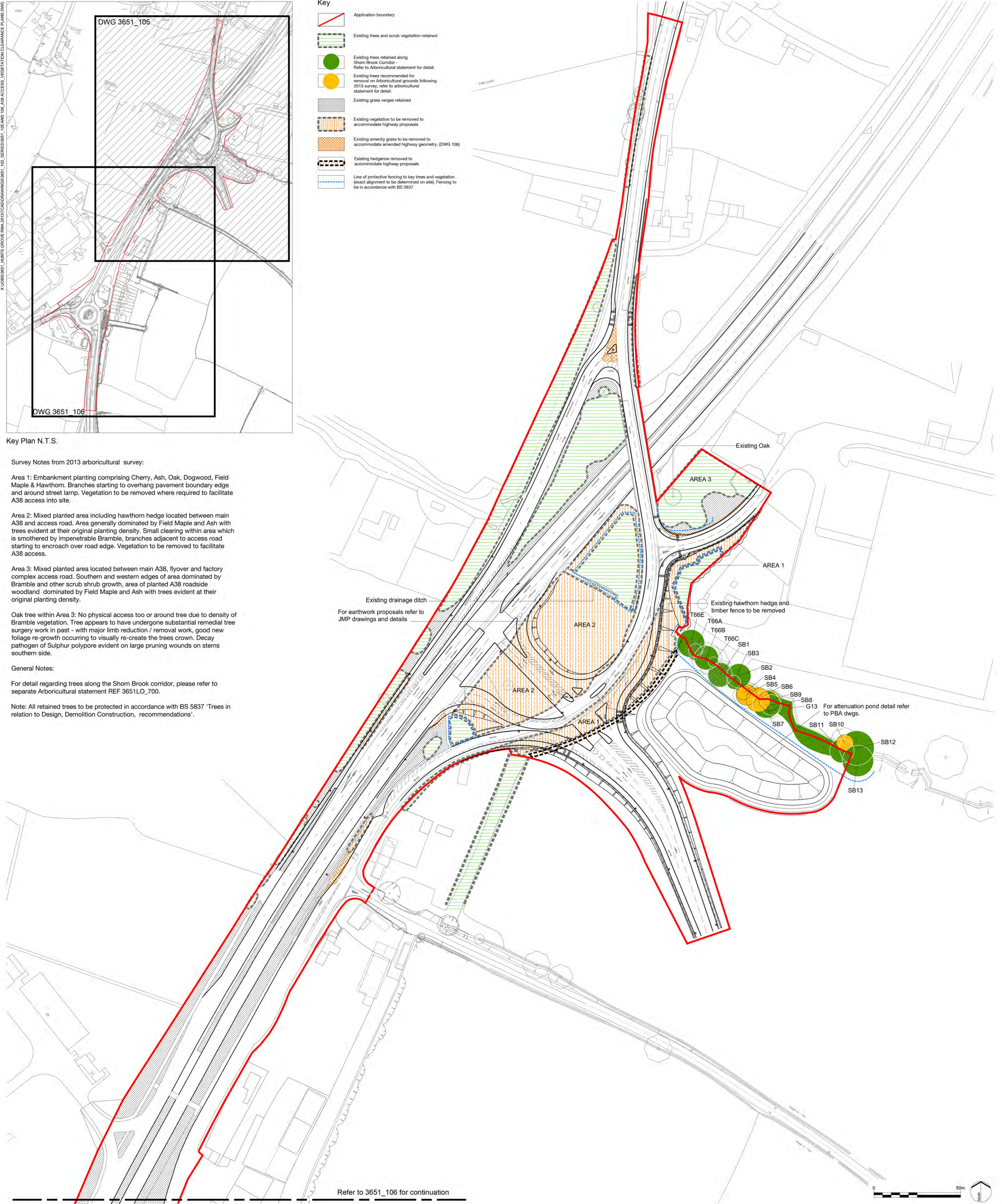
Oak tree within Area 3: No physical access too or around tree due to density of Bramble vegetation. Tree appears to have undergone substantial remedial tree surgery work in past - with major limb reduction / removal work, good new foliage re-growth occurring to visually re-create the trees crown. Decay pathogen of Sulphur polypore evident on large pruning wounds on stems southern side.

General Notes:

For detail regarding trees along the Shorn Brook corridor, please refer to separate Arboricultural statement REF 3651LO_700.

Note: All retained trees to be protected in accordance with BS 5837 'Trees in relation to Design, Demolition Construction, recommendations'.

- Key**
- Application boundary
 - Existing trees and scrub vegetation retained
 - Existing trees retained along Shorn Brook Corridor - Refer to Arboricultural statement for detail.
 - Existing trees recommended for removal on Arboricultural grounds following 2013 survey, refer to arboricultural statement for detail.
 - Existing grass verges retained
 - Existing vegetation to be removed to accommodate highway proposals
 - Existing amenity grass to be removed to accommodate amended highway geometry, (DWG 106)
 - Existing hedgerow removed to accommodate highway proposals
 - Line of protective fencing to key trees and vegetation (exact alignment to be determined on site). Fencing to be in accordance with BS 5837



