Proposed Residential Development at the Old Station, Station Road, Meldreth

Tree Survey and Arboricultural Impact Assessment

March 2017

Prepared for
Partners in Planning and Architecture Ltd

Prepared by
Richard Morrish Associates Ltd
Landscape Design + Environmental Planning
56 Common Lane
North Runcton
King's Lynn
Norfolk, PE33 ORF
Tel. 01553 840284
Email: enquiries@rmassoc.co.uk
www.rmassoc.co.uk

Contents

1 Introduction.

1.1 This report has been prepared to support a planning application for a new residential development on part of the former old station yard at Station Road, Meldreth. The site is presently occupied by a former railway warehouse, a more recent industrial building and a large area of hardstanding. Development will require demolition of existing buildings.

1.2 The tree survey was first undertaken on Tuesday 7th March, 2017 by Richard Morrish (Tech ArborA). The survey base data has been provided by ASC Surveys. Details of the proposed development have been provided by Partners in Planning. The site lies outside of the Meldreth Conservation Area. No trees on or adjacent the site are known to have individual Tree Preservation Orders.

1.3 Limitations: Trees have been assessed from ground level only and no detailed investigation of any structural or physiological defects has yet been undertaken. It should be stressed that although the health and safety of the trees is an aspect of the assessment methodology used, this report is intended for planning purposes only. It should not be used as an assessment of tree safety and Richard Morrish Associates can accept no liability for any damage or injury sustained in future as a result of the failure of any tree or its parts. It will remain the present and future tree owner's responsibility to consider the health of the trees and take appropriate management action to discharge the owners duty of care.

1.4 Disclaimers: This report is intended to support an imminent planning application. Should the planning and development process extend beyond a year of the date of this report, or actions occur on or near the site that could undermine the health, condition and / or stability of surveyed trees, it is recommended that the tree retention categories are reviewed prior to site works commencing.

2 Terminology. (See also Appendix C)

2.1 The criteria and terms in the report are drawn from BS5837:2012 – 'Trees in relation to design, demolition and construction – recommendations'. The BS aims to assist

tree retention in the vicinity of new construction where the objective should be to achieve a harmonious and sustainable relationship between trees and structures. The survey work includes a standardised set of measurements, an assessment of the trees' age and general condition (both physiological and structural) and an estimate of the trees likely remaining contribution (in years) for the site. All assessments are based upon the site conditions as they existed at the time of the inspection. On the basis of the findings, each tree is allocated one of four categories ('A', 'B', 'C' and 'U') based on quality and value (in a non-fiscal sense). This provides a guide as to its general suitability for retention within the site where development is proposed. Categorisation is defined using a 'cascade chart' (refer to Appendix C) and includes sub-categorisation to define whether a tree has particular *arboricultural* values, *landscape* values and cultural *and conservation* values.

2.2 The survey allows development of a *Tree Constraints Plan* (refer to drawing TS01, Appendix A) based on the calculation of *Root Protection Areas (RPA's)* for each of the trees on or near the study site. The RPA is defined 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 RPA is generally shown as a circle. In reality the distribution of roots around a tree will frequently prove to be asymmetrical due to the presence of physical constraints or a variety of conditions that may affect root development. Where it is considered likely that root growth has been restricted in one direction and favoured in another the arboriculturist may propose to modify the RPA shape to better protect the tree's viability.

2.3 The tree constraints analysis also normally includes an assessment of the likely ultimate size and shape of the trees on or near the study site, their likely shading and screening effects, potential branch, leaf or fruit fall and other matters that could conflict with (impact on) proposed structures or the future sustainable management of the site.

2.4 The tree survey and constraints information is applied to the design plan to prepare an *Arboricultural Impact Assessment (AIA)* and a preliminary *Tree Protection Plan (TPP).* For the AIA, an indicative scale of *slight, moderate* to *major* is used to identify the anticipated significance of potential impacts (adverse or beneficial) to trees in construction or operational stages of development.[1] This assessment is used to inform detailed design development – including the positioning of buildings, pavements, retaining structures, services (above and below ground), finished site levels and landscaping works (including new tree planting). The *AIA* report and preliminary *TPP* plan helps to define a sustainable design outcome for existing and future tree planting.

2.5 Once a site plan has been finalised the *TPP* can be agreed and an *Arboricultural Method Statement (AMS)* is prepared detailing how trees selected for retention will be protected throughout the construction period. This defines *Construction Exclusion Zones (CEZ's),* recommendations for construction site arrangements and temporary infrastructure, construction details that allow trees to be safeguarded, details of any preparatory tree works and, if required, a schedule of those works for tendering purposes.

3 Tree Survey – Summary.

[1] Refer to Appendix C – Item 1:12 for further explanation of this scale.

