

Trees and Construction

BS5837:2012 Tree Survey, Arboricultural Implications Assessment & Method Statement

Site: Hough End Leisure Centre

Ref: 20343/AIA AMS/A2 rev C

Client: ISG



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- Dec 2021 -

TABLE OF CONTENTS

Chapter	Title	Page
1	Introduction	3
2	Site & Application Information	4
3	Findings & Recommendations	5
4	Scheme / Impact Assessment	5 - 10
5	Method Statement 'Considerations'	10 - 17

Appendices

Caveat	I
Terms and Definitions	II
Tree data table, Tree Constraints Plan & Tree Protection Plan	III

Revision	Description	Date
/	Tree Survey Advice (20343/A1)	25/03/2021
A	AIA AMS (20343/A2)	31/03/2021
B	AIA AMS (20343/AIA AMS/A2)	20/12/2021
C	Edits and updates	08/2/2021

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for ISG (hereafter; client) and is in respect of the tree related planning considerations at Hough End Leisure Centre Manchester (hereafter; site).
- 1.2 As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).
- 1.3 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.
- 1.4 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.
- 1.5 Following instruction the consultant surveyed the site on the 15th & 16th January 2020 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group. A further visit on the 4th November 2020 took place in order to pick up specific trees
- 1.6 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.
- 1.7 The survey data and site observations use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site is currently used as a leisure sports facility in Hough End Manchester. It has a building containing the indoor sport facilities including a swimming pool. The exterior land is used as football and cricket pitches. The site is accessed from Princess Road. Pedestrian access is available from the boundary of the site
- 2.5 **Proposal:** It is understood that it is intended to improve by demolishing the existing changing building improve car parking and construct improved athletic and multi-use outdoor pitches and facilities. As per client provided plans HEV-EWA-02-XX-DR-L-79001_RevP11 Site Masterplan
- 2.6 The trees -
- 2.6.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'A -Good', 'B - moderate' 'C – Low and 'U- Unclassified' being attributed to trees/tree groups.
- 2.6.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, south, east west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (20343/TCP/01).

3.2 General Considerations for Tree Retention / Removal

3.2.1 'A' the category trees are those which are most 'notable', on site trees and the scheme should be designed to take into account their retention. i.e. crown clearance RPA avoidance and Layout to avail future growth debris and light pressure.

3.2.3 'B' Class trees are also considered of value both individually and in the landscape and should be retained by design. Proposed encroachment or removal would need to be justifiable and mitigated although Council resistance would be anticipated.

3.2.4 The smaller scale, declining or limited contribution trees are categorised as low quality 'C' category trees. These may be suitable for retention for the most part, but should not present a significant constraint to the scheme as mitigation planting can replicate and enhance their contribution.

3.2.4 There are identified defects to some of the surveyed trees, this has resulted in the recommendation for tree removal, i.e. the category 'U' trees. Thereafter, general site inspections and tree works will be required for H&S tree risk management. 'U' Class trees also to be removed T38, T73, T74 and T75

3.2.5 The removal of the above trees or vegetation may have an impact on the green cover in the first instance, however, the scheme presents a significant enhancement opportunity. Said removals would have no impact on the long term amenity of the site and will allow for the selection of native species to enhance amenity and biodiversity.

4. SCHEME / IMPLICATIONS ASSESSMENT

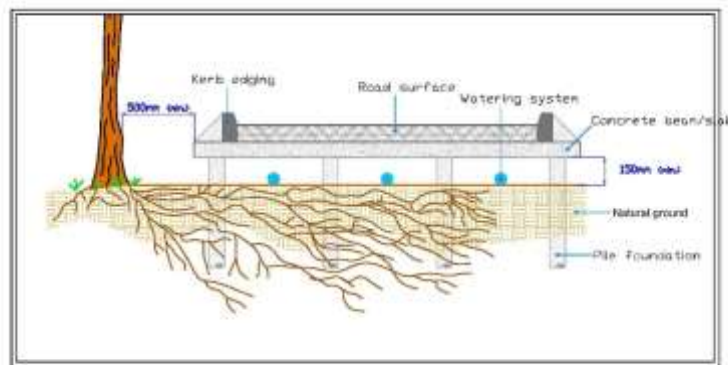
4.1 For this assessment, the proposed scheme has been considered (see; s.2.2 herein). This includes consideration for arboricultural management / tree works for H&S tree risk management, tree removal and pruning options, design solutions, tree protection and sensitive measures to account for trees. As per s.1.6 and s.2.2 herein, the TCP scheme overlay illustrates the proposed scheme.

4.2 The following trees will require to be removed in order to facilitate the scheme; T2, T3, T6, T7, T11, T13, T14, T15 T16, T17, T18 G1 and G3 inclusive to be removed to facilitate the scheme; replacement tree detail to be included within the landscape scheme. T38, T63, T73, T74 and T75 are to be removed for arboricultural reasons

4.3 The remaining trees will be retained and protected throughout the development. The specific considerations and implications for these are as follows. The drawings referred to can be found in Appendix III. This information has been prepared for the planning submission to demonstrate that construction can be achieved inline with the recommendation set out in the AIA. Further design development that is in line with AIA recommendations is possible through detailed design.

4.3.1 *Consideration for T1, T4 and T5*

- 4.3.3 Within the RPA of the above trees it is proposed to extend car parking facilities, create more walkways/ footpaths and place an Air Pump heating compound and supporting pad. These will be constructed manually under arboricultural supervision using sensitive ground works techniques. This will involve retaining existing levels and no-dig surfaces to avoid damaging existing roots. Path installation is to be engineered with porous surface retaining existing ground levels, installed by hand under supervision installed using Sensitive Ground Works techniques. The trees will also be selectively pruned over the new structures to statutory clearances. The Air Pump pads will be constructed using the principle of the road deck example below. Protective fencing will be in place during the construction phase to be realigned as noted in the TPP during the landscape phase to allow for works to be carried out.



Principle for Air Pump Support Pads

4.3.4 *Consideration for T51*

- 4.3.5 Within the RPA of this tree it is proposed to extend car parking facilities, This will be constructed manually under arboricultural supervision using sensitive ground works techniques if required although there is an existing subbase that will be used for a finished surface. No further excavation is anticipated.

4.3.6 *Consideration for G14-*

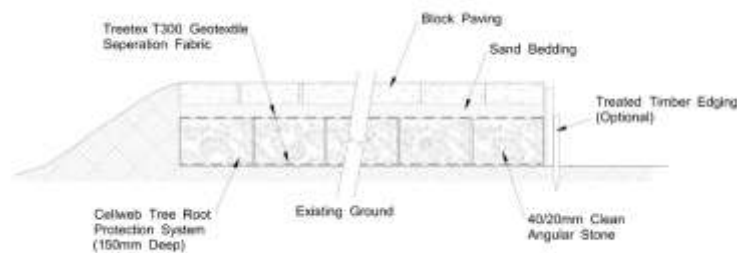
G14 is a young group of planted trees with many stems and approximately 1m spacing. It is intended to construct the new facility in the location as per the clients plan and it is intended to remove stems from the group to accommodate this. A 2m clearance will also be removed as marked on the TPP. The remaining trees are young enough to adjust and create a new group edge.

4.3.7 *Consideration for T89 to T93 and G22-*

This group and trees will require selective pruning away from the expanded pitch facilities in the area. This will be accomplished by selective branch tip removal and to clear the new pitch and provide at least a clearance of 1m with the off filed facilities.

4.3.8 *Consideration for T100, T102 and T103-*

Proposed car parking and footpath is proposed with the RPA of these trees. The footpath. Path installation is to be engineered with porous surface retaining existing ground levels, installed by hand under supervision installed using Sensitive Ground Works techniques (see below for example)



The car park extension will take place within the unmodified RPA of T103. The existing surface is tarmac that would have restricted root growth. It is not envisaged that significant roots from T103 will be encountered and the RPA has been modified accordingly. The existing car park bays within the RPA of T100 are to be removed and made into soft landscaping which will net improve the soft areas available for root colonisation.

Protective fencing will be in place during the construction phase to be realigned as noted in the TPP during the landscape phase to allow for works to be carried out.

5. ARBORICULTURAL METHOD STATEMENT (AMS) 'CONSIDERATIONS'

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan (TPP):

- a) **Tree Works** - are to be completed prior to any and all site works: no tree works not specified within this AIA (or leaning against or attaching of objects to a tree) are permitted unless agreed in writing by the council (subject to standard exemptions).
- b) **Tree Protection** - a site compound will be set up within the application boundary, excluding the surveyed trees as per the TPP, or Protective Barrier Fencing (PBF) is to be installed as per the TPP with works clearance, i.e. 1.5-2.0m around the hard landscape extents, existing boundary walls retained and supplemented to prevent RPA, stem or crown impact; to be installed after tree works and prior to site works.
- c) **Construction Exclusion** - the fenced off areas are Construction Exclusion Zones (CEZ).
- d) **Site Restrictions** - no chemicals/materials are to be transported/stored/used/mixed within the CEZ, and no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of the tree's canopy or in a CEZ.
- e) **Ground Works** - during site works RPAs/CEZ may not be breached, i.e. no surface works, without the consultant's prior advice and council consent, and no mechanical digging or scraping is permitted within RPAs/CEZ;
- e) **Sensitive Landscape** - the PBF may be temporarily moved to allow pedestrian access to start sensitive soft landscape works within RPA, i.e. turf removal, retained soil levels, new planting, mulch borders.
- a) **Completion** - only following construction and hard landscape completion can PBF be removed and remaining soft landscape works undertaken within RPAs / CEZ (ground levels to be retained and works undertaken manually with non driven machinery).

5.2 Arboricultural Site Monitoring / Supervision

5.2.1 The council will typically request 'a scheme of supervision for the arboricultural protection measures' to confirm tree protection and adherence to working methods around trees and so we set this out below.

5.2.2 The appointed site contractor and project manager will be provided with an approved AMS and TPP and will need to be briefed as to prohibited works and tree protection.

5.2.3 A record of each site visit will be kept and a summary letter drafted for the client, the site manager and the local authority (to be sent to the client for distribution), thus -

- (1) *Pre-commencement* to confirm approved tree works, site hoarding / tree protection fence line and construction restrictions for ground works.
- (2) *Halfway* through the program to confirm maintained tree protection, no tree damage and exclusion of RPA access.
- (3) *After-main construction* to confirm excavations of existing hard surfaces and discuss tree protection requirements with the landscape team.
- (4) *Landscaping phase- Path Installation, Heat Pump, Car Parking* - to be carried out within the RPA of and PBZ to be realigned as per TPP; T1, T4, T5, T51, T100, T102 and T103
- (5) *Development completion* after all hard landscape works and tree and shrub planting are complete to sign off the site as having adhere to the AMS.

5.3 Tree Works

- 5.3.1 All approved tree works must be undertaken with the council's written permission (subject to statutory exemption) and undertaken to BS3998 by a tree service contractor who is suitably qualified, experienced and insured to for arboricultural contracting.
- 5.3.2 In accordance with the approved scheme the following tree works are recommended in conjunction with the scheme (additional tree works must only be undertaken with the full and written permission of the council):

TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
T2, T3, T6, T7, T11, T13, T14, T15 T16, T17, T18 G1 and G3	Remove	Remove in conjunction with the scheme: Replacements to be provided within the landscape scheme.
T38, T63, T73, T74 and T75	Remove	Remove for Arboricultural reasons.
T1, T4, T5, G14, T89 to T93 and G22	Pruning	Is to be pruned to allow the construction new footpaths pitches, car parking, heat pump compounds. Statutory clearances of features by selective branch reduction.
G4	Pruning	G4 is the orchard which will be pruned back from the scheme to its northern edge and proposed porters lodge by selective removal as part of the management scheme.