Refer to 3651_106 for continuation

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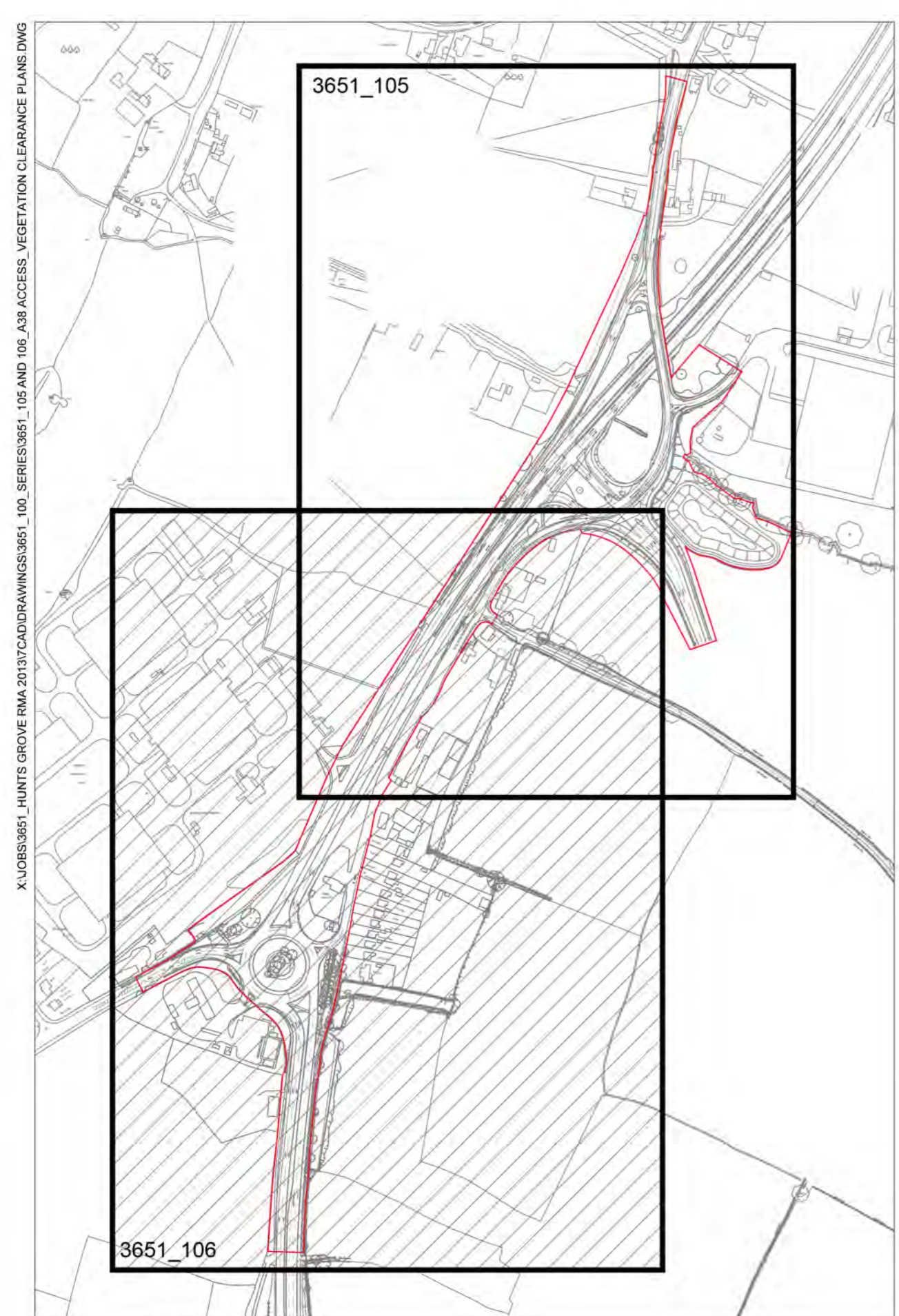
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No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

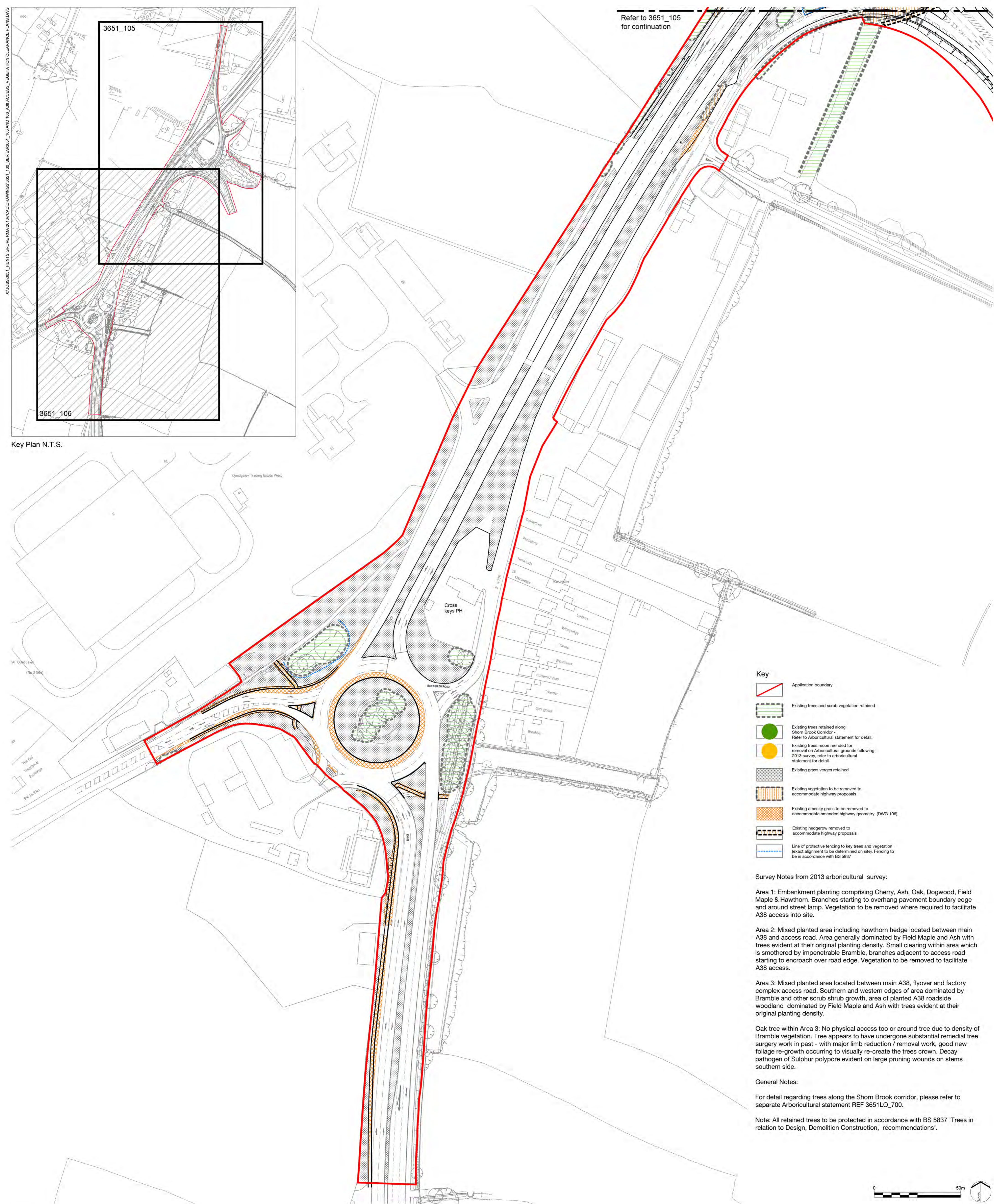
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C	Issued for planning approval	RB	17/12/13
B	Updated following receipt of revised layout from JMP	RB	11/12/13
A	General update following JMP review	DW	05/12/13
REV.	DESCRIPTION	APP.	DATE