3.1 The main site with buildings and yard areas are essentially flat at around 23m AOD and have no significant vegetation. There is one small Sycamore tree noted near the proposed site boundary.

3.2 Along the western site boundary with Station Road, and outside of the existing boundary fence, is an overgrown section of mainly hawthorn hedge (5-6m tall). Further south and within the site boundary fence is a row of leylandii conifers that were probably planted as a hedge but are now 10-12m tall.

3.3 Station Road then grades up to pass over a railway bridge south of the study site and this creates a steep embankment. The embankment is covered with dense vegetation including mainly *Prunus* scrub and two notable trees – a Walnut and Willow. There is also one larger plum which can be counted as an individual tree.

3.4 Soils in the locality are understood to be calcareous and loamy with underlying gravel. It should be noted the embankment is presumably man made and could incorporate material from elsewhere. The presence of shrinkable clays is not established and further engineering advice should inform the need for any new foundation design near trees.

4.0 Arboricultural Impact Assessment.

4.1 The AIA identifies the likely significance of impacts to trees from the construction and operational activities expected from the proposed development. A sliding scale of *slight*, *moderate* and *major* has been applied to indicate the anticipated significance of impacts where *major* is likely to lead to decline and death of the tree and *slight* is damage that the tree is likely to recover from. (See Appendix C).

4.2 T1 is a young sycamore. It appears to have grown from a crack between concrete slabs of former buildings. It has no particular arboricultural value and is unlikely to be sustainably retained when the concrete is demolished. It is recommended for removal. This will have ***negligible*** impact on the wider setting.

4.3 H1 and H2 are the hawthorn and leylandii sections of boundary hedge. The hawthorn is outside the existing chainmesh site fencing. Along with an area of grass verge and a short section of ditch it contributes a 'rural' element to the setting. The nearest proposed dwelling (Unit 1) is approximately 3.5 metres away. The hedge will provide a mature boundary element and enclosure from the street. It is recommended to remove the chainlink fence and retain the hedge. Cut it down to 1m in height, preferably laid in a traditional style. If the remaining hedge is protected throughout construction this should have ***negligible*** impact. A more suitable screen fence (1.8m close board?) should replace the chainlink. On site appraisal suggested there would not appear to be a sight lines issue with the existing station entrance.

4.4 H2 is the overgrown leylandii 'hedge' situated inside the chainlink fence. The trees are generally less than 2m from the road carriageway and will be close and overbearing to units 2, 3, 4 and 5. Because they have been pruned to the stem to 2m height they provide little site enclosure at road level. It is recommended they are removed and space is made for a more suitable boundary fence with new hedge planting on the roadfront. Because the leylandii are tall their removal will be notable, but the longer term outcome will be more suitable for the setting.

4.4 T2 is a mature walnut (*Juglans regia*) on the road embankment outside the site boundary. It has veteran features (decay pockets) and ivy and vine in the canopy. It is

approximately 1m from the railway warehouse and is likely to have grown since that building was built. It is therefore unlikely that roots extend under the building – but possible, and this will have to be established when site clearance takes place. The canopy extends over the building and again this will need consideration at site clearance and construction stages. It is legally acceptable for a neighbour to cut a tree canopy back to the boundary line. The tree has a large decay cavity at approximately 700mm above ground level. Ivy and vine prevented further visual tree assessment. Liaison with the landowner (Highways?) to remove the ivy and vine and do a full tree inspection is recommended. It would be preferable to keep the tree if it is sound, but a crown reduction could be appropriate. It should be possible to keep impacts to ***slight*** with an appropriate approach.

4.5 T3 is a large sallow (*Salix caprea*) just outside the southern site boundary. It has grown up against the modern warehouse at the south end of the site and appears to be leaning on the building. Willow are fast growing and *Salix caprea* easily self-seed – therefore the tree is not considered have particular landscape or arboricultural value – although it has some wildlife benefit. It is not considered compatible with the proposed demolition of the existing building or the construction of the new dwellings. It is therefore recommended for removal but this will need to be undertaken in liaison with the landowner – which may be Highways or Network Rail. Because the tree is not especially notable from the road the removal should have ***negligible*** impact on the wider setting.

4.6 G1 and G2 are areas of scrubby vegetation mainly consisting of Prunus (plum), Elder, Bramble and Rose. T4 is a slightly large plum tree within this thicket. All of it is outside of the development site and should not be affected by the development. It will have some enclosing benefits for the new dwellings and additional wildlife and slope stabilisation benefits. It is suggested it is retained – although its future management will depend on the landowner.