Retained trees	Protection by placement of fixed Hears panels around the crown / RPA extents to have no access during construction and manually operative sensitive surface works and retained soil levels within RPAs. Fencing to be realigned as shown in the TPP in the landscaping phase
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5.4 Sensitive Ground Works (within RPAs)

- 5.4.1 Any excavations necessary within a RPA or designated CEZ (as illustrated on the TPP - each RPA and the areas enclosed by PBF) must:
- Only be undertaken when the construction works are completed; and
 - Retain the existing soil levels; and
 - Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. sensitive manual excavations / air spade.
- 5.4.3 The RPA excavation area is to be marked out [as per the TPP] on the hard surface and undertaken by hand with the use of manually operated (hand held) tools.
- 5.4.4 The excavations are to be preventative and carefully avoid damage to tree roots; therefore, individual 50mm layers are to be excavated at a time within an RPA/CEZ. This is to ensure that excavations do not incur on the existing soil levels, i.e. no downward regrading of soil levels within RPAs.
- 5.4.5 Any exposed roots shall be packed with a clean damp sand (not builders' sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.
- 5.4.6 Small roots (those less than 25mm in diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (those greater than 25mm in diameter) will require the advice of the consultant and permission of the council; these may be necessary for a tree's health and stability.
- 5.4.7 Once the hard surface material (including compacted base) has been removed, any hessian wrapping will be removed and roots will be surrounded/packed with a sharp sand and any existing ruts, holes or dips are to be infilled with a mix of sharp sand and high-grade tree planting soil.
- 5.4.8 As the existing surface being removed is hard surfaced with either tarmac or concrete bound sections and the proposed surface finishes are either similar or more preferable, the surface treatment installations can be undertaken in a traditional manner.
- 5.4.9 Where the new surfaces can use more preferential treatments to encourage percolation of surface water and encourage aerated soils with nutrient availability, this will demonstrate an enhancement to the existing conditions for tree root growth and is encourages where possible (to be illustrated on the landscape scheme).

5.5 Underground utilities

5.5.1 Any new underground utilities are to utilise the construction area for new installations and avoid the need for works in proximity to trees. Certainly, utility installations are to be:

- Located outside of RPAs and construction exclusion zones; and
- Installed only following the installation of the protective barrier fencing to ensure the retained trees and their RPAs are protected.

5.5.2 The following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them.
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

5.6 Engineered Foundation (under arboricultural supervision)

5.6.1 It is necessary for the client / architect to provide a specification, elevation and cross section of any proposed raised level slab and piled/engineered foundation which shows adequate consideration for tree root protection. For use in proposed heat pump support pads within the RPA of trees T4, and T5.

5.6.2 ***Any excavation and installations*** (as illustrated on the TPP) will:

- Use manually operated non-mechanical tools;
- Use either piled/hand augured/hand excavated pad foundations;
- Connect a framework or lintel with supporting wall for a raised slab;

5.6.3 In relation to above, the foundation is to use pads or piles with a frame/slab atop on which the structure is to be constructed. This will limit excavations to the ground preparations and piles/corner pads.

5.6.4 Following sensitive ground preparations (see; s5.4), the piles/pads are to be marked on the ground and manually excavated using handheld non-mechanical tools. This is to confirm that no roots are present greater than 25mm diameter or move the pile/pad.

5.6.5 The excavations are to be preventative and carefully avoid damage to tree roots where individual 50mm layers are to be excavated. Small roots (less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (greater than 25mm diameter) require consultant advice and council permission.

- 5.6.6 Once the extent of excavations is completed, the pile can be installed This concludes the manual foundation installation and then allows for the structure to be built atop which is clear of RPA
- 5.6.7 Where pads/piles are to be installed near to trees, the smallest practical pad diameter should be used, as this reduces the possibility of striking major tree roots and reduces the size of the rig required to sink the piles. The pad type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g., plastic lined. See example below of the principle
- 5.7 Landscape Detail
- 5.7.1 Extensive landscape detail and replacement planting is to be provided by the client.
- 5.8 Report Handling
- 5.8.1 This report is released to the client and architect to be distributed at their discretion and the consultant is available for queries relating to this report and/or trees.
- 5.8.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The tree protection methods herein may be approved by the council for which a planning approval will be subject to a final and detailed Arboricultural Method Statement based on the approved information and other detail perhaps not available at the pre-planning approval stage, i.e. final landscape plan. Draft construction management plan (CMP)
- 5.8.3 This AMS and the TPP may be approved by the council in support of the application, subject to a conditioned final AMS and TPP as a means of authorised tree protection measures; all site personnel will have access to a copy and the tree work and protection details are to be inspected as per s.5.2 for '*Arboricultural Monitoring / Supervision*'.

This concludes our advice.

Appendix I

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - 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, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan:	As appended (20343/TCP/01, 1 to 4)
Tree Protection Plan: (Application Stage)	As appended (20343/TPP/01 Rev B, 1 to 4)

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

CLIENT: ISG

PROJECT REF: 21227/A1

SITE: 53 Palace Road, Molesey, KT8 9DN

CONTACT: /

SURVEY DATE: 23 March 2021

ARB CONSULTANT: Andrew Turnbull FDS Sc ArborA

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	London Plane; Platanus hispanica; Platanaceae	M	12	8	9	10	10	640	7.7	2	2 All round	Norm	40+	Tarmacked hardstanding carparking within RPA. Co-dominant bowl shaped crown. Lamp post within crown spread. Some torn branch stubs	A 2	
T2	Sycamore; Acer psuedoplatanus; Aceraceae	M	15	7	6.5	8	5.5	410	4.9	3	2E	Norm	40+	Tarmacked hardstanding carparking within RPA. Lamp post within crown spread. Deadwood within the crown	B 2	
T3	Sycamore; Acer psuedoplatanus; Aceraceae	M	15	6.5	5	7.5	6	390	4.7	3	2E	Norm	20-40	Lamp post within crown spread. Deadwood within the crown. Bifurcates at 1.5m to 3m. Set in soft turfed ground	B 2	
T4	London Plane; Platanus hispanica; Platanaceae	M	17	8.5	10	9.5	8	690	8.3	3	2E	Norm	20-40	Deadwood within the crown. Set in soft turfed ground. Leaning east. Tension ridge on west side	A 2	
T5	London Plane; Platanus hispanica; Platanaceae	M	17	8.5	9	10	5	640	7.7	2	3E	Norm	20-40	Deadwood within the crown. Set in soft turfed ground. Leaning east. Tension ridge on west side	A 2	
T6	Common Ash; Fraxinus excelsior; Oleaceae	M	17	6	8	2	5.5	370	4.4	2	3E	Norm	20-40	Deadwood within the crown. Set in soft turfed ground. Growth affected by adjacent trees	B 2	
T7	Common Ash; Fraxinus excelsior; Oleaceae	M	15	4	5	1.5	5	270	3.2	2	3E	Norm	10_20	Set in soft turfed ground. Growth affected by adjacent trees. Building within RPA. Significant stem damage lower stem. Wounds are occluding well	C 2	
T8	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	5	5	5	5	400	4.8	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T9	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	5	5	5	5	340	4.1	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T10	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	5	5	5	5	410	4.9	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T11	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	5	5	5	5	400	4.8	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T12	Sycamore; Acer psuedoplatanus; Aceraceae	EM/M	17	5	5	5	5	310	3.7	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T13	Sycamore; Acer psuedoplatanus; Aceraceae	EM/M	17	5	5	5	5	350	4.2	2.5	2.25 All round	Norm	20-40	Set in soft turfed ground. Group trees grown as feature	B 2	
T14	London Plane; Platanus hispanica; Platanaceae	Y	6	1.5	1	2.5	2.5	80	1.0	2	2 All round	Norm	20-40	New planting can be transplanted if necessary	B 2	
T15	Ornametal Pear; Pyrus (species) Rosaceae	Y	6	1	1	1	1	60	0.7	2	2 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T16	Ornametal Pear; Pyrus (species) Rosaceae	Y	6	1	1	1	1	60	0.7	2	2 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T17	Rowan; Sorbus aucuparia; Rosaceae	Y	6	1	1	1	1	60	0.7	2	2 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T18	Oak; Quercus (species); Fagaceae	NP	6	1	1	1	1	60	0.7	2	2 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T19	Hybrid Poplar; Populus x canadensis; Salicaceae	M	19	7	5	6.5	7	510	6.1	3.5	2 All round	Norm	20-40	Screen group shelter belt. Managed by crown lifting. Deadwood within the crown. Pioneer species with inherent weaknesses	C 2	Remove deadwood over paths car parks and roads;Control Ivy colonisation

T20	Hybrid Poplar; Populus x canadensis; Salicaceae	M	19	5	5	7.5	5	490	5.9	3.5	2 All round	Norm	20-40	Screen group shelter belt. Managed by crown lifting. Deadwood within the crown. Pioneer species with inherent weaknesses	C 2	Remove deadwood over paths car parks and roads;Control Ivy colonisation
T21	London Plane; Platanus hispanica; Platanaceae	M	17	7	8	6.5	8	550	6.6	3.5	2 All round	Norm	20-40	Screen group shelter belt. Managed by crown lifting. Deadwood within the crown. Lamp post within crown spread	B 2	Control Ivy colonisation
T22	Birch; Betula (species); betulaceae	Y	5	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	Scrubby tree with suckering around base	C 2	
T23	Birch; Betula (species); betulaceae	Y	6	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	Planting stakes still in situ	C 2	
T24	Birch; Betula (species); betulaceae	Y	7	3.5	3.5	3.5	3.5	70, 80, 200	2.7	1	1 All round	Norm	20-40	Some trees with Ivy. Ivy preventing VTA. Stubs present from adhoc pruning. Not on TOPO	C 2	
T25	London Plane; Platanus hispanica; Platanaceae	NP	7	1.5	2	2	2	70	0.8	1	1 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T26	Birch; Betula (species); betulaceae	NP	7	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T27	Birch; Betula (species); betulaceae	NP	10	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T28	Birch; Betula (species); betulaceae	NP	10	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T29	Birch; Betula (species); betulaceae	NP	10	1.5	1.5	1.5	1.5	70	0.8	1	1 All round	Norm	20-40	New planting can be transplanted if necessary	C 2	
T30	Oak; Quercus (species); Fagaceae	M	18	10	11	7.5	10	590	7.1	3	3.25S	Norm	20-40	Street tree set in soft verge. Stubs present from adhoc pruning	A 2	
T31	Sycamore; Acer psuedoplatanus; Aceraceae	SM/EM	6	3.5	4	5	3.5	330	4.0	3	3.25S	Norm	20-40	Street tree set in soft verge. Stubs present from adhoc pruning. Tarmacked hardstanding carparking within RPA	C 2	
T32	Lime; Tilia (species); Tilaceae	M	18	7	8	6.5	7	510	6.1	3	3.25S	Norm	20-40	Street tree set in soft verge. Stubs present from adhoc pruning. Bifurcates at 3m or above	A 2	
T33	Lime; Tilia (species); Tilaceae	M	20	10	10	9	10	530	6.4	3	3.25N	Norm	20-40	Street tree set in soft verge. Stubs present from adhoc pruning. Bifurcates at 3m or above	A 2	
T34	Lime; Tilia (species); Tilaceae	M	17	7	7	7	6	480	5.8	1	5 All round	Norm	20-40	Street tree set in soft verge. Bifurcates at 3m or above. Birds nest	A 2	
T35	Lime; Tilia (species); Tilaceae	M	20	10	7	8	7	530	6.4	2	2.75NE	Norm	20-40	Street tree set in soft verge. Birds nest. Lime me epicormic developing	A 2	
T36	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	7	7	10	9	520	6.2	3	1.75NE	Norm	20-40	Tarmacked hardstanding carparking within RPA. Stubs present from adhoc pruning. Multistemmed from 2m. Building within RPA	B 2	
T37	Crab Apple; Malus (Spps); Rosaceae	M	10	3	3	3	3	180	2.2	3	1.75NE	Norm	20-40	Tarmacked hardstanding carparking within RPA. Stubs present from adhoc pruning	B 2	
T38	Rowan; Sorbus (species) Rosaceae	M	12	5	4	3	5.5	400	4.8	3	1.75S	Low	<10	Tarmacked hardstanding carparking within RPA. Stubs present from adhoc pruning. Fungal brackets at base	U	Fell Tree
T39	Rowan; Sorbus (species) Rosaceae	M	12	3	6	7	3	430	5.2	3	1.75 All round	Norm	20-40	Tarmacked hardstanding carparking within RPA. Stubs present from adhoc pruning. Group grown tree	B 2	
T40	Rowan; Sorbus (species) Rosaceae	M	10	3	3	3	5.5	400	4.8	3	1.75 All round	Norm	20-40	Group grown tree. Ivy preventing VTA	B 2	
T41	Cherry; Prunus (species); Rosaceae	M	11	5	2	7.5	8	430	5.2	2	2.25SW	Norm	20-40	Group grown tree. Part of contiguous group. Deadwood within the crown. Leaning north. Pronounced buttresses	B 2	
T42	Cherry; Prunus (species); Rosaceae	M	6	7	1	3.5	7	300	3.6	2	2.25SW	Norm	20-40	Group grown tree. Part of contiguous group. Poor crown asymmetry	B 2	