ISSUED BY	Oxford	T: 01865 887050
DATE	27_Nov_2013	DRAWN RB
SCALE@A1	1:1,000	CHECKED DW
STATUS	Planning	APPROVED MF



Key Plan N.T.S.



Refer to 3651_105 for continuation

- Key**
- Application boundary
 - Existing trees and scrub vegetation retained
 - Existing trees retained along Shorn Brook Corridor - Refer to Arboricultural statement for detail.
 - Existing trees recommended for removal on Arboricultural grounds following 2013 survey, refer to arboricultural statement for detail.
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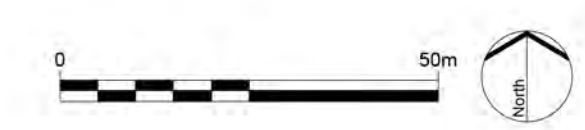
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General Notes:

For detail regarding trees along the Shorn Brook corridor, please refer to separate Arboricultural statement REF 3651LO_700.

Note: All retained trees to be protected in accordance with BS 5837 'Trees in relation to Design, Demolition Construction, recommendations'.



Appendix 3. A38 Access Junction Arboricultural Statement

**Hunts Grove, Haresfield, Gloucestershire
A38 Access Junction Arboricultural Statement**

3651LO_700

December 2013

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3651_700

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A38 Access Junction Arboricultural Statement

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Version: 1.2

Version date: 12 December 2013

Comment Final

This document has been prepared and checked in accordance with ISO 9001:2008.

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A38 Access Junction Arboricultural Statement

1.0 Introduction

This Arboricultural Statement has been prepared for submission to Stroud District Council in support of a reserved matters planning application for the A38 access junction into the Hunts Grove development site.

The statement describes the areas of existing vegetation to be removed and retained along with those measures proposed to protect existing trees and vegetation during site clearance and construction operations, along with procedures for the monitoring of tree protection measures during construction by suitably qualified personnel.

1.1. Planning Policy Context

The development at Hunts Grove received outline planning consent in 2007. An arboricultural survey of the site was submitted with the Outline Application and impacts on trees were considered and assessed within the Environmental Statement submitted at that time.

The site wide proposals for the retention and removal of trees and hedgerows within the site were approved as part of the outline application and a number of trees approved for removal have already been felled.

Consultation with Stroud District Council has confirmed that none of the trees on site or within this application are subject to a Tree Preservation Order.

1.2. Arboricultural Survey

AWCS was commissioned by LDA Design in September 2013 to undertake a survey in accordance with BS 5837 'Trees in relation to design, demolition and construction' recommendations (2012), this included:

- An updated Arboricultural survey of the dominant individual trees located within the existing hedgerows and along the corridor of Shorn Brook within and adjacent to the proposed phase 2 development area and along Haresfield Brook to the south.
- A survey and assessment of the condition of the woodland edge along the Shorn Brook corridor in the section north of the phase 2 development area, given the declining condition of trees along this boundary of the site.
- A survey of the existing vegetation in the area of the proposed main access to the development from the A38 to inform decisions on retention and the management/re planting of vegetation remaining following construction of the junction.

The 2013 survey updates the previous arboricultural survey data as relevant to this application only.

The survey update includes a number of additional trees along the Shorn Brook Corridor to the north of the site which are on or adjacent to third party land but in close proximity to the proposed development area. An extract of the arboricultural survey including a plan and survey schedules are contained in Appendix 1 and have been used to inform the preparation of this statement and the supporting plans. The full updated arboricultural survey and report will be issued alongside the main phase 2 RMA application.

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The survey was to be a visual inspection only, undertaken from ground level and, therefore, any statements made regarding the potential extent of any areas of decay, either at ground level or within a tree's upper crown can only be taken as an indication of a tree's structural health. There may, as a result of the visual observations, be a necessity to undertake additional investigative work to accurately determine the true extent of any areas of decay identified at this stage.

All recommendations expressed within the survey conclusions are based purely on the condition of an individual tree when viewed on the day of survey, and have been made irrespective of any development proposals. However, the recommendations may take into account the future context of the trees within the development proposals, based upon the current master plan layout and may need revision should the proposed context of these trees alter as a result of design development.

All trees surveyed and contained within this RMA application are identified on Drawing 3651-105 and 107 and given a unique reference number consistent with reference used in earlier surveys for consistency. The additional trees surveyed along the Shorn Brook Corridor have been allocated an 'SB' prefix.

The quality and value of the tree stock within the application boundary area has been broken down by BS 5837 quality grade. Details for individual trees are contained in the survey schedule and the grading system is summarised as follows:

A Grade – trees of high quality and value with a life expectancy of more than 40 years

B Grade – trees of moderate quality and value, with a life expectancy of more than 20 years

C Grade – trees of low quality and value, with a life expectancy of more than 10 years

U Grade – trees for removal, with a life expectancy of less than 10 years

Quality and Value of Existing Tree Stock	A Grade	B Grade	C Grade	U Grade
No. of Tree Records by Grade	0	5	8	4

1.3. Summary of Survey Results

Within the application boundary existing vegetation cover primarily comprises woodland and scrub planting along the Shorn Brook corridor and the A38 junction and corridor. A description of these areas is outlined below:

The location of all trees and areas of vegetation are identified on Drawing Numbers 3647LO/105, 106 and 107.