5.0 Tree Protection Plan / Arboricultural Method Statement.

(Refer to plans TPP 01 and Appendix B)

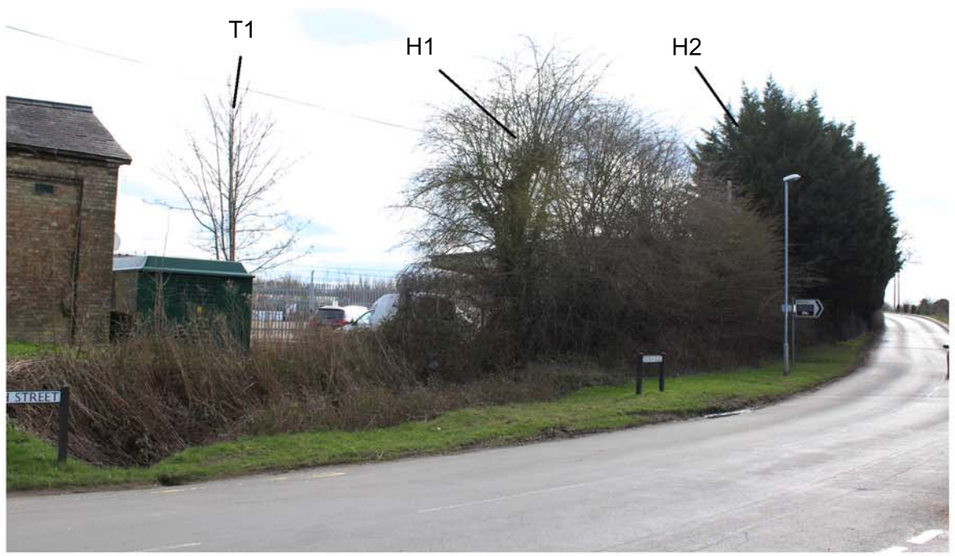
5.1 Issues that shall need to be addressed by the Arboricultural Method Statement and illustrated on the Tree Protection Plan are summarised below:

1. Tree / hedge removals.
2. Tree / hedge pruning.
3. Establishment of construction exclusion zones.
4. Ground protection and root pruning – if required.

5.2 Replacement planting: Some suggestions for new planting locations are indicated on the TPP.

Richard Morrish - Chartered Landscape Architect, Tech Arbor A.
Finalised 14-03-2017

T1. Sycamore.



Site boundary with Station Road, looking south.

H2 - Leylandii boundary planting. Note clear stems to 2m.

T2 - Walnut. Note ivy and vine growth.

Looking east at G1 from road.

View of T3 (Salix) leaning on existing building.

Base of T2 (Walnut), showing proximity to existing building and large decay cavity.

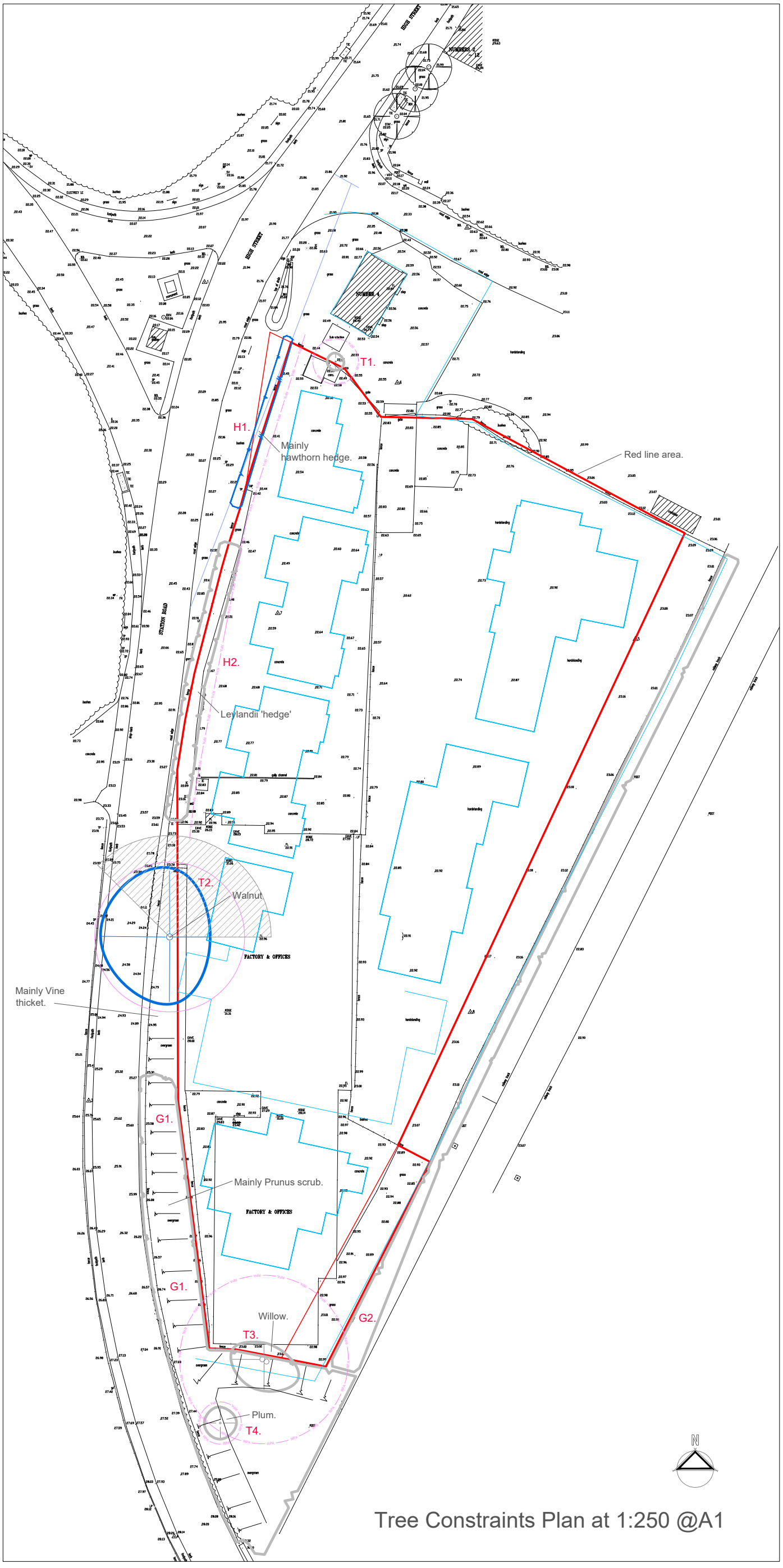
Meldreth Station Redevelopment
Arboricultural Survey
Site Photographs

