Arboricultural
Impact Assessment

Dale Road
Buxton
Derbyshire

Godwin's Arboricultural Limited
www.godwins.co.uk

SUMMARY

Twenty individual trees and seven groups of trees were recorded. In accordance with *BS5837:2012 Trees in relation to design, demolition and construction* twelve individual trees were recorded as retention category 'B' and fifteen individual trees/groups of trees were recorded as retention category 'C'.

The trees were generally found to be in a good to fair condition and no trees were classed as retention category 'U' (unsuitable for retention).

Several low quality self-seeded trees would require removal as they are situated either within, or so close to the proposed development areas that protecting them during construction is not practical.

Should development take place, the trees that are retained should be protected to *British Standard BS5837:2012* to ensure that they remain in a healthy condition during and post development. The *Tree Protection Plan* to the rear of this report highlights the recommended tree protection measures.

Any arboricultural work undertaken should be done so by a competent arborist in line with *British Standard BS3998:2010 Tree Work*.

Contents

1. Introduction

1.1. Project outline

This report has been produced in accordance with *British Standard 5837: 2012 Trees in relation to design, demolition and construction* to achieve a harmonious and sustainable relationship where tree retention or planting is proposed in conjunction with nearby construction (site-based operations with the potential to affect existing trees).

1.2. Planning context

This report has been produced to comply with planning requirements where trees are to be considered as part of a proposed development. In order to achieve this, arboricultural constraints have been identified and a detailed plan has been produced showing tree location, root protection areas and retention category of each tree. In addition, this report provides an arboricultural impact assessment that evaluates the direct and indirect effects of the proposed development, and where necessary makes recommendations for mitigation measures. This report also includes a tree protection scheme and tree protection plan that demonstrates how the retained trees would be protected during construction, and where tree protection measures are to be implemented.

1.3. Survey details

A ground level inspection was undertaken by Robert Godwin on 1st May 2015, recording the position of all trees within the site with a stem diameter of 75 mm or more, measured at 1.5 m above highest adjacent ground level. The position of trees with an estimated stem diameter of 75 mm or more that overhang the site or are located beyond the site boundaries within a distance of up to 12 times their estimated stem diameter were also recorded. For individual trees the crown spread taken at four cardinal points; for woodlands or substantial tree groups the overall extent of the canopy was recorded. Tree positions were plotted using a topographical drawing supplied by the client, which is the basis for which the *Tree Constraints Plan* has been prepared.

1.4. Site description

The site is comprised of a vacant plot located along Dale Road, Buxton. The site slopes steeply upwards from Dale Road (south) to the north, with a rocky outcrop part way up. The site is covered in grass and young self-seeded trees. Along Dale Road there are several early-mature highway trees.

2. Arboricultural Constraints

2.1. Tree condition

2.1.1 Twenty individual trees and seven groups of trees were recorded. In accordance with *BS5837:2012* twelve individual trees were recorded as retention category 'B' and fifteen individual trees/groups of trees were recorded as retention category 'C'.

2.1.2 The trees were generally found to be in a good to fair condition and no trees were classed as retention category 'U' (unsuitable for retention).

2.1.3 Please see *Appendix 1* for details on each individual tree, and *Appendix 2* for an explanation of retention category criteria. Tree locations can be seen on the *Tree Constraints Plan* at the rear of this report.

2.2 Root Protection Areas

2.2.1 The tree root protection area (RPA) is a layout design tool indicating the area around a tree that must be considered during development. The protection of the roots and soil structure within the RPA should be treated as a priority. The RPA of each tree or group is marked on the *Tree Constraints Plan* at the rear of this report.

2.3 Tree protection status

2.3.1 A check was made on 27th April 2015 with ***High Peak Borough Council***.

2.3.2 We are informed that the site is not located within a Conservation Area, and there are no Tree Preservation Orders on site.

2.3.3 Due to the large potential penalties for illegally carrying out work to protected trees, it is recommend that a further tree protection status check is carried out prior to any works being undertaken.

3. Arboricultural Impact Assessment

3.1. Proposed development

3.1.1 The proposed development consists of constructing a residential development to the centre of the site. A proposed layout drawing has been supplied by the client, and is the basis for which this impact assessment has been prepared. Please see the *Tree Protection Plan* to the rear of this report for the proposed layout details.