T43	Cherry; Prunus (species); Rosaceae	M	8	7	3	4.5	8	430	5.2	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Poor crown asymmetry. Decay in buttresses	C	2	
T44	Cherry; Prunus (species); Rosaceae	M	8	8.5	6	7.5	6	480	5.8	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Pronounced buttresses. Bifurcates at 1.5m to 3m	B	2	
T45	Rowan; Sorbus (species) Rosaceae	M	11	5	2	5	4	430	5.2	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Leaning north east	C	2	
T46	Cherry; Prunus (species); Rosaceae	M	6	5	4	2	2	100	1.2	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Leaning north east. Sub dominant tree	C	2	
T47	Cherry; Prunus (species); Rosaceae	M	6	5	1	3	2	110	1.3	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Leaning north east. Sub dominant tree	C	2	
T48	Birch; Betula (species); betulaceae	M	17	5	6	4.5	3	410	4.9	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group. Witches broom	B	2	
T49	Birch; Betula (species); betulaceae	M	12	5	6	4.5	1	240	2.9	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group. Witches broom. Not on TOPO	B	2	
T50	Birch; Betula (species); betulaceae	M	15	4	7	5	1	430	5.2	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group. Witches broom. Not on TOPO	B	2	
T51	Birch; Betula (species); betulaceae	M	15	5	7	5	5.5	460	5.5	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group. Witches broom	B	2	
T52	Birch; Betula (species); betulaceae	M	15	2	3	2	2	190	2.3	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group	C	2	
T53	Birch; Betula (species); betulaceae	M	15	4	5	4.5	4	280	3.4	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group	B	2	
T54	Birch; Betula (species); betulaceae	M	11	4.5	5	3	5	270	3.2	2	2.25S	Norm	20-40	Group grown tree. Part of contiguous group	B	2	
T55	Birch; Betula (species); betulaceae	M	11	4.5	5	3	5	270	3.2	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group	B	2	
T56	Birch; Betula (species); betulaceae	M	12	4.5	3	3	4	230	2.8	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group	B	2	
T57	Birch; Betula (species); betulaceae	M	8	4.5	3	4	5	190	2.3	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group	C	2	
T58	Birch; Betula (species); betulaceae	M	8	4.5	3	4	5.5	270	3.2	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group	C	2	
T59	Birch; Betula (species); betulaceae	M	11	4.5	2.5	7	4	240	2.9	2	2.25 All round	Norm	20-40	Group grown tree. Part of contiguous group. Basal damage	C	2	
T60	Norway Maple; Acer platanoides; Aceraceae	M	18	7	8	8	8	470	5.6	4	2.25NE	Norm	20-40	Linear basal damage now occluded	B	2	
T61	Norway Maple; Acer platanoides; Aceraceae	M	17	6	7	6.5	6	410	4.9	4	2.25 All round	Norm	20-40	Included Union. Leaning west. Linear basal damage now occluded	B	2	
T62	Norway Maple; Acer platanoides; Aceraceae	M	17	6	7	6.5	6	410	4.9	4	2.25 All round	Norm	20-40	Extensive linear damage occluding but not enclosed. Decayed inert core visible	C	2	
T63	Norway Maple; Acer platanoides; Aceraceae	M	15	4.5	4	6.5	4	270	3.2	3	2.75 All round	Low	10_20	Extensive linear damage occluding but not enclosed. Decayed inert core visible. Daldinia . Fungal activity in tree	U		Fell Tree
T64	Norway Maple; Acer platanoides; Aceraceae	M	17	6	6	9	5.5	410	4.9	3	2.75 All round	Norm	20-40	Leaning west. Tension ridge on east side	B	2	
T65	Norway Maple; Acer platanoides; Aceraceae	M	18	7	7	8	8	520	6.2	2	3 All round	Norm	20-40	Linear basal damage now occluded	B	2	
T66	European Larch; Larix decidua; Pinaceae	Y/SM	15	4.5	4	4	4	270	3.2	0	0.25 All round	Norm	20-40		C	2	
T67	Sycamore; Acer psuedoplatanus; Aceraceae	M	18	6	10	4	11	560	6.7	1	1.75N	Norm	20-40	Part of contiguous group	B	2	
T68	Oak; Quercus (species); Fagacea	EM	8	6	1	7	2	200	2.4	1	1.75N	Norm	20-40	Part of contiguous group. Asymmetric crown due to light competition	C	2	
T69	Birch; Betula (species); betulaceae	EM	15	4.5	4	3	7	320	3.8	3	1.75N	Norm	20-40	Part of contiguous group	B	2	

T70	Birch; Betula (species); betulaceae	EM	15	7	4	8	7	400	4.8	3	1.75N	Norm	20-40	Part of contiguous group	B 2	
T71	Sycamore; Acer psuedoplatanus; Aceraceae	EM	18	2	8	3	11	500	6.0	3	1.75W	Norm	20-40	Part of contiguous group. Asymmetric crown due to light competition	B 2	
T72	Sycamore; Acer psuedoplatanus; Aceraceae	EM/M	15	7	7	4	8	390	4.7	3	1.75W	Norm	20-40	Part of contiguous group. Asymmetric crown due to light competition	B 2	
T73	Bird Cherry; Prunus padus; Rosaceae	M	15	7	8	10	1	350	4.2	0	1.75W	Norm	10_20	Extensive basal bark damage. Extensive linear damage occluding but not enclosed. Sucker growth is occurring around the base.	C 2	Fell Tree due to removal of T74 and T75
T74	Bird Cherry; Prunus padus; Rosaceae	M	15	6	1	4	5.5	350	4.2	2	1.75 All round	Norm	<10	Extensive basal bark damage. Fungal brackets at base	U	Fell tree due to condition
T75	Bird Cherry; Prunus padus; Rosaceae	M	15	2	7	3	6	380	4.6	2	1.75 All round	Norm	<10	Extensive basal bark damage. Fungal brackets at base	U	Fell tree due to condition
T76	Cherry; Prunus (species); Rosaceae	M	10	2	8	4.5	4	320	3.8	2	1.75 All round	Norm	10_20	Basal damage. Group grown tree	C 2	
T77	Common Ash; Fraxinus excelsior; Oleaceae	M	17	7	7	5	6	390	4.7	2	1.75 All round	Norm	20-40	Group grown tree. Ivy preventing VTA	B 2	
T78	Sycamore; Acer psuedoplatanus; Aceraceae	M	18	6	10	8	6	500	6.0	2	1.75 All round	Norm	20-40	Group grown tree. Bifurcates at 1.5m to 3m	B 2	
T79	Sycamore; Acer psuedoplatanus; Aceraceae	M	18	2	10	8	4	520	6.2	2	1.75 All round	Norm	20-40	Group grown tree	B 2	
T80	Sycamore; Acer psuedoplatanus; Aceraceae	M	18	2	10	8	4	420	5.0	2	1.75 All round	Norm	20-40	Group grown tree	B 2	
T81	Sycamore; Acer psuedoplatanus; Aceraceae	M	18	2	8	8	8	470	5.6	2	1.75 All round	Norm	20-40	Group grown tree. Pronounced basal splay	B 2	
T82	Common Ash; Fraxinus excelsior; Oleaceae	M	18	7	8	8	3	470	5.6	2	1.75 All round	Norm	20-40	Group grown tree. Basal 'bottle' shape. Bifurcates at 1.5m to 3m	B 2	Monitor tree condition
T83	Norway Maple; Acer platanoides; Aceraceae	M	18	4.5	7	4	6	410	4.9	2	1.75 All round	Norm	20-40	Group grown tree. Bifurcates at 1.5m to 3m. Recent flush cuts, Occluded basal damage	B 2	Monitor tree condition;
T84	Sycamore; Acer psuedoplatanus; Aceraceae	M	19	10	8	9	10	620	7.4	2	2.25 All round	Norm	20-40	Group grown tree. Bifurcates at 1.5m to 3m. Recent flush cuts. Included Union. Occluded basal damage	B 2	Monitor tree condition
T85	Norway Maple; Acer platanoides; Aceraceae	M	19	1.5	7	5	5.5	420	5.0	2	2.25 All round	Norm	<10	Group grown tree. Co-dominant leader torn off in storm . Internal structure compromised	U	Fell Tree
T86	Common Ash; Fraxinus excelsior; Oleaceae	SM/E M;EM /M	19	9	8	10	10	670	8.0	2	2.25 All round	Norm	20-40	Multistemmed from 2m. Deadwood within the crown. Part of contiguous group. Co-dominant bowl shaped crown	B 2	
T87	Hawthorn; Crataegus monogyna; Rosaceae	M	5	3	3.5	4	4	260	3.1	1	1.75 All round	Norm	20-40	Co-dominant bowl shaped crown	B 2	
T88	Oak; Quercus (species); Fagacea	M	18	11	9	10	10	620	7.4	1.5	1.5 All round	Norm	40+	Co-dominant bowl shaped crown. Some compaction around the base. Regularly climbed	A 2	
T89	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	8.5	3.5	7	5	390	4.7	2	2.25 All round	Norm	20-40	Pruned to accommodate railway	B 2	
T90	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	8.5	6	6.5	5	410	4.9	2	2.25 All round	Norm	20-40	Pruned to accommodate railway	B 2	
T91	Sycamore; Acer psuedoplatanus; Aceraceae	M	19	8.5	7	7	8	590	7.1	2	2.25 All round	Norm	20-40	Pruned to accommodate railway	B 2	
T92	Sycamore; Acer psuedoplatanus; Aceraceae	M	17	9	6	6.5	10	350, 320, 280	6.6	1	0.5 All round	Norm	20-40	Pruned to accommodate railway. Multistemmed tree 3 stems. Regularly climbed. Inert hollows and cavities at base. Some bark damage at base	B 2	
T93	Swedish Whitebeam; Sorbus intermedia; Rosaceae	M	10	4.5	5	4	4	420	5.0	2	2 All round	Norm	20-40	Pruned to accommodate railway. Co-dominant bowl shaped crown	B 2	
T94	Lime; Tilia (species); Tilaceae	M	17	4.5	5	4	4	430	5.2	2	2 All round	Norm	20-40	Pruned to accommodate railway. Lime me epicormic developing	B 2	