APPENDIX A – Tree Survey.
Tabulated Tree Survey Information

The # symbol indicates estimated measurements due to restricted access or calculated diameter if multi-stem. If trees were measured below the standard height it is stated.

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T1	Sycamore *Acer pseudoplatanus*	9	170 @1m	N. E. W. S. **1 1 1 1** **1.5**	N. E. W. S. **1**	*YM*	G	F	20+	20 x 10 ?	Ci	Small sycamore growing from pavement to be removed. Could grow much larger and clash with new development. Suggest remove.	- -
H1	Hedge – mainly hawthorn *Crataegus monogyna*	6	100-150	N. E. W. S. **3m** **wide**	N. E. W. S. **-**	*M*	G	F	20+	10 x 6 ?	Bi	Mature 'native' hedge – outside of site? Has been allowed to grow tall but could be cut down and retained to create sustainable boundary feature with rural village character. Suggest retain and cut or 'lay' at around 1m height. Remove chainlink fence to rear and protect throughout works	- (2.00m)
T3	Hedge - Cypress × *Cuprocyparis leylandii*	10-11	250-400	N. E. W. S. **4m** **wide**	N. E. W. S. **-**	*M*	F	F	20+	15 x 4 ?	Ci	Cypress probably planted as hedge but has grown tall (and appears to have been topped in the past). It has also been pruned to clear stems up to 2-3m in height. Likely to clash with proposed development and Station Road and to not provide a sustainable screen /enclosure for the site. Suggest remove and replace with more sustainable boundary design including hedging.	- -
T2	Walnut *Juglans regia*	12-14	800 @1m	N. E. W. S. **7 6 6 7** **3-4**	N. E. W. S. **3 - 4**	*M* *(V)*	F	F	20+	-	Bii	A mature walnut with veteran features growing on embankment outside of site – but only 1m from building to be demolished and with canopy partly over building. Co-dominant from 1.5m. Significant decay hollow @700mm on south side. Ivy and Russian vine in canopy to 10-12m (preventing further assessment of tree), canopy 5m over road with minor deadwood. Suggest liaise with landowner (Highways?) to arrange to sever and clear all ivy and vine from canopy and surrounding bank. Undertake full assessment of tree including climbing inspection. Assess need for canopy pruning.	290 sqm (9.60m)
T3	Willow *Salix caprea*	11-12	# 900	N. E. W. S. **3 3 3 3** **2**	N. E. W. S. **2**	*M*	F	F	10+ ?	-	Ci	Large goat willow outside the site boundary but leaning on building to be removed. Liaise with landowner (Highways?) to arrange to fell to ground and remove.	366 sqm (10.80m)