1.3.1. Shorn Brook Corridor

The Shorn Brook runs along the northern boundary of the RMA area with a significant belt of woodland vegetation between the Brook and the industrial estate to the north, which provides a strong and important visual screen along the edge of the site. The boundary of the approved development at Hunts Grove runs along the southern side of the stream and the main woodland area to the north is in third party ownership.

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The woodland on the southern side of the stream is restricted to a very thin, often single row of mature trees with an under-storey dominated by scrub Hawthorn, Blackthorn and Willow. A number of the Poplar trees located within the stream corridor have developed as tall 'light drawn' trees, many of which appear to have developed as a result of root sucker growth and a number are collapsed or in very poor condition such that removal is recommended. The density and close proximity of the trees to each other has resulted in a number of the trees developing with uneven crown weight distributions and /or leaning stems. Consequently, there are concerns over the trees long-term stability, especially as their rooting patterns may be significantly restricted on their stream sides, due to the creation of anaerobic conditions within the water-logged ground. Removal of a number of structurally unsafe trees along this edge is recommended with individual trees identified in the attached Survey Schedule contained in Appendix 1.

Tree surgery work as opposed to felling is recommended for a number of poor condition trees which overhang the open space proposed to the south of the stream and to allow retention of these trees for biodiversity reasons.

Within the access road application boundary or directly adjacent the arboricultural survey has recorded 17 individual mature trees, a mixed group along the Shorn Brook corridor and a mixed group to the south of the new entrance.

The survey schedule included in Appendix 1 provides details of the individual mature trees along the Shorn Brook corridor and assesses their condition in relation to the categories set out in BS 5837 (2012).

The woodland to the north of the stream primarily comprises predominantly Poplar and Willow, with a number of old 'pollard' managed Willows evident, both adjacent to the stream edge and directly within the stream course. A number of these 'pollard' managed Willows were in a structurally poor state of health, with extensive stem decay and limb failure at the old pollard points evident. Development within the site will have no impact on these trees and this woodland is in third party ownership and beyond the land controlled by Crest Nicholson. Management of this woodland north of the stream would need to be undertaken by the landowner.

The woodland would however benefit from management intervention, with some minor thinning work, general storm damage clearance and re-planting work, to diversify the age class and species composition, to assist in the development of the next generation of screening woodland trees.

1.3.2. A38 Junction

The planting mix in this area can be described as being typical 'highways,' comprising predominantly Field Maple and Hawthorn, with the occasional Ash and Oak. The trees have developed to a height of approximately 12 metres but due to a lack of management, with the exception of the mature Oak tree located within Area 3, there are no single individual dominant trees considered to have any great merit.

The existing planted area consists of three principal areas of woodland (Areas 1, 2 and 3) around an area of scrub grassland, which has now developed to form a dense impenetrable bramble and nettle area, with little aesthetic merit. Trees form a barrier around the edges of this grass area, with the densest tree planting located at the northern and southern extents.

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Area 1 primarily comprises embankment planting consisting of Cherry, Ash, Oak, Dogwood, Field Maple & Hawthorn.

Area 2 comprises a mixed planted area located between the A38 and access road. This area is dominated by Field Maple and Ash with trees evident at their original planting density and is contained on its south eastern boundary by a section of hawthorn hedge. A small clearing within this area is smothered by impenetrable Bramble, branches adjacent to the access road are starting to encroach over the road edge.

Area 3 comprises a mixed planted area located between main A38, flyover and factory complex access road. The southern and western edges of the area are dominated by Bramble and other scrub shrub growth. The A38 roadside woodland is dominated by Field Maple and Ash with trees evident at their original planting density.

A large mature oak tree is notable within this area and appears to have undergone substantial remedial tree surgery work in the past - with major limb reduction / removal work, good new foliage re-growth occurring to visually re-create the trees crown.

There is no evidence to suggest that there has been any interim maintenance work to these areas, as tree and shrub development is still evident within their original planting lines and at even spacing. The lack of management intervention has created the 'thicket'-like scrub woodland which is almost impenetrable. It is evident that many of the trees, within the woodland area, have developed as multi stemmed individuals, and it is suspected that many of these trees may develop 'structurally weak' fork unions, which could pose a risk to road users.

1.3.3. A38 corridor

The planting mix along the A38 road corridor consists of grass verges with hawthorn hedges and individual groups of trees located along the road boundaries. A number of prominent trees are located within the centre of the Cross Keys roundabout and located within adjacent hedgerows and grass verges.

1.4. Summary of Proposed Development

Details of the proposed development are set out within the application drawings. In summary, this comprises the construction of a new highway access into the site off the A38 with shared cycleway/footway and the creation of an attenuation pond to take surface water run-off.

The works will involve fairly significant earthworks to accommodate the new highway access geometry and attenuation pond.

Minor adjustments to kerbs and footpaths are proposed around the Cross Keys roundabout.

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2.0 Tree Retention and Removal

The extent of planting within the areas affected by the A38 Junction and corridor proposals are illustrated on Drawings 3651-105 and 106 submitted with this application and are summarised below under the following key headings:

2.1. Shorn Brook Stream Corridor

All existing mature trees along the Shorn Brook Corridor will be retained and protected during construction. The locations of trees to be retained are identified on Drawing 3651LO_105 and 106. All proposed earthworks associated with the attenuation pond fall outside of the RPA's of the existing trees and therefore there will be no changes in levels around the base of these trees.

All retained trees will be protected during construction operations in accordance with the specification set out in section 3 below.

2.1.1. Trees to be removed on arboricultural grounds

The updated arboricultural survey recommends removal of a number of trees, along the Shorn Brook which are in very poor, or a structurally unsound condition. These trees are highlighted within the survey sheets contained in Appendix 1 and include Tree numbers: SB4,SB5,SB6,SB9 and SB10.

2.2. A38 Junction

The construction of the junction and new access road will necessitate the excavation of a large section of the existing road embankment and the removal of a substantial section of the existing scrub woodland and overgrown grassland that makes up areas 1 and 2.

A section of area 2 will be unaffected by the works and will therefore be retained.