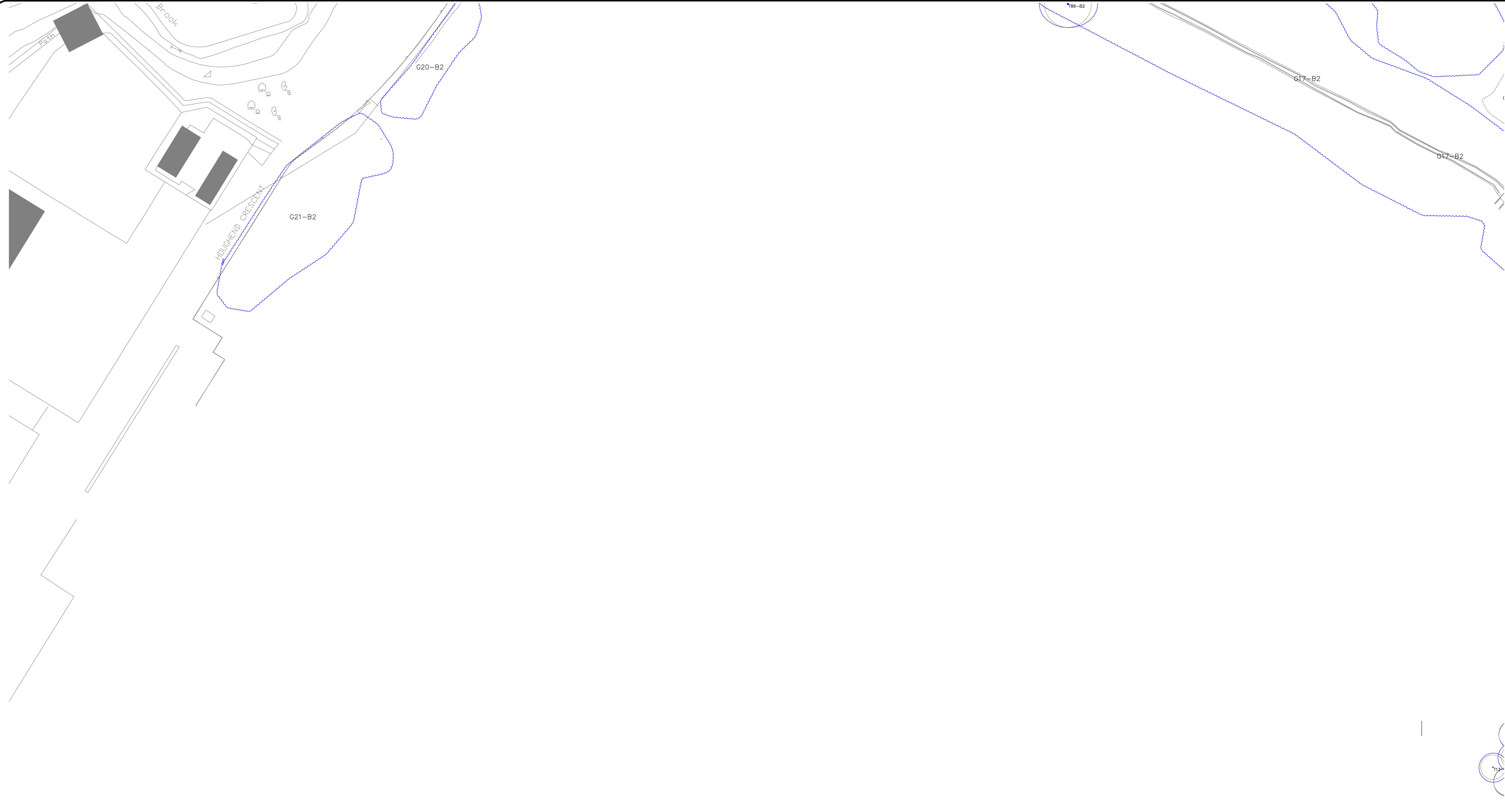
T95	Birch; Betula (species); betulaceae	EM/M	10	4.5	4	4	4	400	4.8	0	0.5 All round	Norm	20-40	Part of contiguous group. Multistemmed tree 2 stems	B	2	
T96	Birch; Betula (species); betulaceae	EM/M	11	2.5	2.5	2.5	3	260	3.1	2	2 All round	Norm	20-40	Part of contiguous group. Bowed stem	B	2	
T97	Birch; Betula (species); betulaceae	EM/M	11	2.5	2.5	2.5	3	280	3.4	2	2 All round	Norm	20-40	Part of contiguous group. Bowed stem	B	2	
T98	Birch; Betula (species); betulaceae	EM/M	11	2.5	2.5	2.5	3	300	3.6	1	2 All round	Norm	20-40	Part of contiguous group. Bowed stem. Multistemmed from 2m. Dead leader	B	2	
T99	Hybrid Poplar; Populus x canadensis; Salicaceae	EM/M	15	2.5	2.5	2.5	3	100	1.2	1	2 All round	Norm	20-40	Part of contiguous group	B	2	
T100	London Plane; Platanus hispanica; Platanaceae	EM/M	17	10	9	10	9.5	730	8.8	2.5	2.75 All round	Norm	20-40	Part of contiguous group. Some compaction around the base. Co-dominant bowl shaped crown	A	2	
T101	European Larch; Larix decidua; Pinaceae	EM	15	4	2.5	2.5	1.5	180	2.2	4	3N	Norm	10_20	Tarmacked hardstanding carparking within RPA. Growth affected by adjacent trees	C	2	
T102	London Plane; Platanus hispanica; Platanaceae	M	17	10	9	9	9	710	8.5	2.5	2.5 All round	Norm	40+	Tarmacked hardstanding carparking within RPA. Some compaction around the base. Exposed surface roots some bark damage	A	2	
T103	London Plane; Platanus hispanica; Platanaceae	M	18	11	10	11	11	730	8.8	2.5	2.5 All round	Norm	40+	Tarmacked hardstanding carparking within RPA. Exposed surface roots some bark damage. Building within RPA. Co-dominant bowl shaped crown	A	2	
G1	London Plane; Platanus hispanica; Platanaceae; Oak; Quercus (species); Fagaceae	NP	5	N/A	N/A	N/A	N/A	70	0.8	0	0	Norm	20-40	New planting can be transplanted if necessary	C	2	
G2	London Plane; Platanus hispanica; Platanaceae; Oak; Quercus (species); Fagaceae; Maple; Acer (species); Rosaceae	NP	5	N/A	N/A	N/A	N/A	70	0.8	0	0	Norm	20-40	New planting can be transplanted if necessary	C	2	
G3	Oak; Quercus (species); Fagaceae	NP	5	N/A	N/A	N/A	N/A	70	0.8	0	0	Norm	20-40	New planting can be transplanted if necessary	C	2	
G4	Common Beech; Fagus sylvatica; Fagaceae	NP	1	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	New hedge feature	C	2	
G5	Common Beech; Fagus sylvatica; Fagaceae	NP	1	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	New hedge feature	C	2	
G6	Hybrid Poplar; Populus x canadensis; Salicaceae; Field Maple; Acer campestre; Aceraceae; London Plane; Platanus hispanica; Platanaceae; Common Ash; Fraxinus excelsior; Oleaceae	EM/M; SM/EM	17	N/A	N/A	N/A	N/A	200	2.4	0	0	Norm	20-40	Screen group shelter belt; Managed by crown lifting; Set in soft turfed ground; Some trees with Ivy; Lamp post within crown spread; Deadwood within the crown	B	2	Remove deadwood over paths car parks and roads; Control Ivy colonisation
G7	Common Beech; Fagus sylvatica; Fagaceae	NP	1	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	New hedge feature	C	2	
G8	Common Beech; Fagus sylvatica; Fagaceae	NP	1	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	New hedge feature	C	2	

G9	Hornbeam; Carpinus betulus; Carpinaceae;Alder; Alnus (species); Betulaceae;Hybrid Poplar; Populus x canadensis; Salicaceae;Alder; Alnus (species); Betulaceae;Hornbeam; Carpinus betulus; Carpinaceae;Hybrid Poplar; Populus (species) Salaceae	M;SM /EM	25+	N/A	N/A	N/A	N/A	700		0	0	Norm	20-40	Either side of stream course	B	2
G10	Alder; Alnus (species); Betulaceae;Hornbeam; Carpinus betulus; Carpinaceae;Hybrid Poplar; Populus (species) Salaceae;Mixed new planting	NP;EM	1	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	New planting still in protective shelters	C	2
G11	Mixed new planting	NP;Y	6	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	Mixed native planting;Planting stakes still in evidence;Some lower stem damage to stock throughout;Mainly Oak species	C	2
G12	Common Hazel; Corylus avellana; Betulaceae	M	6	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	Mature Hazel coppice	C	2
G13	Common Hazel; Corylus avellana; Betulaceae;Oak; Quercus (species); Fagaceae;Common Beech; Fagus sylvatica; Fagaceae;European Larch; Larix decidua;Pinaceae	Y/SM; NP	6	N/A	N/A	N/A	N/A	N/A		0	0	Norm	20-40	Stem bark damage by grazing prevalent throughout;Some dead stems	C	2
G14	Pinaceae;Oak; Quercus (species); Fagaceae;Pine; Pinus (species); Pinaceae;Birch; Betula (species); betulaceae;Common Hazel; Corylus avellana; Betulaceae	Y/SM	15	N/A	N/A	N/A	N/A	270		0	0	Norm	20-40	Planted group using native species;Open under canopy no ground plants;Remove trees as required with 2m margin	B	2
G15	Mixed native species	Y/SM; EM/M	18	N/A	N/A	N/A	N/A	500	6.0	0	0	Norm	20-40	New planting still in protective shelters;Screen group shelter belt	B	2
G16	Mixed native species	SM/E M;EM /M	19	N/A	N/A	N/A	N/A	500	6.0	0	0	Norm	<10	Screen group shelter belt	B	2
G17	Mixed native species	SM/E M;EM /M	19	N/A	N/A	N/A	N/A	500	6.0	0	0	Norm	40+	Either side of stream course	B	2
G18	Common Ash; Fraxinus excelsior; Oleaceae;Oak; Quercus (species); Fagaceae	SM/E M	20	N/A	N/A	N/A	N/A	330	4.0	0	0	Norm	40+	Approximately 16 trees bounded by the road to the west and a compacted footpath to the north;All trees to be removed to accommodate pitch	B	2
G19	Mixed native species;Common Ash; Fraxinus excelsior; Oleaceae;Oak; Quercus (species); Fagaceae	SM/E M	18	N/A	N/A	N/A	N/A	330	4.0	0	0	Norm	40+	Planted group of trees with self sown prunus edge to the south	B	2
G20	Ash; Fraxinus excelsior; Oleaceae;Oak; Quercus (species); Fagaceae;Hawthorn; Crataegus monogyna; Rosaceae	SM/E M	18	N/A	N/A	N/A	N/A	300	3.6	0	0	Norm	40+	All trees to be removed to accommodate pitch ;Approximately 9 trees to be removed and undergrowth	B	2

G21	English Oak; Quercus robur; Fagaceae;Hawthorn; Crataegus monogyna; Rosaceae	Y	18	N/A	N/A	N/A	N/A	100	1.2	0	0	Norm	40+	Mainly a bramble patch with scattered young trees and hawthorn undergrowth;Mark pitch and remove with 2m margin. Most trees are to the wes and can be preserved	B	2	
G22	English Oak; Quercus robur; Fagaceae;Hawthorn; Crataegus monogyna; Rosaceae	SM/E M;EM /M	17	N/A	N/A	N/A	N/A	420	5.0	0	0	Norm	20-40	Area of vegetation and trees bordering the perimeter fence and pitches	B	2	
G23	English Oak; Quercus robur; Fagaceae;Hawthorn; Crataegus monogyna; Rosaceae;Aspen; Populus tremula; Salicaceae;Birch, bramble scrub	Y	5	N/A	N/A	N/A	N/A	80	1.0	0	0	Norm	20-40	Brambles with some self sown young trees	C	2	
G24	Norway Maple; Acer platanooides; Aceraceae;Grey Poplar; Populus canescens; Salicaceae;Birch; Betula (species); betulaceae	EM/M ;Y/SM	20	N/A	N/A	N/A	N/A	500	6.0	0	0	Norm	20-40	Area of vegetation and trees bordering the perimeter fence and pitches;Pruned to accommodate railway;Evidence of rough sleeping in areas	B	2	
G25	Pine; Pinus (species); Pinaceae;Oak; Quercus (species); Fagaceae;Rowan; Sorbus (species) Rosaceae;Bastard Service Tree; Sorbus x thuringiaca; Rosaceae;Birch; Betula (species); betulaceae;Cherry; Prunus (species); Rosaceae	Y/SM; SM/E M	17	N/A	N/A	N/A	N/A	400	4.8	0	0	Norm	20-40	Storm damage leaving spaces ;Screen group shelter belt	B	2	

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, EM - Early-Mature, SM - semi mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years a tree will continue to contribute without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	- BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy); - Standard retention category U: in such a condition that any existing value would be lost within 10 years; - Standard retention category A: high quality and value, in such a condition as to be able to make substantial contribution of 40+ years; - Standard retention category B: moderate quality and value, in such a condition as to make a significant contribution of 20+ years; - Standard retention category C: low quality and value, currently in adequate condition to remain until new planting could be established 10+ years; - Standard retention sub-category, mainly due to: 1- Arboricultural values, 2- Landscape values, 3- Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
' * '	-	Within the survey schedule denotes an estimate



KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

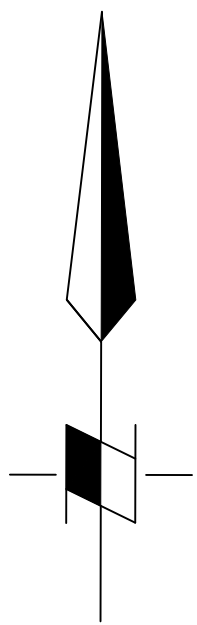
A

B

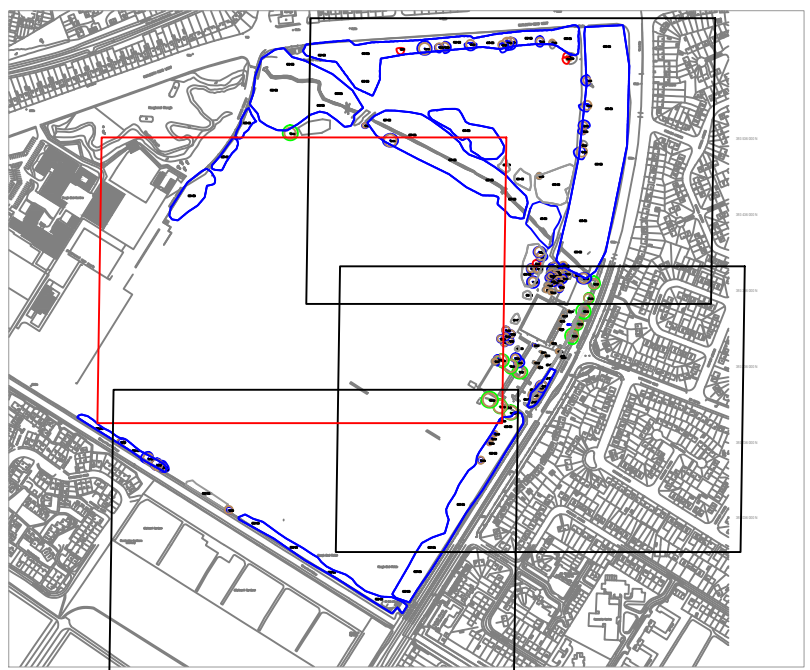
C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'



Indicative



Root Protection Area (RPA) Notes

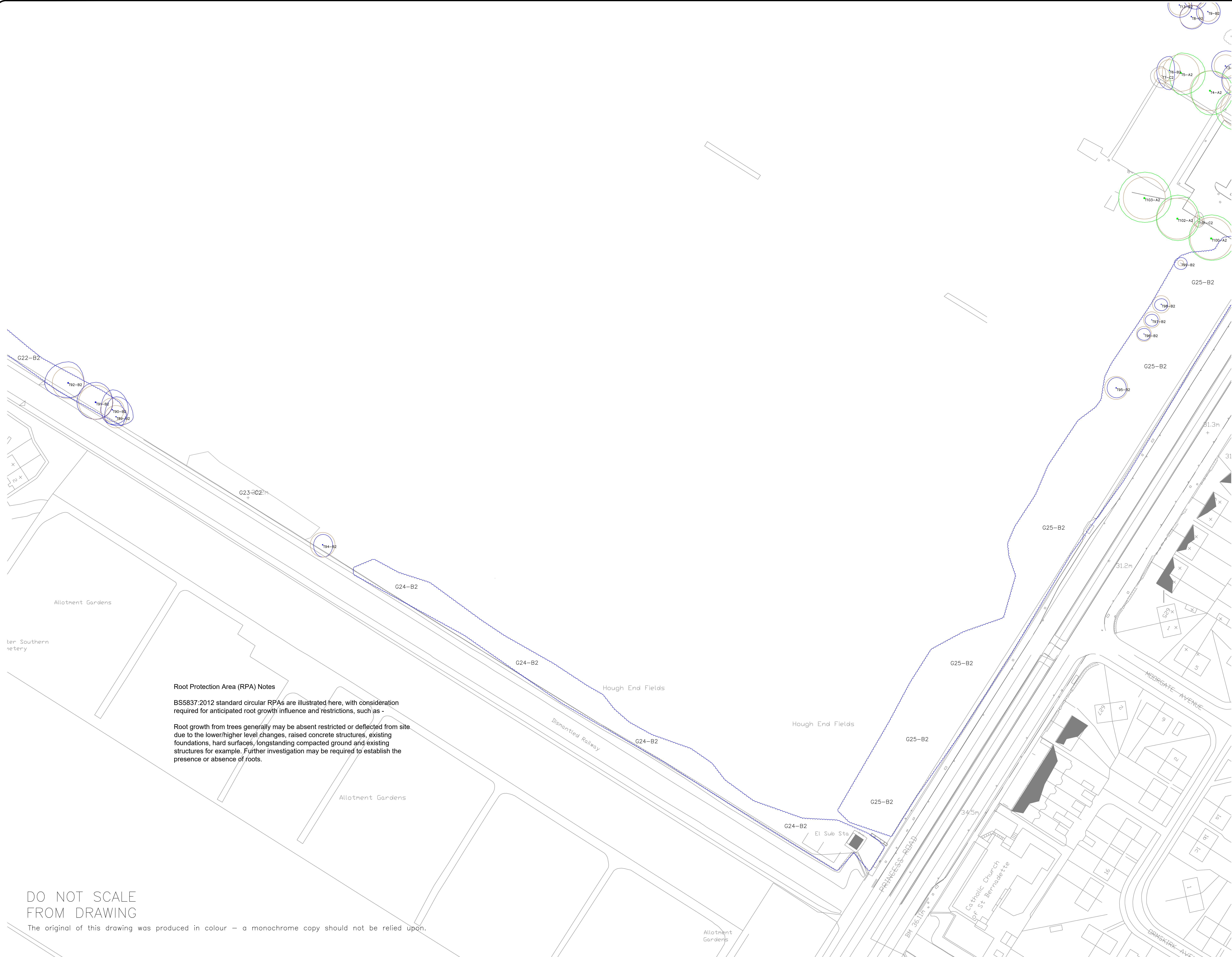
BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as -

Root growth from trees generally may be absent restricted or deflected from site due to the lower/higher level changes, raised concrete structures, existing foundations, hard surfaces, longstanding compacted ground and existing structures for example. Further investigation may be required to establish the presence or absence of roots.

DO NOT SCALE
FROM DRAWING

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

REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT						
ISG						
PROJECT						
20343/A1 Hough End Leisure Centre 480 Princess Rd, Manchester M20 1HD						
TITLE						
Tree Constraints Plan 3 of 4						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	25/03/2021	AT	25/03/2021			1-500
Indigo Surveys Ltd (Natl) Second Floor, 1 Hunter's Walk, Conishead, Chester, CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk						
Drawing Number						A0
20343/A1/TCP/01						REV.
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Root Protection Area (RPA) Notes

BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as -

Root growth from trees generally may be absent restricted or deflected from site due to the lower/higher level changes, raised concrete structures, existing foundations, hard surfaces, longstanding compacted ground and existing structures for example. Further investigation may be required to establish the presence or absence of roots.

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KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

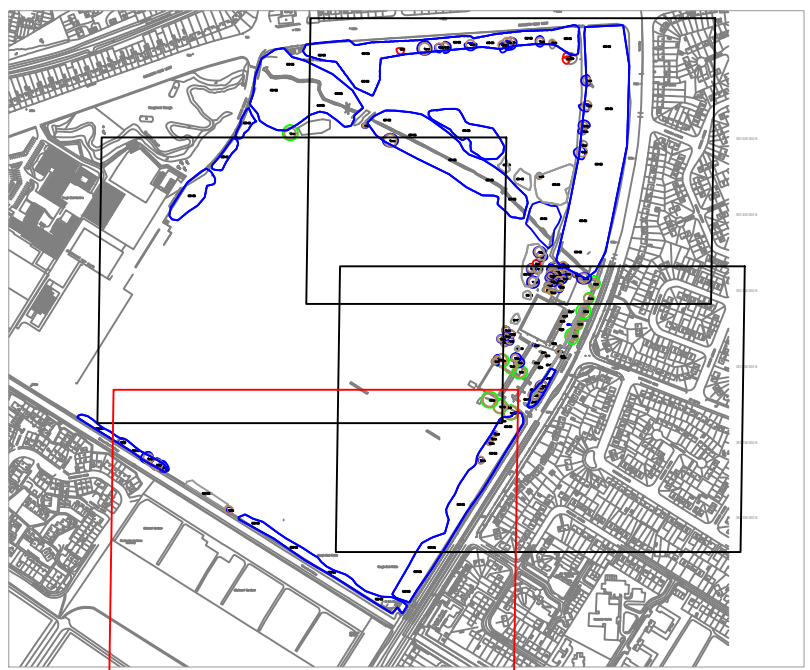
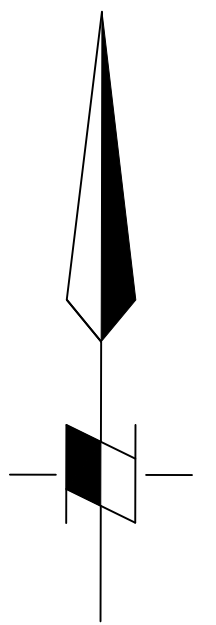
A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT						
ISG						
PROJECT						
20343/A1 Hough End Leisure Centre 480 Princess Rd, Manchester M20 1HD						
TITLE						
Tree Constraints Plan 4 of 4						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	25/03/2021	AT	25/03/2021			1-500
Indigo Surveys Ltd (Mail) Second Floor, 1 Hunter's Walk, Conishead, Chester, CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk Drawing Number 20343/A1/TCP/01 REV. A0						
THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF INDIGO SURVEYS LTD.						

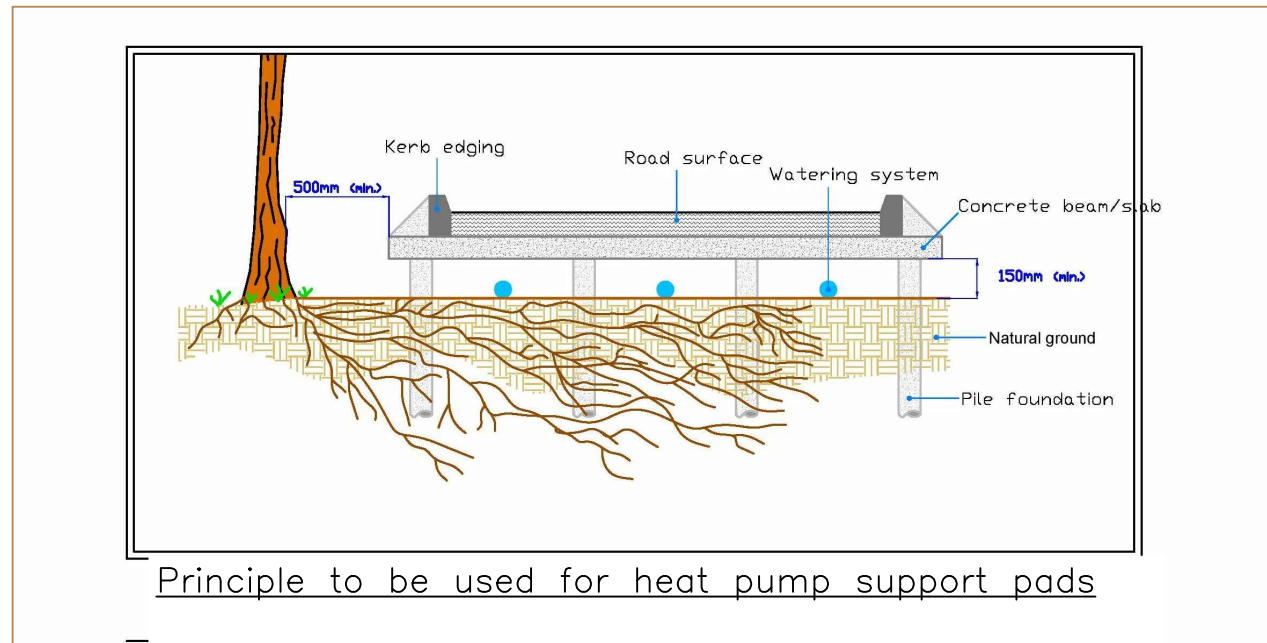
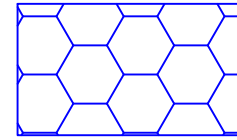
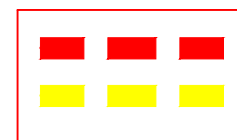
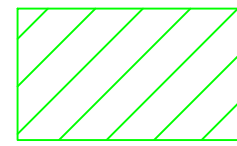
Tree Removals
T2, T3, T6, T7, TT11, T13, T15, T16, T17 T18 G1 and G3 inclusive to be removed to facilitate the scheme; replacement tree detail to be included within the landscape scheme. T38, T63, T73, T74 and T75 are to be removed for arboricultural reasons

Tree Pruning – T1, T4, T5 and T103 are to be crown raised to statutory requirements over the proposed car parks, pitches, footpaths and compounds. G14 to be pruned to make way for athletic equipment. To remove trees to give 2m between new group line and the equipment. Tree to be removed within the areas shown on TPP

Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration on this plan). PBF realignment (shown in yellow dash) to take place in the landscape phase or after construction phase.