3.2. Impact on existing trees

3.2.1 Several low quality self-seeded trees would require removal as they are situated either within, or so close to the proposed development areas that protecting them during construction is not practical; please see the table below for tree removal details.

	Category 'A'	Category 'B'	Category 'C'
Tree to be removed to facilitate the development	None	None	T2, T4, G5 G12 and T14

3.2.2 The remaining trees shall be protected from construction activity by a protective fencing barrier (see *Section 4.2*), put in place prior to any demolition or construction activity. The barriers will ensure that the trees remain in a healthy condition during and after development. Several retained trees shall be protected from construction activity as site topography makes them inaccessible to construction activity.

3.2.3 It is proposed to construct landscaped areas and car parking spaces within the RPA of several retained trees, as shown on the *Tree Protection Plan*. The percentage of RPA located beneath the proposed surface can be seen in the table below.

Tree No	Total RPA of tree m^2	RPA within proposed surface m^2	Percentage of disturbed RPA
T13	104.2	8.5	8.2%
T15	95.7	22.7	23.7%
T16	72.4	15.5	21.4%
T17	127.1	34.5	27.1%

3.2.4 The majority of potentially disturbed RPA lies beneath soft landscaped areas, and on this basis, the proposed construction would result in minimal root disturbance to adjacent RPAs during construction, and should not cause the trees any long-term adverse effect.

3.2.5 No soil samples were taken during the site visit. It is recommended that soil assessment it undertaken by a competent person to determine whether the soil is shrinkable, and that foundation design is undertaken in line with detailed guidance given in the National House Building Council (NHBC) publication *Building near trees, Chapter 4.2*.

4. Tree Protection Scheme

4.1. Pre-development tree work

4.1.1. Care should be taken to ensure during tree removal or remedial work that damage to the retained trees and/or disturbance to the RPA is avoided. Precautions should include dismantling techniques to reduce the risk of accidental damage, and ground protection measures where excessive pedestrian movements or use of plant and machinery might lead to compaction.

4.1.2. All tree works, as described in *Appendix 1*, should be carried out in accordance with *BS 3998: 2010 Recommendations for tree work*, and after permission has been granted to do so by the local planning authority.

4.2. Tree protection barriers

4.2.1. Once the tree works have been completed, all trees that are being retained on site should be protected by barriers before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. The protected area should be regarded as off limits, and, once installed, barriers should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority. It should be confirmed by the project arboriculturist or local authority that the barriers have been correctly set out on site, prior to the commencement of any other operations.

4.2.2. Please see *Appendix 3* for suggested barrier construction detail. It is recommended that in this instance the protective barrier shown in *Figure 2* would be sufficient for the site.

4.3. Construction with the RPA

4.3.1. During excavations roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability.

4.3.2. Any roots exposed during excavations should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Prior to backfilling, retained roots should be surrounded with topsoil or un-compacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

4.4. Utilities with the RPA

4.4.1. Wherever possible, utilities should be routed outside RPAs. Where this is not possible, it is preferable to keep utilities together in common ducts. Inspection chambers should be sited outside the RPA.

4.4.2. Where underground utilities are to pass within an RPA, detailed plans showing the proposed routeing should be drawn up. In such cases, trenchless insertion methods should be used, with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.

4.4.3. Above-ground apparatus (including CCTV cameras and lighting) should be sited to avoid the need for detrimental tree pruning. Tree branches can be pruned back with care to provide space. Pruning should be undertaken in accordance with *BS 3998:2010*.

4.5. General tree protection

4.5.1. Contractor parking, contractor facilities and any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of the RPA of any retained tree. Fires on sites should be avoided where possible.

4.6. Post construction phase

4.6.1. When the development phase is complete and the site machinery has been removed, the local planning authority should be invited to inspect the site to give approval for the removal of the tree protection measures.

4.6.2. Soil compaction should be avoided around existing vegetation, including trees and in areas where new planting or seeding is proposed. Where soil compaction has occurred in the vicinity of existing trees, arboricultural advice should be taken before carrying out any remedial or other works within RPAs to mitigate risk of further damage to roots. Such decompaction measures include forking, spiking, soil augering and tilthed radial trenching.