Where the existing woodland thicket is retained, this should be subject to 'selective thinning', to remove the poorer multi stemmed and suppressed trees and especially where they are situated in close proximity to the new road, replacing them with more appropriate 'single' stemmed trees. It is suggested that where re-planting opportunities permit, planting activities should aim to diversify the existing tree species through the planting of 'native' species such as Wild Service Tree *Sorbus domestica*, Common Pear *Pyrus communis*, and Wild Crab Apple *Malus sylvestris*.

Area 3 will be unaffected by the proposals.

2.3. A38 Corridor

The highway geometry adjustments around the Cross Keys roundabout will not affect any tree or shrub planting, however is likely to result in the removal of sections of existing grass verge to accommodate new footpaths and kerb adjustments.

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2.4. Timing of operations

Vegetation will be removed outside of the bird-nesting season of March to June wherever possible. Where this cannot be achieved, all areas of vegetation to be cleared will be checked by a suitably qualified ecologist prior to clearance and felling to establish the presence of any nesting birds. If no nests are found, vegetation clearance will proceed. If nest are found, clearance or felling will be delayed until such time as the nests have fledged or upon installation of any localised protection measures as advised by a suitably qualified ecologist.

Any large trees considered suitable for use by roosting Bats will be checked prior to felling. If no evidence of Bats is found, the tree will be section felled in the presence of a licensed bat worker. If a bat roost is identified, tree felling will not take place until such time as an EPS licence application has been submitted and approved by the relevant statutory agencies.

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3.0 Protection of Trees and Vegetation Designated for Retention

3.1. General Statement

The tree's rooting system is probably the most susceptible area to damage, but unlike those parts of the tree above ground, which can be seen and therefore protected, the roots are invisible and generally ignored. The following measures are proposed therefore, to ensure the protection of retained trees both during construction, and in the longer term.

All construction operatives will be provided with a copy of this statement and the requirements will be confirmed at a contract commencement meeting. Where appropriate, tree protection measures will also be written into construction specifications.

3.2. Construction Phase Protection

Protection fencing will be installed prior to the commencement of clearance and construction around the edges of the retained woodland and scrub vegetation as illustrated on Drawing 3651LO_105. Fencing in these locations will comprise 2m high (min) Herras fencing secured by concrete feet or where necessary, with fencing or weldmesh secured by scaffold bracing. This fencing will also be used to protect minor areas of retained scrub vegetation and along hedges to be retained where they fall in close proximity to the road construction corridor.

The line of the protective fence will follow the limit of the tree canopy as a minimum and where possible will extend to the limit of the root protection area.

Protective fences shall be retained during all phases of the construction work unless otherwise agreed with the planning authority and following advice from a suitably qualified arboriculturalist.

3.3. Works within tree protection zone

Construction operations within the protective fencing zone installed around retained trees shall be avoided wherever practical. No works are currently proposed within the RPA's of the individual trees shown to be retained.

3.4. Construction Management

The following additional measures will be adopted to avoid damage to trees during construction operations.

3.4.1. Construction Materials

No storage or mixing of construction materials shall be carried out within 10 metres of any tree protection zone and well away from any watercourse, to avoid any possibility of any root or ground water contamination from construction-related toxic substances.

3.4.2. Services and Utilities

All services and utilities will be routed along highways wherever practical to avoid root protection areas of retained trees. Where this is not practical, the NJUG Guidelines for the

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planning, installation and maintenance of utility services in proximity to trees, April 1995, shall apply to all works carried out under existing tree canopies.

3.4.3. Control of Fires

Under no circumstance shall any fires be lit on the site within 20 metres of any retained tree.

3.4.4. Tree Surgery

The arboricultural survey includes recommendations for tree management which will be implemented as the development proceeds. All tree surgery work should be undertaken to BS 3998: 'Tree Works' (1989) or up-to-date modern 'best practice'.

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A38 Access Junction Arboricultural Statement

4.0 Tree Protection Monitoring Regime

Site management personnel will monitor the construction works on an ongoing basis to ensure that all protective fencing remains in place and in good condition for the duration of the construction works.

A suitably qualified landscape architect or arboriculturist will be appointed to support the project management team and will undertake visits at the following stages as required:

- Prior to the commencement of development to ensure that protective fences are erected in the correct location and have been constructed to the appropriate specification.
- During clearance and excavation work in close proximity to trees to be retained in order to advise on any necessary root protection measures or working practices in the vicinity of tree roots.
- On completion of the development to ensure that work has been undertaken with due regard to tree health, and to re-inspect the trees to ensure that they are in an undamaged state, and where necessary to recommend any remedial tree surgery work that may be required.

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A38 Access Junction Arboricultural Statement

5.0 Tree Surgery Recommendations

5.1. General

As indicated in the survey schedules, a number of trees designated for retention along the Shorn Brook corridor require the implementation of remedial tree surgery operations, with the work principally comprising the removal of deadwood from the tree's crowns, which in some cases equates to large limb sections, and some general crown cleaning operations implemented to remove rubbing, damaged and decaying branches. There is also the occasional requirement to reduce the length of several heavy lateral limbs in order to either visually or structurally re-balance the crown of the tree.

For the purposes of this report the definition of terminology for the undertaking of deadwooding and crown cleaning operations is 'the removal of all deadwood from the crown of a tree, the removal of all old pruning and natural limb fracture stubs, and the removal of all damaged, diseased and dangerous material'. Where branches are physically rubbing against each other, a branch will be adjudged as being 'dangerous' where the damage extends into the 'sapwood' of that and the opposing branch.

5.2. Tree Surgery and Tree Removal Constraints

Prior to the undertaking of any tree surgery or tree removal operations a qualified ecologist should inspect the trees considered to have potential for Bats.

All tree removal operations should be carried out outside of the bird breeding season (generally regarded as March-August) to avoid any form of disturbance to active nests. The dominant trees should be subject to re-assessment on completion of the development phase or sub phase in order to identify any additional minor remedial work that may be required. Thereafter, the trees should become the subject of a regular rolling re-inspection policy in order that their overall condition and health and safety can be monitored.