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T5	Plum *Prunus spp*	5	# 225	N. E. W. S. **4 4 3 4** **2**	N. E. W. S. **2**	*YM*	G	G	20+	12 x 8	Bi	A single larger plum in other Prunus scrub. No work required.	23 sqm (2.70m)
G1	Mainly Prunus scrub *Prunus var; Sambucus, Rubus, Rosa*	2-4	-	N. E. W. S. - -	N. E. W. S. -	*YM*	G	F	40+	8 x 6?	Ci	Scrub outside the site. Has some wildlife value – but also probably important for slope protection. Suggest retain. No work required.	- -
G2	Mainly Bramble scrub *Sambucus, Rubus, Rosa*	2-3	-	N. E. W. S. **1 1 1 1** **1**	N. E. W. S. **1**	*YM*	G	F	20+ ?	12 x 8 ?	Ci	Scrub outside the site. Probably railway land? No work required.	- -



Key

- 'B' category tree's
- 'C' category tree's
- 'U' category tree's
- Root Protection Area
- Indicative shade pattern (Tree at likely full height)
- Indicative building plan

Tree Constraints Plan at 1:250 @A1

Rev	Amendment	Ch'kd	Date
-	-	-	-

richard morrish associates
landscape design • environmental planning • arboriculture

56 Common Lane, North Runcton, King's Lynn
Norfolk PE33 0RF Tel: 01553 840284
www.rmassoc.co.uk e-mail: enquiries@rmassoc.co.uk

client :
Partners in Planning and Architecture

job :
Proposed New Residential Development
Old Station, Meldreth

drawing :
Tree Constraints Plan

Drawn RM	Date 09-03-2017	Proj. No. 414/17	
Chckd RM	Scale 1:200 @ A1	Dwg No. TCP 01	

Appendix B: Arboricultural Method Statement

Arboricultural Works

General

1.1 The following arboricultural works are required at the outset of the project and should be completed prior to any other works on site including clearance, establishment of offices and contractors compound, servicing or other groundworks. They will ideally be undertaken outside of the bird nesting season (March to August).

i. Remove T1 and H2. (Leylandii)
ii. Cut down and lay H1.
iii. Liaise with neighbouring landowners re tree and scrub management. (Assume T2 will need some pruning and T3 will be removed).

All tree preparation works shall be undertaken by a competent and qualified arboricultural contractor conforming at all times to BS 3998:2010 and recognised best practice standards. The contractor will submit a detailed method statement for approval by the contract manager before commencing any site works.

1.2 Removal of trees.

The trees/shrubs/hedges will be carefully dismantled on site and stumps removed without damage to other trees or RPA's. All arisings shall be removed from site to the contractors approved tip unless otherwise specified. The contractor will make preliminary inspections to ensure that the works will not impact on protected wildlife as stipulated in the *Conservation of Habitats and Species Regulations 2010*. If protected species such as bats appear likely to be present and may be affected by the works the contractor shall coordinate the appropriate licence applications and appointment of qualified persons, in liaison with the client, before proceeding with the tree work. Leave the site tidy. Avoid tracking over garden areas in vehicles.

1.3 Site clearance.

Clearance of scrub and other unwanted vegetation is likely to require machines. Where such work is required near trees / hedges to be retained operators should work with care, working from outside the tree or hedge canopy line, dragging away with the bucket and avoiding any damage to vegetation to be retained. Never track within the RPA's. In very confined spaces such work should be undertaken manually with hand tools. The general existing ground levels should be retained and no more than 25mm of topsoil should be removed unless otherwise directed by the arboricultural consultant.

Tree Protection Works

Construction Exclusion Zones

1.4 Supply and erect fixed, rigid barriers as indicated on TPP 01 and described in BS 5837:2012 (or similar approved by the arboricultural consultant). The construction exclusion zone (CEZ) shall be clearly marked with an all-weather notice 'Construction Exclusion Zone – No Access'. The protective fencing shall be in place before the demolition works and groundworks commence.

1.5 The barrier fencing shall be maintained throughout the works. If for any reason works are required within the CEZ during the construction period the main contractor must seek advice from the arboricultural consultant before allowing such work to proceed.

Topsoil

1.6 The site masterplan includes new garden and planting areas that will need topsoil. It is unlikely there will be suitable soil on site and there may be contaminated material to remove. No soil stripping or soil storage is therefore proposed.

Soil Stripping / Soil Storage

1.7 Not used.

1.8 **Imported Topsoil**

If there is insufficient topsoil on site the Contractor shall allow to supply and spread approved topsoil as necessary to make up levels as required. Soil shall conform to BS 3882 (2007) for the grade of topsoil specified. (See also the Landscape Specification).