4.6.3. Heavy mechanical cultivation such as rotavation should not occur within an RPA. Any cultivation operations should be undertaken carefully by hand in order to minimize damage to the tree, particularly the roots. Care should be taken during such operations to minimize the risk of further damage to tree roots.

4.6.4. The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing trees to be retained.

Client: HB Villages Developments Ltd

Project No: AIA.12352.01
Revision: 01

Date Issued: 5th May 2015
Status: FINAL

Signed on behalf of Godwin's Arboricultural:

R Godwin

Robert Godwin MSc MArborA.
Arboriculturist

Contact Details:

Godwin's Arboricultural Limited
Digital World Centre
1 Lowry Plaza, The Quays
Salford
Manchester
M50 3UB

www.godwins.co.uk
info@godwins.co.uk
0800 030 4045

Appendix 1. Tree Schedule

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m) N	E	S	W	Observations	Cond	Life Exp	Tree Work Recommendations	Root Protection Area (RPA) Radius (m)	Area (m^2)	Retention Category
G 1	Fraxinus excelsior (Ash), Sorbus aucuparia (Rowan)	Semi-mature	1	100	8(3)	3(E)	2	2	2	2	Linear boundary group. Self-seeded specimens.	Good to Fair	40+	No action required.	1.2	4.52	C
T 2	Fraxinus excelsior (Ash)	Semi-mature	1	150	8(3.5)	3(E)	2.5	2.5	2	1.5	Asymmetrical crown. Self-seeded specimen. Tree RPA located within ground level change.	Fair	40+	Remove to enable the proposed development.	1.8	10.18	C
T 3	Fraxinus excelsior (Ash)	Semi-mature	3	200	12(2.5)	2.5(E)	3	4	3.5	2	Asymmetrical crown. Self-seeded specimen. Multi-stemmed from ground level. Tree RPA located within ground level change.	Fair	40+	No action required.	4.15	54.11	C
T 4	Fraxinus excelsior (Ash)	Young	3	90	6(1.5)	1.5(N)	2	2.5	2	1	Asymmetrical crown. Self-seeded specimen. Multi-stemmed from ground level.	Fair	40+	Remove to enable the proposed development.	1.87	10.99	C
G 5	Fraxinus excelsior (Ash)	Young	1	50	5(1)	1(N)	1	1	1	1	Individuals crowns restricted by group. Self-seeded specimens.	Fair	40+	Remove to enable the proposed development.	0.6	1.13	C
T 6	Crataegus monogyna (Hawthorn)	Semi-mature	1	200	7(0)	0(N)	3	2.5	1.5	2	Asymmetrical crown. Limited inspection - situated on adjacent land.	Good to Fair	40+	No action required.	2.4	18.1	C
T 7	X Cupressocyparis leylandii (Leyland Cypress)	Semi-mature	1	200	4.5(0)	0(N)	2	2	2	2	Balanced crown. Limited inspection - situated on adjacent land. Previously pollarded at 4m.	Fair	40+	No action required.	2.4	18.1	C
T 8	Salix caprea (Goat Willow)	Semi-mature	1	150	4.5(0.5)	0.5(N)	2.5	1.5	1.5	1.5	Balanced crown. Limited inspection - situated on adjacent land.	Fair	40+	No action required.	1.8	10.18	C
G 9	X Cupressocyparis leylandii (Leyland Cypress)	Semi-mature	1	200	4.5(0)	0(N)	2	2	2	2	Limited inspection - situated on adjacent land. Individuals crowns restricted by group. Previously pollarded at 4m.	Good to Fair	40+	No action required.	2.4	18.1	C
G 10	Salix caprea (Goat Willow), Betula pendula (Silver Birch)	Young	1	90	4(1)	1(N)	1.5	1.5	1.5	1.5	Individuals crowns restricted by group. Self-seeded specimens.	Fair	40+	No action required.	1.08	3.66	C