5.3. Tree Surgery Specification

All tree surgery work is to be undertaken in accordance with BS 3998 'Tree Works' (2010), and implemented by a competent, fully trained and insured contractual firm who are both familiar with and capable of working to the above specifications.

It is recommended that the tree surgery work is implemented on a rolling programme during the period of construction, ideally all works should be carried out prior to the installation of protective fences around retained trees but where this is not possible or desirable, protective fences will be moved temporarily as required to facilitate access for arboricultural operatives.

Although the removal of deadwood and other faults is required within those sections of a tree's crown where it directly overhangs an area of public open space, some deadwood and natural fracture stubs in tree canopies which directly overhang the Shorn Brook corridor and are therefore, away from areas of public access, should be retained. Such retention would preserve a valuable wildlife habitat resource.

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6.0 Appendices

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6.1. Appendix 1. Arboricultural Survey Report

Plan Number	Corresponds number sequence on site plan drawing
Species	Defined in Latin
Tree Age	Expressed ST = Recently Planted ‘Standard’ SM = Semi Mature YM = Young Mature M = Mature OM = Over Mature
Height in Metres	Measured using a clinometer.
DBH in cm:	Stem diameter measured at 1.5 Metres above ground level. Measurement taken in accordance with BS 5837 Trees in relation to design, demolition & construction – Recommendations (2012).
Crown Spread:	Approximate spread measured in metres.
Crown Height:	Measured from ground level to the height of the lowest limb
Observations:	Root Condition: The visual assessment of the rooting area, taking into consideration any evidence of physical damage, soil compaction, excavation work and/or drainage problems.
Stem Condition:	The visual assessment of the stem and main scaffold branches Inspecting for visible faults and wounds, and exterior sign which may suggest the possibility of internal faults.
Leaf & Bud:	The visual assessment of the amount and condition of foliage or bud development, when compared to the foliage of the surrounding trees of the same species.
Recommendations:	The recommendations for any tree surgery work
Root Protection Area:	Reference BS: 5837 (2012) defines the ‘Root Protection Area’ (RPA) as a “layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority”. The calculation for the RPA area is based on a mathematical formula derived from a tree’s stem diameter.

Table 1 – Cascade chart for tree quality assessment				
TREES FOR REMOVAL				
Category and definition	Criteria (include subcategories where appropriate)			Identification on plan
<p>Category U</p> <p>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</p>	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse including those that will become unviable after removal of other U category trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve:</p>			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria – Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
<p>Category A</p> <p>Those of high quality with an estimated remaining life expectancy of at least 40 years</p>	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
<p>Category B</p> <p>Those of moderate quality with an estimated remaining life expectancy of at least 20 years</p>	Trees that might be included in the category A, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
<p>Category C</p> <p>Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</p>	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary /transient landscape benefits	Trees with no material conservation or other cultural value	GREY

Tree Inspection Sheets.

Site Location	Hunts Grove, Haresfield, Gloucestershire
Project	New Residential Development
Re-Inspection Date	18th & 19th September 2013
Inspection Dates	January 2006, November 2007, December 2009
Site Description	Mixed Arable & Dairy Farmland
Client	LDA Design

	Trees recommended for removal following 2013 survey update or considered unsuitable for long term retention within development
	Category U trees
	Category B trees
	Category C trees

Plan No.	Species	Age	Height Metres	DBH	Crown Spread	Observations	Recommendations/Surgery	BS	RPA	Status at outline application
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Shorn Brook Corridor - Significant Individual Trees

66 A	Salix caprea	M	8	22, 15, 14	N 6 S 1 E 1 W 6	Tree located in stream corridor and contributes to the visual appearance of dense visual woodland screen. Area of off-site ground on the northern side has been recently cleared, with the result that the visual aesthetics of this corner of the site has been partly reduced. Stem lean in a westerly direction, extensive crown suppression damage on its south-eastern side, deadwood evident within crown	Remove deadwood and generally crown clean	C2	6.2 M Radius	
66B	Quercus robur	M	15	68	N 9 S 6 E 7 W 7	Tree located within stream corridor and is adjacent to stream edge, main stem forks at 5 metres, minor amount of deadwood evident within crown, anticipate tree may have suffered from some minor repeated plough damage on its southern side. Recent storm related damage has resulted in the structural failure of a major limb on the tree's northern side - limb failure the result of the total structural failure of the adjacent Ash tree.	Undertake clearance work to remove all fractured material from the stream . Retain deadwood within trees crown for its wildlife habitat value provided that the tree is fully encompassed within the woodland screen. Protect in accordance with BS 5837 (2012).	C2	8.2 M Radius	
66C	Fraxinus excelsior	M	19	58	N 3 S 3 E 3 W 3	Total structural failure of tree during recent storms. Tree has snapped off at approximately 4 metres leaving only a pole. Fractured section of tree has collapsed into the stream way causing a potential blockage.	Retain remaining section of stem for its wildlife conservation value, undertake clearance work to remove the fractured sections of the tree to ensure stream remains free of obstructions	C3	7.0 M Radius	