The Contractor shall arrange for the CA to inspect a representative sample of the soil before making further deliveries to site. The CA will retain this for comparison with subsequent loads. The soil shall conform to the following requirements:

- Texture: Medium loam
- pH 5.0 – 8.0
- Organic matter: minimum 5%
- Nutrient content: Nitrogen, phosphorus, potassium and magnesium minimum index values to be as for general purpose grade of BS 3882
- Made up of discernable crumbs, typically 2-7mm diameter, each comprising an aggregation of soil particles attracted around a sticky humus centre.
- Maximum stone size: 50mm in any dimension
- Maximum stone content: 5% by dry weight
- Free from contaminants and pernicious weeds.

1.9 **Ground Protection Works**

Ground protection will be required where RPA areas cannot be retained within a CEZ area (refer to plans). Ground protection allows access for building works whilst protecting the soil and potential root growth area. Remove organic material (eg grass,) from the ground without excavating more than 25mm of topsoil. If required, Make up levels with clean topsoil (not more than 150mm depth) to provide level ground. Cover the area with a layer of permeable geotextile, undertake any other levelling required with clean coarse sand and cover the area with scaffold boards - or a similar robust timber, metal or plastic tracking system. The purpose of these measures is to create a firm and safe base from which to undertake construction works (foundation construction / scaffold erection e.t.c) and to minimise compaction and contamination of the rpa soil zone. When clearing these ground protection measures at the completion of works, the goal will be to remove all waste arisings (mortar and other building residues) with the geotextile layer, and leave the underlying soil clean and uncontaminated.

1.10 **Root pruning**

Adjacent to building works where it is anticipated that minor incursions into the RPA of trees and hedges will be required for the construction of footings and service trenches, any roots that are uncovered will need to be carefully pruned. This will minimise the extent of damage and the potential for disease to affect the tree. Any exposed or damaged roots should be carefully trimmed so that the final wound is as small as possible and free from ragged torn ends e.t.c. When roots are exposed in trenching works – enter the trench and neatly cut the root off at the trench wall with a sharp, clean, saw, lopper or secateurs. Do not rip or strain the root, so damaging the root further into the rpa. Avoid loosening soil around the root which is likely to leave the root in an air pocket leading to desiccation and death of the root. Where trenches with roots are to remain open for more than an hour, any roots exposed by trenching should be protected from drying out, freezing or waterlogging during inclement weather. This is likely to require covering with a damp material (eg hessian or straw). Avoid contamination of roots or the soil around them with phytotoxic materials (eg cement or lime). Do not leave trenches open for more than 48 hours without a full root protection methodology agreed by the arboricultural consultant.

'No-Dig' Pavement Construction

1.11 The purpose of the 'no-dig' pavement construction is to protect the root zones of trees where pavements are proposed within the RPA of trees to be retained. The only areas where no-dig pavements may be required in this scheme is where an area of proposed parking is proposed on the western boundary. A provisional approach for construction is outlined below.

1.12 Surface strip: The top 50mm of existing vegetation/soil will be carefully removed from the area to be prepared – preferably with hand tools or a small machine. Any prominent surface roots with a diameter greater than 25mm shall be retained. Remove any arisings to the contractor's off-site tip. The work shall be undertaken in suitable weather conditions (i.e. not when soils are frozen or saturated).

1.13 Geotextile membrane: A non-woven geotextile separating layer will be laid over the prepared ground (e.g. *Terram 1000* or similar approved). If required the ground shall be roughly levelled first by spreading coarse sand or fine soil.

1.14 Ground stabilising layer: A two dimensional ground stabiliser layer will then be laid e.g. a Tensar *TriAx* geogrid – www.tensar.co.uk) or a Tenax *LBO* geogrid - www.geosyn.co.uk) or similar approved, and this layer shall extend under proposed restraining edges and/or adjacent surfacing.

1.15 Retaining Edge: (Provisional). Retaining edges shall be a 50mm thick tanalised edging board with 50x50x300mm stakes. Adjoining soil levels within the root protection area must not be substantially raised to marry-up levels. (A maximum depth of 150mm of additional topsoil would be acceptable in localised areas).

1.16 Load bearing layer: To be specified by engineer in consultation with arboricultural consultant.

1.17 Pavement wearing course: To be specified by engineer in consultation with arboricultural consultant.

Miscellaneous works.

1.18 Service corridors had not been fixed at the time this report was prepared. Service corridors (above or below ground) must avoid the trees to be retained and their root protection areas. The arboricultural consultant must be immediately consulted should any plans for services, drainage works or alteration of soil levels be likely to affect the proposed construction exclusion zones around trees and hedges.

1.19 Proposed temporary locations for the site office, contractor parking, materials storage, and soil storage areas had not yet been fixed. Any layout that may impinge on the CEZ's must be agreed with the arboricultural consultant.