Sensitive Ground Works – To be used on proposed footpaths, car parking, heat pump compounds, heat pump support pads and Pitch shelters only to be undertaken once construction is complete, then prepare grounds manually stripping the existing soil surface and turf only, retain soil levels, use load bearing system (Cellweb or similar) and manual installations. T1, T4, T5, T51, T101 and T102

Ground Protection – Existing hard surfaces will be used

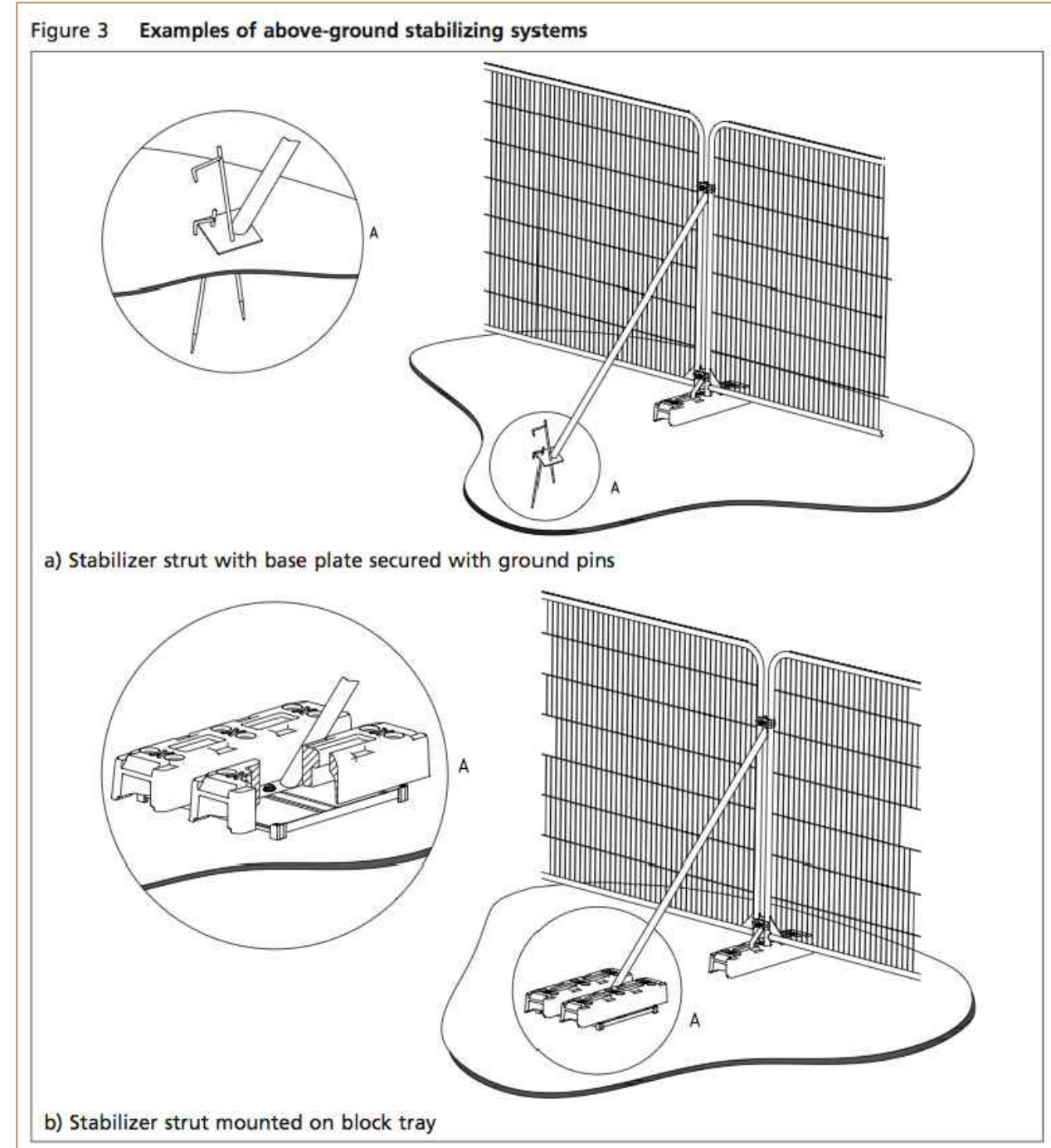


Tree Protection Specification

The tree protection measures outlined within the Arboricultural Method Statement (ref: 11381/AA-AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 20343_A4-TPP-01), and the additional details below, thus:

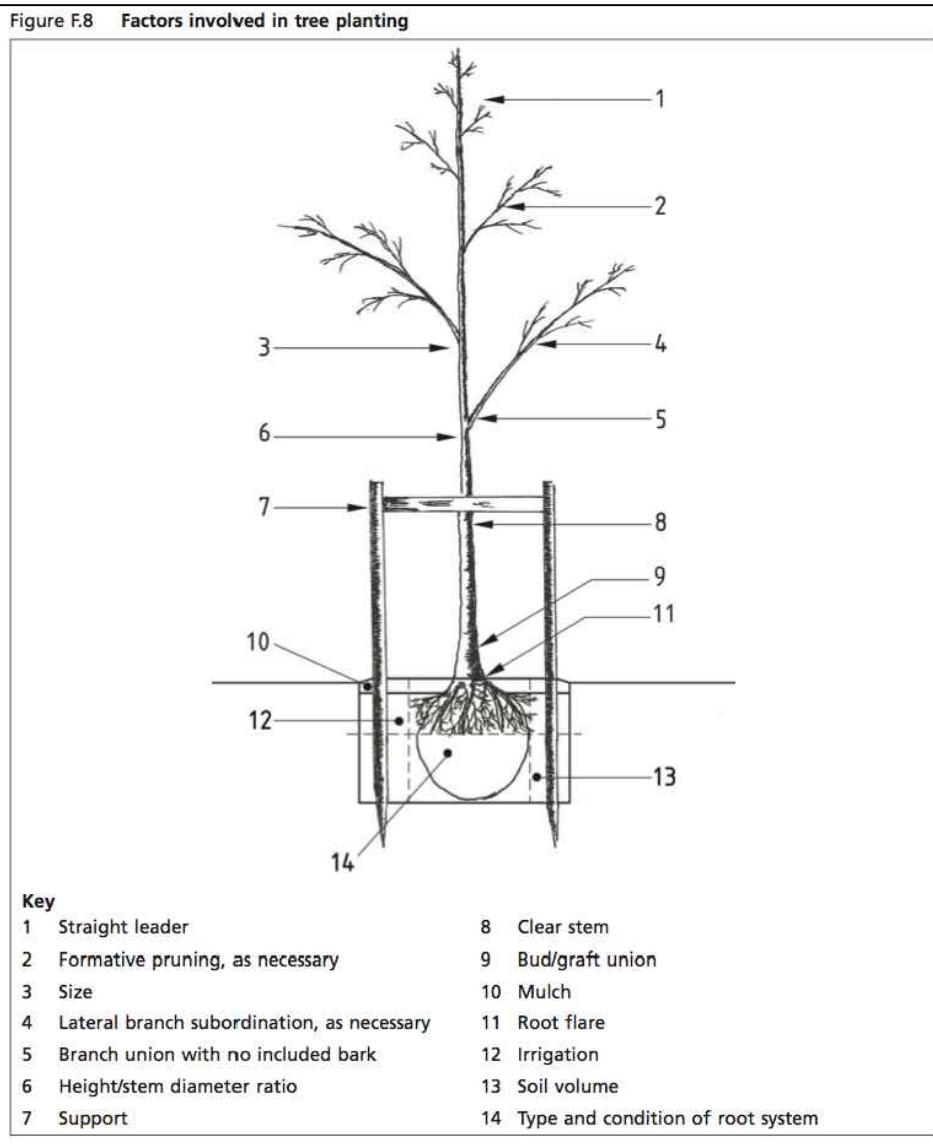
- Tree works are to be completed prior to commencement of any and all site processes; no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.
- Protective Barrier Fencing (PBF), with Tree Protection Signs fixed at least every 5m (see detail and illustration on this TPP), is to be installed prior to the site works commencing.
- Hard Surfaces within RPAs are to be retained where ongoing access
- No chemicals or materials are to be transported or stored or used or mixed within a RPA or Construction Exclusion Zone (CEZ).
- No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.
- During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.
- No mechanical digging or scraping is permitted within a RPA or CEZ.
- When all construction works are completed the PBF can be removed however, should be realigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.
- On construction completion and finished use of the load bearing access ramp, the surface, gabion filled boxes and Cellweb are to be removed manually, the soils be aerated by Air-Spade and mulch applied to those areas which are soft surfaced borders.

Protective Barrier Fencing – Example Design



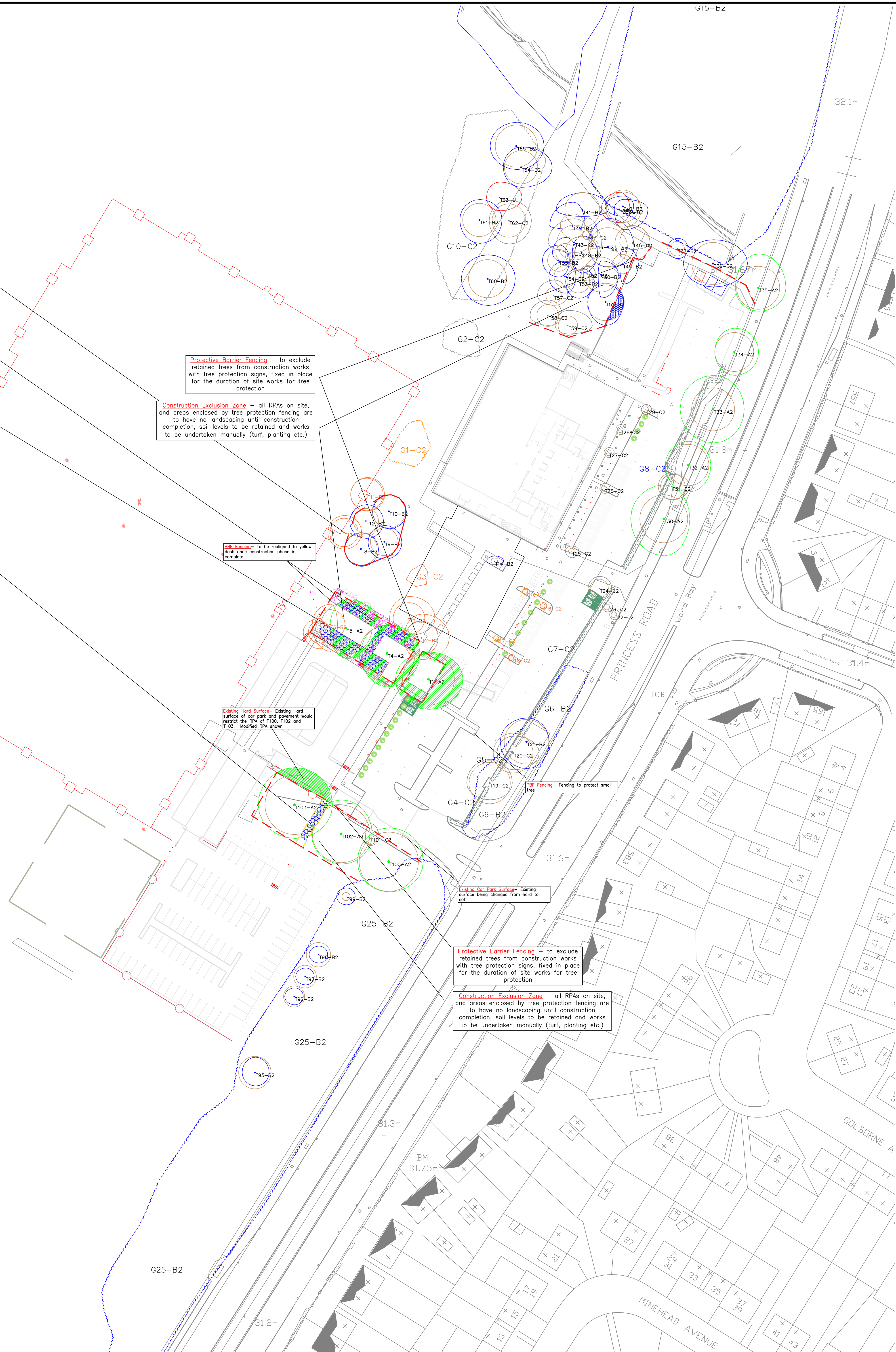
Tree Planting – Example Design

(c) British Standards Institute (www.bsigroup.com)