Plan No.	Species	Age	Height Metres	DBH	Crown Spread	Observations	Recommendations/Surgery	BS	RPA	Status at outline application
66 E	Populus alba	M	19	69	N 8 S 7 E 8 W 9	Dominant woodland edge tree located 2 metres from stream edge, evidence of soil cracking around trees base - possible tree movement, main stem forks at 6 metres, minor fracture wounds in crown, flood erosion damage to adjacent stream bank	No work required at present time	B2	8.3 M Radius	
SB 1	Populus alba	M	18	61	N 5 S 9 E 7 W 8	Main stem leans in a westerly direction, Ivy development on main stem, crown weight all predominantly on trees south-western side	Cut and remove Ivy	B2	7.3 M Radius	
SB 2	Populus alba	M	17	Approx 100	N 9 S 5 E 6 W 7	Tree located on northern side of stream and is therefore potential an 'off-site' tree, main stem snapped out at 14 metres - snapped out section blocking stream course, dense Ivy smothering main stem, major decay in resultant fracture wounds	Cut and remove Ivy and clear stream course	C2	12.0 M Radius	
SB 3	Acer campestre	M	9	30, 20	N 4 S 5 E 4 W 3	Tree not plotted on supplied site plan. Tree located 2 metres from stream edge, stem forks at 0.25 metres, deadwood and old fracture wounds/stubs in crown, slightly thinning overall foliage density, snapped out top from adjacent tree resting in crown	Remove deadwood and hanging fractured branches	C2	6.0 M Radius	
SB 4	Populus alba	M	18	43	N 0 S 7 E 4 W 5	Main stem leans in a south-easterly direction, numerous 'woodpecker' holes on main stem - potential for significant internal decay, deadwood and upper crown dieback evident, thinning overall foliage density	Fell	U	5.2 M Radius	Recommended for removal based on 2013 survey
SB 5	Populus alba	M	19	51	N 0 S 10 E 9 W 2	Field edge tree, all crown weight on canopies southern side - site side, thinning overall foliage density, deadwood and 'woodpecker' holes on main stem at 2.5 metres - suspect internal decay. Tree in a structurally poor condition	Fell	U	6.1 M Radius	Recommended for removal based on 2013 survey
SB 6	Populus alba	M	18	45, 39, 33	N 12 S 7 E 4 W 5	Group of three stems all located within 1 metres of each other and have developed as a single unit with a combined crown. Tree group located 2 metres south of stream edge, the two smaller stems have developed with significant northerly leaning stems, main vertical stem suppressed on its western and eastern sides, deadwood in crown, thinning foliage density. Tree with inherent stem weakness.	Recommend fell	C1	14.1 M Radius	Recommended for removal based on 2013 survey
SB 7	Populus alba	M	18	61	N 11 S 10 E 8 W 2	Tree located within 2 metres of stream edge, minor stem lean in an easterly direction, flood erosion damage around stream edge adjacent to tree, large hanging limb in crown at 6 metres, main stem forks at 6 metres, crown weight predominantly on trees north-easterly side	Remove deadwood and crown clean	C1	7.3 M Radius	
SB 8	Populus alba	M	19	51	N 10 S 0 E 9 W 4	Main stem leans in a northerly direction over stream corridor, suppressed crown, minor amount of deadwood in canopy	No work required at present time	C2	6.2 M Radius	

Plan No.	Species	Age	Height Metres	DBH	Crown Spread	Observations	Recommendations/Surgery	BS	RPA	Status at outline application
SB 9	Populus alba	M	19	54, 51	N 4 S 7 E 8 W 3	Structurally poor tree - tight and potential weak 'included bark' fork union at 1 metres, major fracture wounds in crown,	Fell	U	12.6 M Radius	Recommended for removal based on 2013 survey
SB 10	Populus alba	OM	5	100 +	N - S - E - W -	Remains of a Poplar tree, stem forks at 2 metres, loss of canopy due to storm damage - original canopy blocking stream course	Clear Stream way	U	12.0 m Radius	Recommended for removal based on 2013 survey
SB 11	Quercus robur	YM	8	40	N 4 S 12 E 6 W 6	Tree located on stream edge, main stem forks at 3 metres, long lateral limb development in southerly direction	No work required at present time	B2	4.8 M Radius	
SB 12	Populus alba	M	21	80	N 10 S 10 E 10 W 6	Visually dominant Off-site tree located on northern side of stream, stem swept in a northerly direction, main stem forks at 7 metres, deadwood and old fracture stubs in crown	No work required at present time	B2	9.6 M Radius	
SB 13	Fraxinus excelsior	M	17	56	N 10 S 10 E 8 W 6	Tree located on southern side of stream, crown partly suppressed on its southern side, main stem forks at 6 metres, Ivy development on main stem, deadwood in crown, slightly thinning overall foliage density	Cut and remove Ivy	B2	6.7 M Radius	
Tree groups										
G8	Mixed Species Group	YM	< 11	< 20	\	Planted 'double row' of tree to form a boundary screen. Species comprise of Ash, Field Maple, Cherry, Hawthorn, Oak. Lower branches on site side are regularly cut as part of general site hedge cutting operations and are forming a 'hedge 'like face, several suppressed trees amongst group, several tree with tight and potentially weak 'included bark' fork unions. Potential for soil compaction damage to have occurred to the rooting systems of the areas western edge	Check tree ownership. Remove deadwood and generally crown clean, cut and remove Ivy, Recommend some additional planting along proposed development side of tree belt to strengthen the visual screen. This could be facilitated through the planting of small groups of tree and / or the planting of a mixed species hedgerow.	< B1	\	
G13	Mixed Poplar & Willow Area, with Ash, Field Maple & Hawthorn and occasional Oak	M	< 22	< 65	\	Area of large mature Poplars several of which are showing major limb fracture wounds and 'canker' development, occasional collapsed tree within area, water erosion around root plates of stream edge trees, several severely leaning trees, deadwood and upper crown dieback apparent, 'woodpecker holes' apparent within a number of the trees suggesting the possible present of areas of stem decay, natural stream dams caused by fallen/partly collapsed trees causing water 'stress' damage to adjacent trees	It is recommended that the dead and dying Elm along the corridor are removed and replaced with suitable native spp. In addition, general clearance work along the stream corridor should be undertaken to remove all blockages along its entire length, in order to produce a totally uninterrupted flow of water through the site. Mature trees along this corridor are dealt with above for individual trees with an SB prefix.	Varies	7.8 M Radius	
A38 Junction										