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m) N	E	S	W	Observations	Cond	Life Exp	Tree Work Recommendations	Root Protection Area (RPA) Radius (m)	Area (m^2)	Retention Category
G 11	Fraxinus excelsior (Ash)	Young	1	50	5(1)	1(N)	1	1	1	1	Individuals crowns restricted by group. Self-seeded specimens.	Fair	40+	No action required.	0.6	1.13	C
G 12	Acer pseudoplatanus (Sycamore)	Young	1	50	4(1)	1(N)	1	1	1	1	Individuals crowns restricted by group. Self-seeded specimens.	Fair	40+	Remove to enable the proposed development.	0.6	1.13	C
T 13	Acer pseudoplatanus (Sycamore)	Early-mature	1	480	14(6.5)	6(S)	5	4.5	4.5	4.5	Balanced crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	5.76	104.24	B
T 14	Acer pseudoplatanus (Sycamore)	Young	3	25	4(1)	1(N)	1	1	1	1	Self-seeded specimen. Multi-stemmed from ground level.	Fair	40+	Remove to enable the proposed development.	0.52	0.85	C
T 15	Tilia X europaea (Common Lime)	Early-mature	1	460	14(8)	8(N)	5	4.5	5	4.5	Balanced crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	5.52	95.74	B
T 16	Acer pseudoplatanus (Sycamore)	Early-mature	1	400	14(7.5)	7(S)	5	3.5	5	4.5	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	4.8	72.39	B
T 17	Tilia X europaea (Common Lime)	Early-mature	1	530	14(7)	7(S)	5	5	5	4.5	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	6.36	127.09	B
G 18	Acer pseudoplatanus (Sycamore)	Young	1	70	5(1)	1(S)	1	1	1	1	Multi-stemmed from ground level. Linear boundary group. Self-seeded specimens.	Fair	40+	No action required.	0.84	2.22	C
T 19	Acer pseudoplatanus (Sycamore)	Early-mature	1	510	14(8)	7(S)	5.5	5.5	5.5	4.5	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	6.12	117.68	B
T 20	Tilia X europaea (Common Lime)	Early-mature	1	420	10(7)	7(S)	4	3	3.5	4	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	5.04	79.81	B

Tree No.	Species	Age	Stems at 1.5m	Stem Dia (mm)	Height (Crown Hgt) (m)	FSB (D) (m)	Branch Spread (m) N	E	S	W	Observations	Cond	Life Exp	Tree Work Recommendations	Root Protection Area (RPA) Radius (m)	Area (m^2)	Retention Category
T 21	Tilia X europaea (Common Lime)	Early-mature	1	420	11(7)	7(S)	4.5	5	5	4.5	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	5.04	79.81	B
T 22	Tilia X europaea (Common Lime)	Early-mature	1	420	14(8)	8(S)	5	5	5	3.5	Asymmetrical crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	5.04	79.81	B
T 23	Acer pseudoplatanus (Sycamore)	Young	3	35	4.5(0)	0(S)	1	1	1	1	Self-seeded specimen. Multi-stemmed from ground level.	Fair	40+	No action required.	0.73	1.67	C
T 24	Tilia X europaea (Common Lime)	Early-mature	1	450	14(8)	8(S)	5	5.5	5	5	Balanced crown. Multiple pruning wounds. Situated on adjacent land. Stem - bark wound.	Good to Fair	40+	No action required.	5.4	91.62	B
T 25	Tilia X europaea (Common Lime)	Early-mature	1	450	14(8)	8(S)	4	4.5	4	3.5	Balanced crown. Multiple pruning wounds. Situated on adjacent land. Stem - bark wound.	Good to Fair	40+	No action required.	5.4	91.62	B
T 26	Aesculus hippocastanum (Horse Chestnut)	Early-mature	1	550	15(7.5)	7.5(S)	6	6	6	6	Balanced crown. Multiple pruning wounds. Situated on adjacent land.	Good to Fair	40+	No action required.	6.6	136.87	B
T 27	Acer pseudoplatanus (Sycamore)	Mature	1	550	16(8)	8(S)	6	6	6	6	Balanced crown. Multiple pruning wounds. Limited inspection - situated on adjacent land.	Good to Fair	40+	No action required.	6.6	136.87	B