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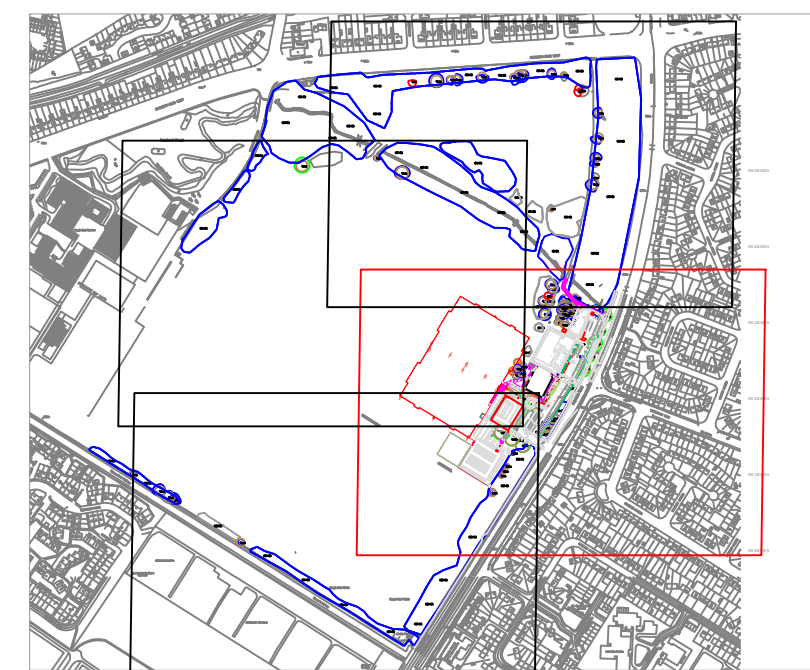
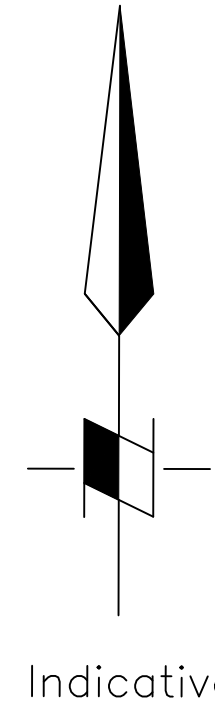


KEY
Tree Crown Spread
Root Protection Area (RPA)
Tree Stem
T1 Tree No.
Removed Tree

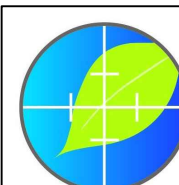
Tree Condition Category

A
B
C
U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



REV.	DESCRIPTION	DWN	CHK'D	DATE
B	Updates and Changes	RB	TB	08/02/22
A	Based on TCP 20343 & REV-PM-02-XX-08-1-79001_R0111_Site Masterplan Based on TCP 20343 & REV-PM-02-XX-08-1-79001_R0111_R0111	RB	TB	20/12/21
REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT				ISG											
PROJECT				20343/A2 Hough End Leisure Centre 480 Princess Rd, Manchester M20 1HD											
TITLE				Tree Protection Plan 1 of 4											
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE									
RPHB	30/03/2021	AT	30/03/2021			1-50									
 Indigo Ltd Surveys (Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester, CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk <table><tr><td colspan="2">Drawing Number</td><td colspan="2">A0</td></tr><tr><td colspan="2">20343/A2/TPP/01</td><td colspan="2">REV B</td></tr></table> THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF INDIGO SURVEYS LTD.								Drawing Number		A0		20343/A2/TPP/01		REV B	
Drawing Number		A0													
20343/A2/TPP/01		REV B													

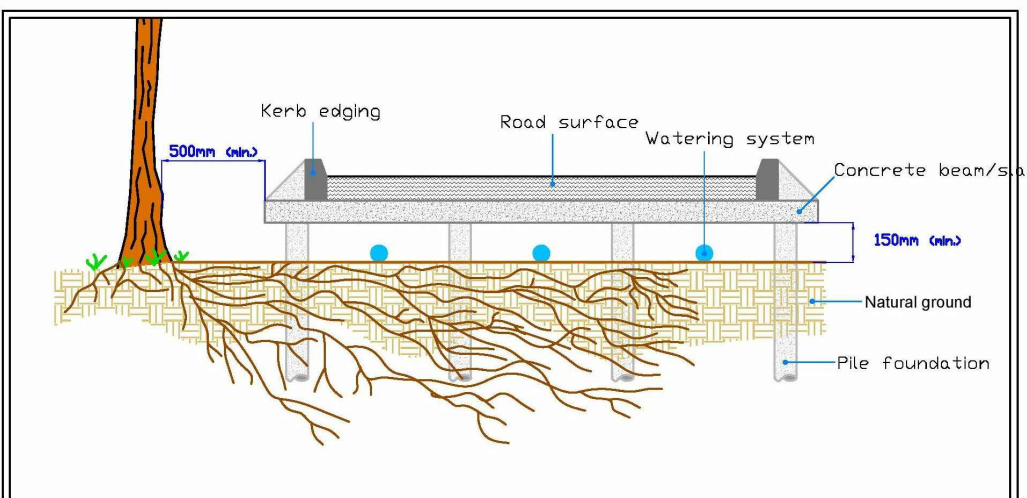
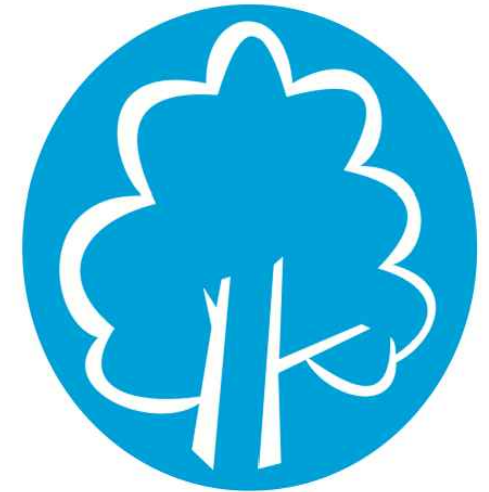
Tree Removals
T2, T3, T6, T7, T11, T13, T15, T16, T17 T18 G1
and G3 inclusive to be removed to facilitate the
scheme; replacement tree detail to be included
within the landscape scheme. T38, T63, T73, T74
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reasons

Tree Pruning – T1, T4, T5, T103 are to be crown
raised to statutory requirements over the proposed
car parks, pitches, footpaths and compounds.

Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration
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Sensitive Ground Works – To be used on proposed
footpaths, car parking, heat pump compounds, heat
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undertaken once construction is complete, then
prepare grounds manually stripping the existing soil
surface and turf only, retain soil levels, use load
bearing system (Cellweb or similar) and manual
installations. T1, T4, T5, T51, T101 and T102

Ground Protection – Existing hard surfaces will be
used



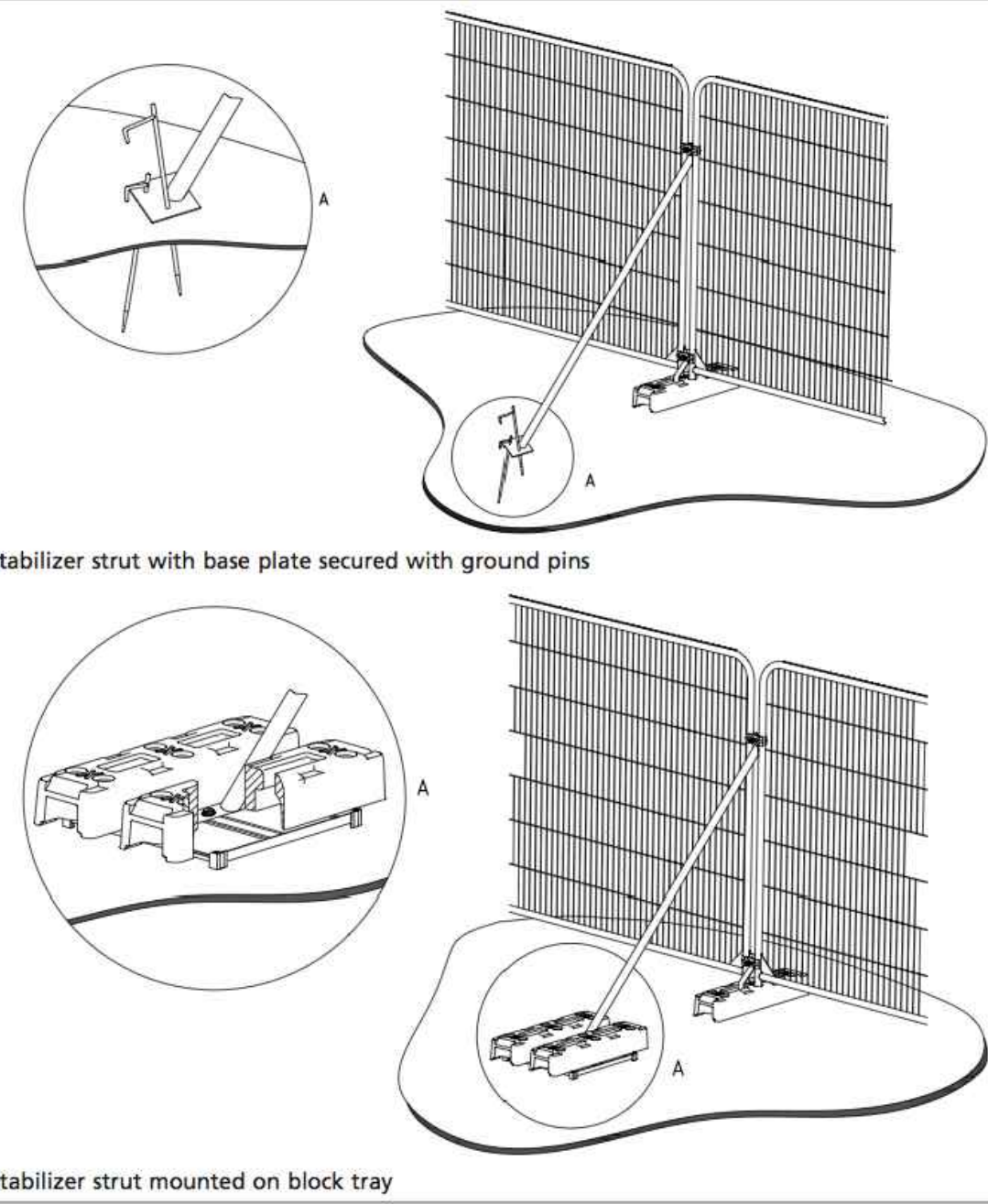
Principle to be used for heat pump support pads

Tree Protection Specification

- The tree protection measures outlined within the Arboricultural Method Statement (ref: 11381/A4_AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 20343/A4-TPP-01), and the additional details below, thus:
- Tree works are to be completed prior to commencement of any and all site processes; no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.
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 - On construction completion and finished use of the load bearing access ramp, the surface, gabion filled boxes and Cellweb are to be removed manually, the soils be aerated by Air-Spade and mulch applied to those areas which are soft surfaced borders.