Plan No.	Species	Age	Height Metres	DBH	Crown Spread	Observations	Recommendations/Surgery	BS	RPA	Status at outline application
Area 1	Mixed Species Group	< YM	< 10	\	\	Embankment planting comprising of Cherry, Ash, Oak, Dogwood, Field Maple & Hawthorne. Branches starting to overhang pavement boundary edge and around street lamp	Ensure 2.5 metres of height clearance over pavement and prune to clear branches from around street lamp	B2	\	Vegetation to be removed where required to facilitate A38 access.
Area 2	Mixed Group	< YM	< 12	\	\	Mixed planted area located between main A38 and access road. Area dominated by Field Maple and Ash with trees evident at their original planting density. Small clearing within area which is smothered by impenetrable Bramble, branches adjacent to access road starting to encroach over road edge	Prune road edge trees to ensure unobstructed vehicle visibility and movement. Recommend selective thinning of woodland group to prevent long term suppression damage by releasing the 'best' quality tree from long term development	B2	\	Vegetation to be removed where required to facilitate A38 access.
Area 3	Mixed Group	< YM	< 12	\	\	Mixed planted area located between main A38, flyover and factory complex access road. Southern and western edges of area dominated by Bramble and other scrub shrub growth, area of planted A38 roadside woodland dominated by Field Maple and Ash with trees evident at their original planting density.	Recommend selective thinning of woodland group to prevent long term suppression damage by releasing the 'best' quality tree from long term development	B2	\	
Area 3 Oak	Quercus robur	OM	12	Approx 100	N 5 S 5 E 5 W 5	No physical access too or around tree due to density of Bramble vegetation. Tree appears to have undergone substantial remedial tree surgery work in past - with major limb reduction / removal work, good new foliage re-growth occurring to visually re-create the trees crown. Decay pathogen of Sulphur polypore evident on large pruning wounds on stems southern side. Tree suggested as being reduced as part of the A38 / Bridge Flyover works.	No work required at present time. Tree not within falling distance of road network	B2	12.0 M Radius	

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No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

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Sources Ordnance Survey

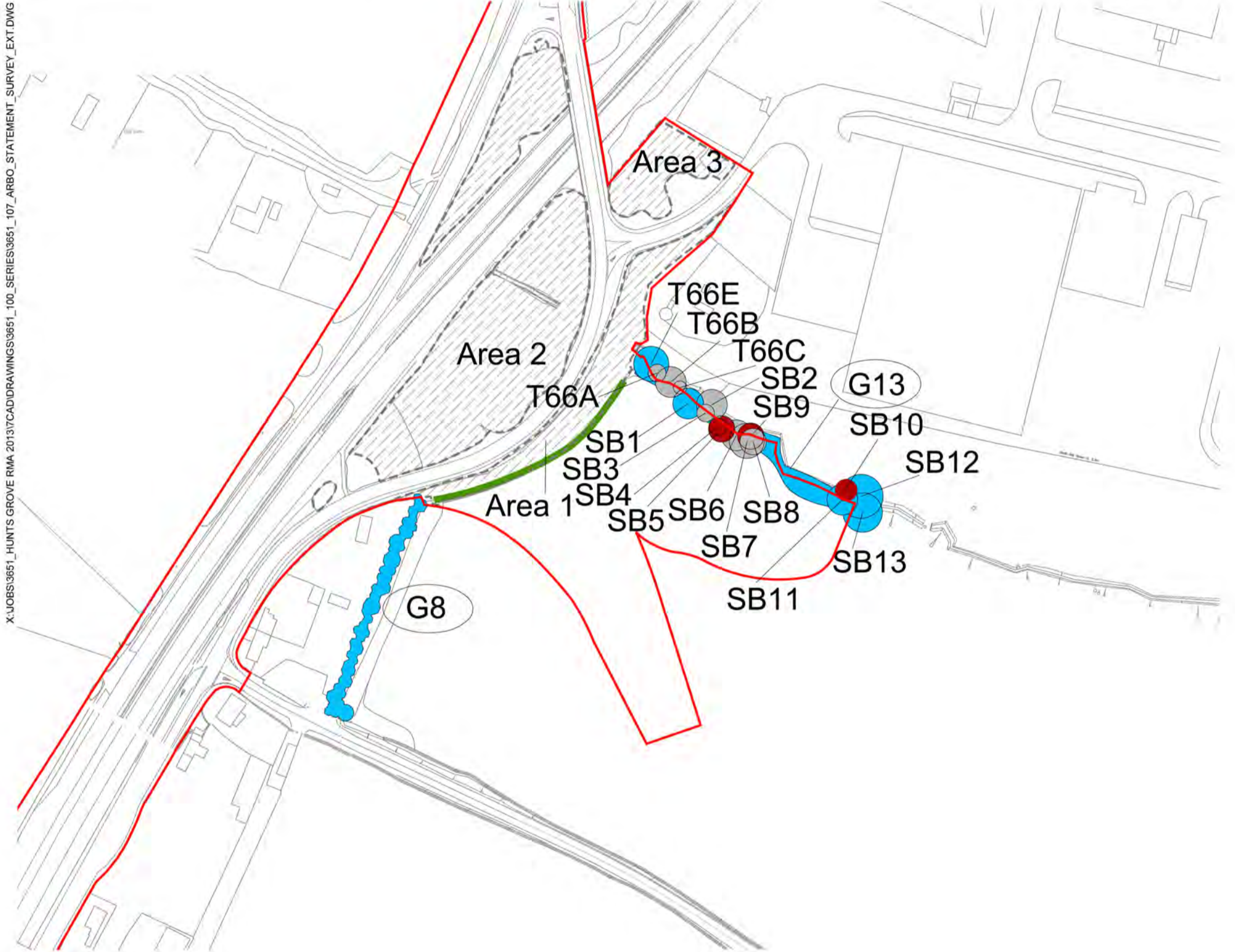
PROJECT TITLE
Hunts Grove








A Issued for planning approval
REV: DESCRIPTION
ISSUED BY Oxford
DATE December 2013
SCALE@A3 1:2,000
STATUS Planning

RB 17/12/13
APP. DATE
T: 01865 887050
DRAWN DW
CHECKED DW
APPROVED MF

DRAWING TITLE
Arboricultural survey extract

DWG. NO3651LO_107A



-  Reserved Matters Application Boundary
-  Tree groups
-  Category B - trees of moderate quality
-  Category C - trees of low quality
-  Category U - trees to be removed for arboricultural reasons
-  Existing hedgerows
-  Existing woodland/scrub areas at A38 junction (No detailed survey information available)



Note: This drawing provides an update to dwg 2073LO06E_Figure 6.4_Vegetation Survey, in the vicinity of the Shorn Brook Corridor that was issued as part of the outline application.

Understorey/hedgerow vegetation at G13 not shown.

No detailed survey information available for areas 1-3.

December 2013

A38 Access Junction Arboricultural Statement

6.2. Appendix 2. Bibliography

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