Appendix 2. Explanatory Notes

A2.1. Tree statistics and measurements

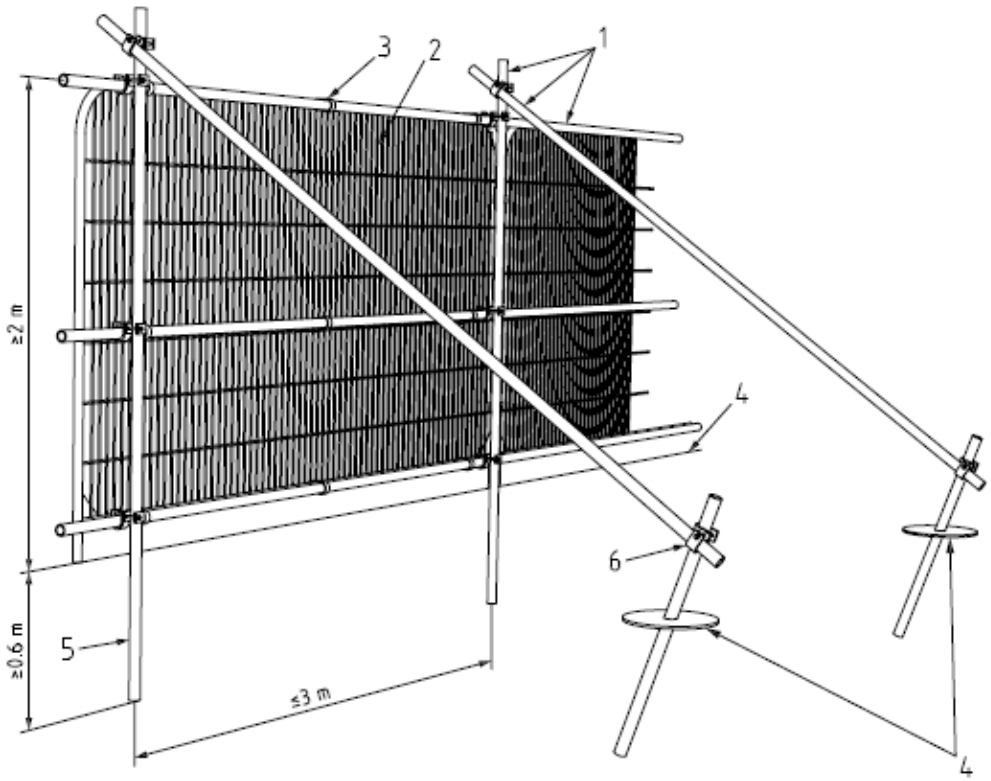
Survey record	Description
Tree No.	Unique tree reference number. (T) = Individual tree, (G) = Group of trees or woodland that form cohesive arboricultural features, (H) = Hedgerows and substantial internal or boundary hedges.
Species	Species listed by scientific name, with (common name).
Age	Life stage – Young, Semi-mature, Early-mature, Mature, Over-mature and Veteran.
Stem Count	Number of stems recorded at 1.5m above ground level.
Stem Diameter	Stem diameter recorded in millimetres at 1.5 meters above ground. Where the tree is multiple stemmed, each stem has been recorded. Where limited inspection available, dimensions are estimated.
Height (Crown Height)	Height of the tree in metres – to the closest 0.5m. Average canopy height in brackets, e.g. 10(3).
First Significant Branch	Existing height above ground level of first significant branch and direction of growth, e.g. 3(N)
Branch Spread	Branch spread, taken as a minimum at the four cardinal points – North, East, South and West.
Observations	General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay, physical defect or historic pruning).
Cond	Condition of the tree recorded as Good, Good to Fair, Fair, Fair to Poor, Poor or Dead.
Life Exp	Life Expectancy - classed as less than 10 years, 10 plus years, 20 plus years, or more than 40 years.
Tree Work Recommendations	Recommended tree works – including those made to ensure an acceptable level of risk, and those made to enable the proposed development.
RPA Radius	Radius of the root protection area, when plotted as a circle centred on the base of the stem.
RPA Area	Total area of RPA in metres squared, e.g. 100m^2.
Retention Category	See below – A2.2.

A2.2. Tree retention categories

Retention category and definition	Criteria
U (marked in red on the plan) = trees for removal.	Trees 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.
A (marked green on the plan) = Trees of high quality	Trees of high quality with an estimated remaining life expectancy of at least 40 years.
B (marked in blue on the plan) = Trees of moderate quality	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
C (marked in grey on the plan) = Trees of low quality	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Appendix 3. Protective Barrier Construction

A3.1 The default specification for protective barriers should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated below. The vertical tubes should be spaced at a *maximum* interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots.