1.20 Cement and fuel storage, refuelling areas, concrete mixing areas, mixer washdown areas must be located away from CEZ's and the contractor must ensure that spillages and runoff is not allowed to contaminate retained topsoil or RPA's. No fires shall be permitted on site where flames might come within 10m of trees.

Landscape Works.

1.21 At completion of the main building phases and after the site has been cleared of all building waste and / or contaminated subsoil and in preparation for the landscape works, the tree protection barriers can be removed. Stored topsoil shall be moved and spread in suitable weather conditions (ie not when frozen or saturated) and utilised as per the landscape specification.

1.22 Landscape works carried out within the RPA areas must be undertaken with care, utilising hand tools where required and avoiding damage to tree roots. Tractor-mounted rotovators or large machines must not be allowed to cultivate or over-track the RPA's.

1.23 Strengthening and enhancement of the existing hedge on the road front is recommended. A suggested approach would utilise a mixed native selection of transplants (1+2 / 600-900mm bare root stock) to complement the existing hedging. Suggested species are: 50% Crataegus monogyna (Hawthorn); 15% Cornus sanguinea (Dogwood), 15% Acer campestre (Field maple); 10% Viburnum opulus (Guelder Rose), 10% Corylus avellana (Hazel).

1.24 A copy of the Tree Protection Plan and Arboricultural Method Statement must be made available to the landscape contractor and retained on site.

Monitoring Site Works.

1.25 A suitably qualified arboricultural consultant shall be retained throughout the construction period (including any defects liability or maintenance period) in order to:

- liaise with the construction team regarding tree protection matters and any changes to the design or construction management plan that may arise.
- confirm that tree protection works have been implemented properly and are maintained throughout the works.
- assist with programming of the no-dig construction works and their implementation.
- act as the clients representative in arboricultural matters when liaising with the LPA or any other stakeholders.

It will be necessary for the LPA to stipulate this work as a condition of consent if the tree officer requires ongoing reporting.

Appendix C: Terminology of information provided in the survey schedule.

1.1 **Tree Identification:** A sequential reference number has been given to each individual tree.

1.2 **Species** – Latin and common names are given.

1.3 **Principal dimensions:** The dimensions taken are:

- **Height**, estimated and expressed in metres (to nearest 0.5m).
- **Stem diameter** (in millimetres), obtained at 1.5m above ground level (or estimated where measurement is impractical). On sloping ground, the height is taken on the up-slope side. For irregular shaped stems the narrowest point is normally measured. For multi-stemmed trees (indicated by the letter 'M') an average diameter is calculated using criteria and formulae provided in BS5837:2012, Annex C. (To nearest 10mm)
- The **crown spread** is expressed in terms of the crown radii estimated at the four cardinal points (N,E,S,W) and given in metres.
- **Height above ground level** is expressed by two measurements – the height of the canopy above ground level (N,E,S,W), and the height on the stem where the first significant branches are attached.

Note that any estimated figures are given a '#' suffix.

1.4 **Life Stage:** The following age definitions are used in RMA surveys:

NP Newly planted: Estimated to have been planted within last 3 yrs.

YM Young Mature: (sometimes called *Early Mature or EM*). A tree estimated to be the first third of its expected life. Established young tree, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & environment.

M Mature: (sometimes called *Middle Aged or MA*). A tree estimated to be in the second third of its expected life. Well-established, still vigorous but unlikely to get much taller, tending instead to fill out and increase spread. Bark may be beginning to crack & fissure.

LM Late-Mature: A tree estimated to be in the final third of its expected life. Fully mature with vigour declining. Likely to possess features that could be regarded as potential faults such as dead or collapsing branches, old wounds, etc. with safety related issues, but also likely to be of high amenity, ecological and potentially cultural value. LM trees can also sometimes be classed as *Ancient* (especially old for the particular species) or *Veteran* (a tree that has acquired the characteristics of old trees (hollows, dead wood, epiphytes etc) but is not necessarily very old for its species).

1.5 **Physiological Condition:** Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress, etc. (Fungal *disease* may be included here but *decay giving rise to structural weakness* is recorded under 'Structural Condition' – see below):

Good Healthy bark, leaves, flowers, fruits – no obvious dead or dying growth.
Fair Indications of slight stress or minor disease (e.g. the presence of minor dieback or of epicormic shoot growth, chlorotic leaves, deficient growth of leaves flowers, fruit).
Poor Significant stress or disease noted; widespread dieback or dysfunctional areas of bark etc.
Dead The tree has no apparent signs of live regenerating material.