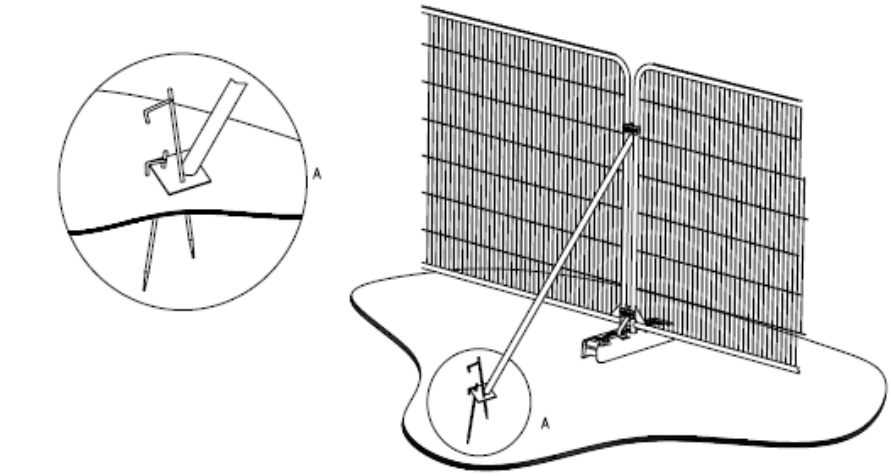


Key

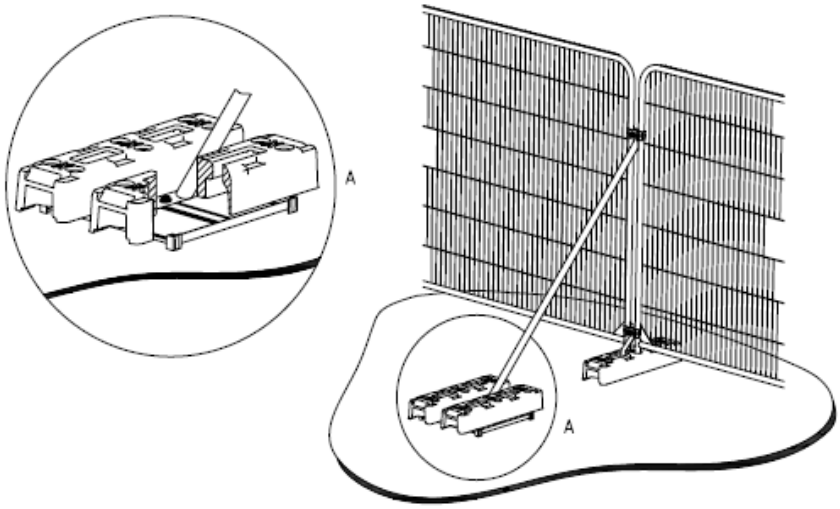
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 1. Default protective fencing barrier to BS 5837: 2012.

A3.2 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification may be adopted. This system includes 2 m tall welded mesh panels on rubber or concrete feet, secure enough to provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (Figure 2a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 2b).