1.6 **Structural Condition:** Defects affecting the structural stability of the tree, including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members). Classified as:

Good No obvious structural defects noted.
Fair Minor, potential or initial stages of defects
Poor Some significant defects likely to lead to failure of major branches or the entire tree in future years.
Severe Defects liable to cause significant failure or collapse imminently.

1.7 **Estimated remaining contribution:** An estimate of the time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued maintenance). We indicate by numbers 1-4 the BS5837 categories which are:

1. < 10 years; 2. 10 + years;
3. 20 + years; 4. > 40 years.

1.8 **Retention Category:** Trees are graded into categories **U, A, B** or **C**, based on criteria given in BS5837:2012 and summarised below. Categories A, B and C are further characterised by the use of sub-categories ~ where (i) refers to qualities of the tree of an arboricultural nature, (ii) indicates qualities concerned primarily with their situation within the landscape and (iii) refers to other values such as those of a cultural, historic or ecological nature.

Note: *This is NOT a health and safety classification or risk assessment. The classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.*

U UNSUITABLE TREES: Trees that cannot realistically be retained as living trees in the context of the current land-use for longer than 10 years. Dead, diseased, defective, irremediable specimens, that should be removed on grounds of sound arboricultural management; or trees that will be left unstable or unviable by other essential works; or poor quality specimens that are suppressing potentially better specimens.

A HIGH RETENTION VALUE: Important or valuable trees or groups of trees that are likely to make a substantial contribution to the locality for 40 years or more.

i. Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees or trees within an avenue, etc.)

ii. Trees, groups or woodlands of particular screening benefit in relation to views into and out of the site; those of notable visual importance (including avenues & other features that may be assessed collectively as groups)

iii. Trees, groups or woodlands with significant conservation, historical, commemorative or other value (e.g. veteran trees)

B MODERATE VALUE: Trees or groups of trees likely to make a significant contribution for in excess of 20 years.

i. Good specimens but showing some impairment (e.g. remediable defects, minor storm damage or poor past management) that stops them being 'A' class.

ii. Numbers of trees, groups or woodlands forming distinct landscape features that are of higher collective value than they would warrant as individuals (e.g. non category A trees within avenues). Also trees internal to the site that are of little visual impact within the wider locality.

iii. Trees, groups or woodlands with clearly identifiable conservation or other cultural values and benefits.

C MINOR VALUE: Trees or groups of rather low quality, but capable of remaining for at least 10 years, e.g. until new planting is established. *Also* young trees (below 150mm dia) whose loss would be easily mitigated by new planting, or that could be transplanted.

i. Trees not qualifying in categories A or B.

ii. Secondary specimens within groups or woodlands whose loss would not greatly diminish their landscape value; trees providing only minor or short term screening benefit

iii. Trees with limited or no conservation or other cultural value.

1.9 **Root Protection Area (RPA):** The RPA represents an area considered likely to contain sufficient root volume to ensure survival of the tree if works occur around it. The RPA is calculated as an area with a radius twelve times the effective stem diameter of the tree at 1.5m above ground level. For multistem trees BS5837:2012 has introduced new formulae based on the number of stems. For two to five stems take each stem diameter, square, add the sums together and square root. For trees with more than five stems take an average diameter, square, multiply by number of stems and square root. Therefore, for a multistem tree with 6 stems, average of 150mm diameter each:

150mm x 150mm x6 = 135,000 √ = 367 x 12/1000 = an RPA circle of 4.4m

Further guidance on measurement of tree stems and root protection areas is provided in BS5837:2012 as Annex C and Annex D.

1.10 The RPA of each tree on a site is used to determine the ***Construction Exclusion Zone (CEZ) –*** an area that should be entirely protected from construction works, storage, compaction or contamination throughout the construction period. The CEZ should be protected by sturdy temporary fencing as defined in BS5837:2012 and detailed in a Tree Protection Plan method statement.

1.11 **Notes / Preliminary Management Recommendations:** This column allows for any further field notes and preliminary recommendations for works that are considered necessary to ensure immediate site safety or where further detailed survey investigation is recommended. This might include wildlife surveys.

1.12 **Arboricultural Impact Assessment Scale:** A subjective assessment based on evaluation of the following thresholds: *Slight adverse* – likely to cause minor impacts to the health or other values of the tree (such as amenity and ecological) that the tree is likely to recover from naturally; *Moderate adverse* – notable impacts to the tree which could lead to a long term decline in health or other notably reduced values; *Major adverse* – impacts that are likely to lead to decline and death of the tree. *Slight beneficial* – could have some benefits for the tree or some of its values; *Moderate beneficial* – likely to enhance the health and values of the tree over time; *Major beneficial* – expected to greatly prolong the life of the tree and/or significantly enhance its other values.