a) Stabilizer strut with base plate secured with ground pins

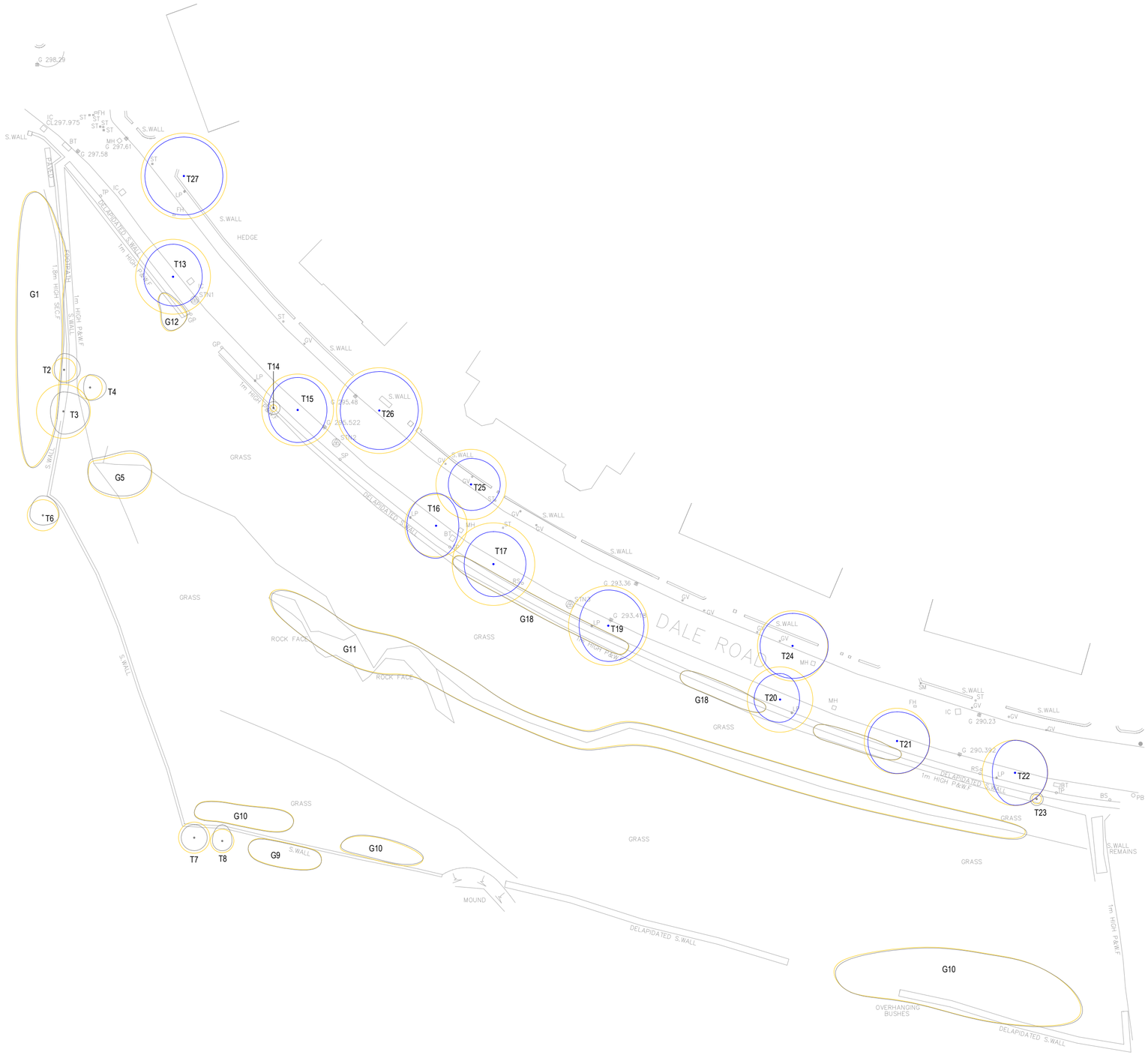


b) Stabilizer strut mounted on block tray

Figure 2. Examples of above-ground stabilizing systems

A3.3 A protective plywood build box should be constructed around trees **T13**, **T15**, **T16** and **T17** by creating a ridged, enclosed box with sides of 1000mm x 1000mm, at a height of 2400mm. The plywood should be 25mm thick and fixed to upright timber beams of 50mm x 50mm. The box should be constructed around the tree stem, but not attached to it, avoiding any stem damage. The box should be positioned to prevent movement, ideally fixed to the ground or an adjacent structure.

Drawing 1. Tree Constraints Plan



KEY

N

T = Individual tree
G = Group of trees
H = Hedge

RETENTION CATEGORIES:
British Standard BS5837:2012
Please refer to Appendix 2 of the report for category definitions.

- CATEGORY A: Tree of HIGH quality
- CATEGORY B: Tree of MODERATE quality
- CATEGORY C: Tree of LOW quality
- CATEGORY U: Tree UNSUITABLE for retention
- Root Protection Area (RPA)

Project:

Dale Road
Buxton
Derbyshire

Title:

Tree Constraints Plan

Drawing No:

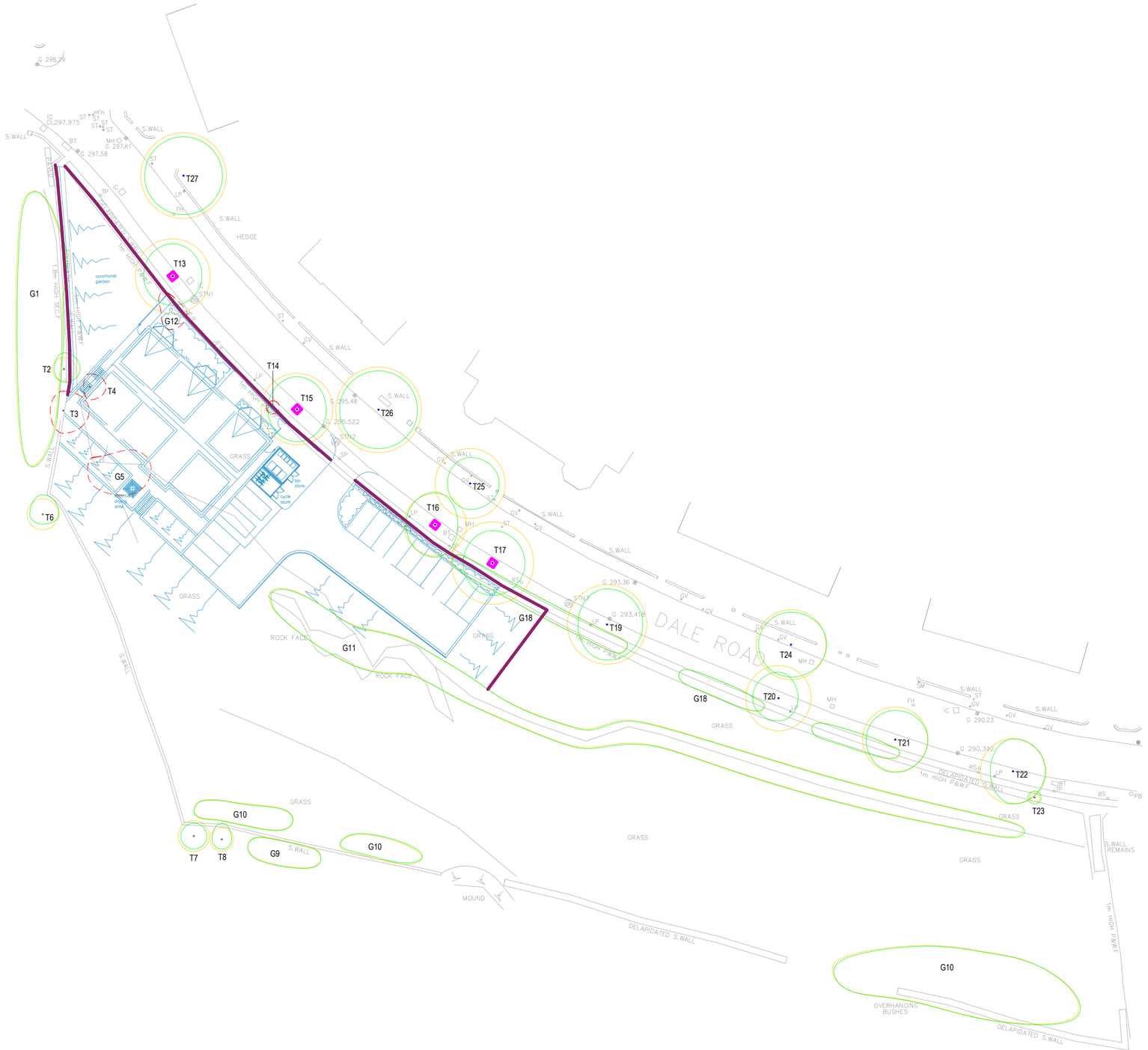
TCP.12352.01

Scale:	1:500 @ A2
Drawn by:	RG
Approved by:	KG

Godwin's Arboricultural Ltd

Tel: 0800 030 4045 Email: info@godwins.co.uk

Drawing 2. Tree Protection Plan



KEY

N

T = Individual tree
G = Group of trees
H = Hedge

Proposed development layout

Tree to be RETAINED
Stem colour is retention category

Tree proposed for REMOVAL
Stem colour is retention category

Root Protection Area (RPA)

Protective barrier position

Protective tree box

Project:

Dale Road
Buxton
Derbyshire

Title:

Tree Protection Plan

Drawing No:

TPP.12352.01

Scale:	1:500 @ A2
Drawn by:	RG
Approved by:	KG

Godwin's Arboricultural Ltd

Tel: 0800 030 4045 Email: info@godwins.co.uk

Tree Surveys and **Tree Reports**

info@godwins.co.uk | www.godwins.co.uk