Protective Barrier Fencing – Example Design

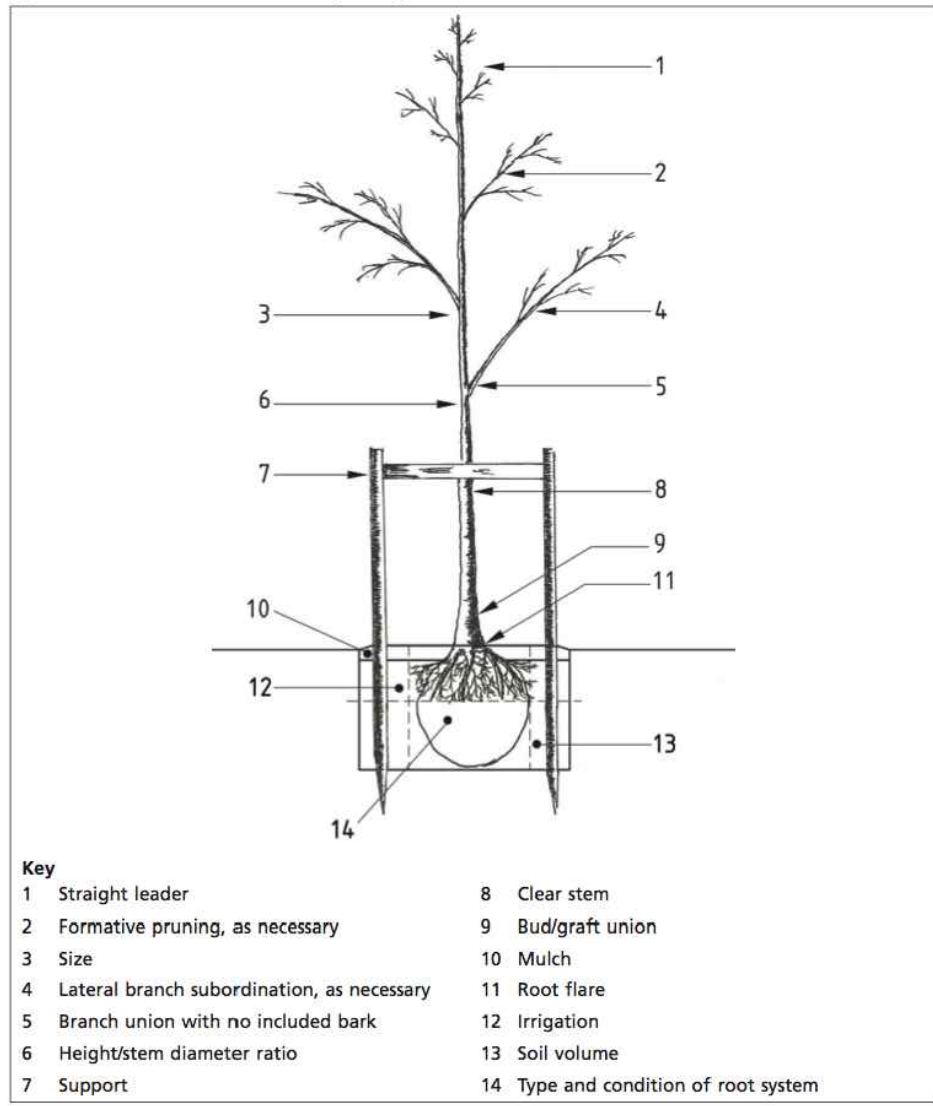
Figure 3 Examples of above-ground stabilizing systems



Tree Planting – Example Design

(c) British Standards Institute (www.bsigroup.com)

Figure 18 Factors involved in tree planting



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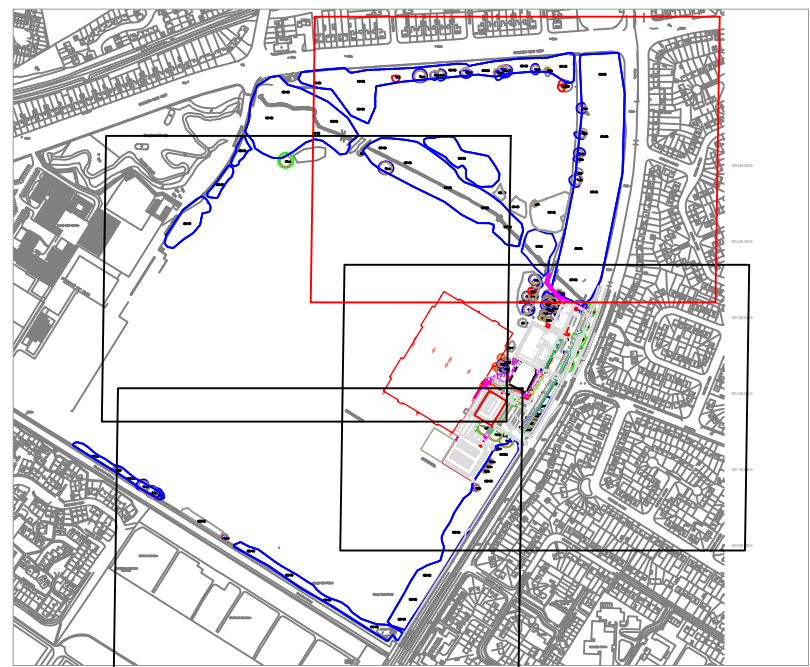
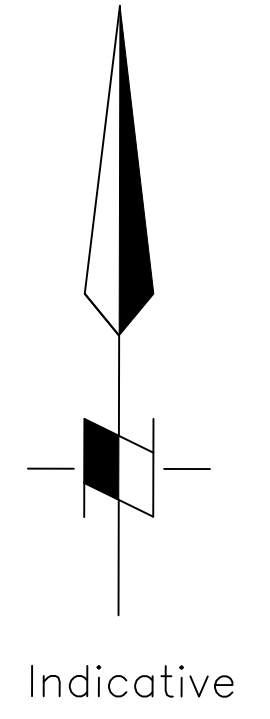
KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- Removed Tree

Tree Condition Category

- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



B	Updates and Changes	RB	TB	08/02/22
A	Based on TCP 20343 & HEV-PA-02-XX-08-L-79001-Rev11 Site Masterplan	RB	TB	20/12/21
	Based on TCP 20343 & HEV-PA-03-XX-08-L-50411-Rev18	RB	TB	25/03/21
REV.	DESCRIPTION	DWN	CHK'D	DATE

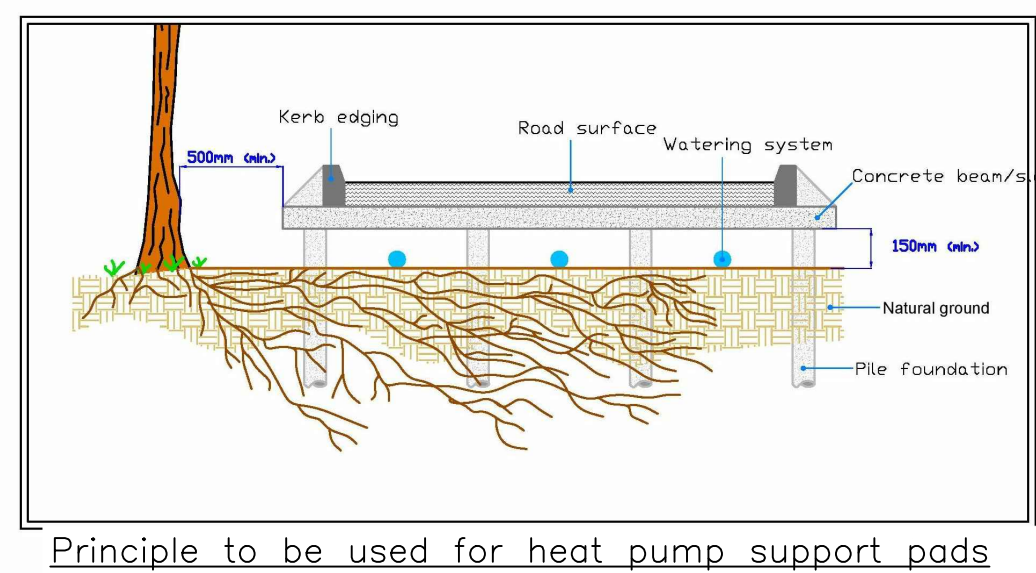
CLIENT		ISG	
PROJECT		20343/A2 Hough End Leisure Centre 480 Princess Rd, Manchester M20 1HD	
TITLE		Tree Protection Plan 2 of 4	
DWN	DATE	CHK'D	DATE
RPHB	30/03/2021	AT	30/03/2021
APP'D	DATE	SCALE	1-500
Indigo Ltd		A0	
(Mail) Second Floor, 1 Hunter's Walk, Conisbrough, Chester, CH1 4B		20343/A2/TPP/01	
Telephone: 0333 123 7080		REV. B	
www.indigosurveys.co.uk		THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF INDIGO SURVEYS LTD.	



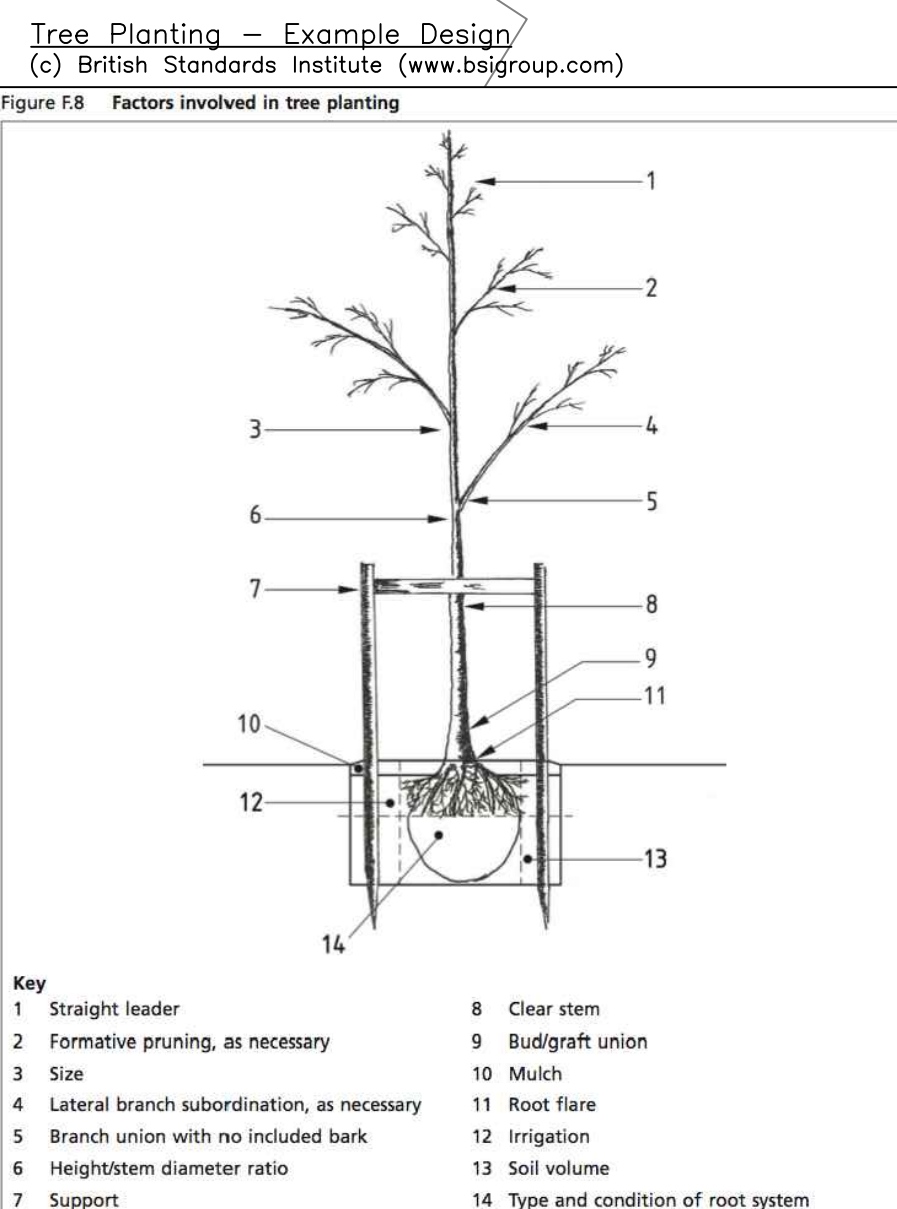
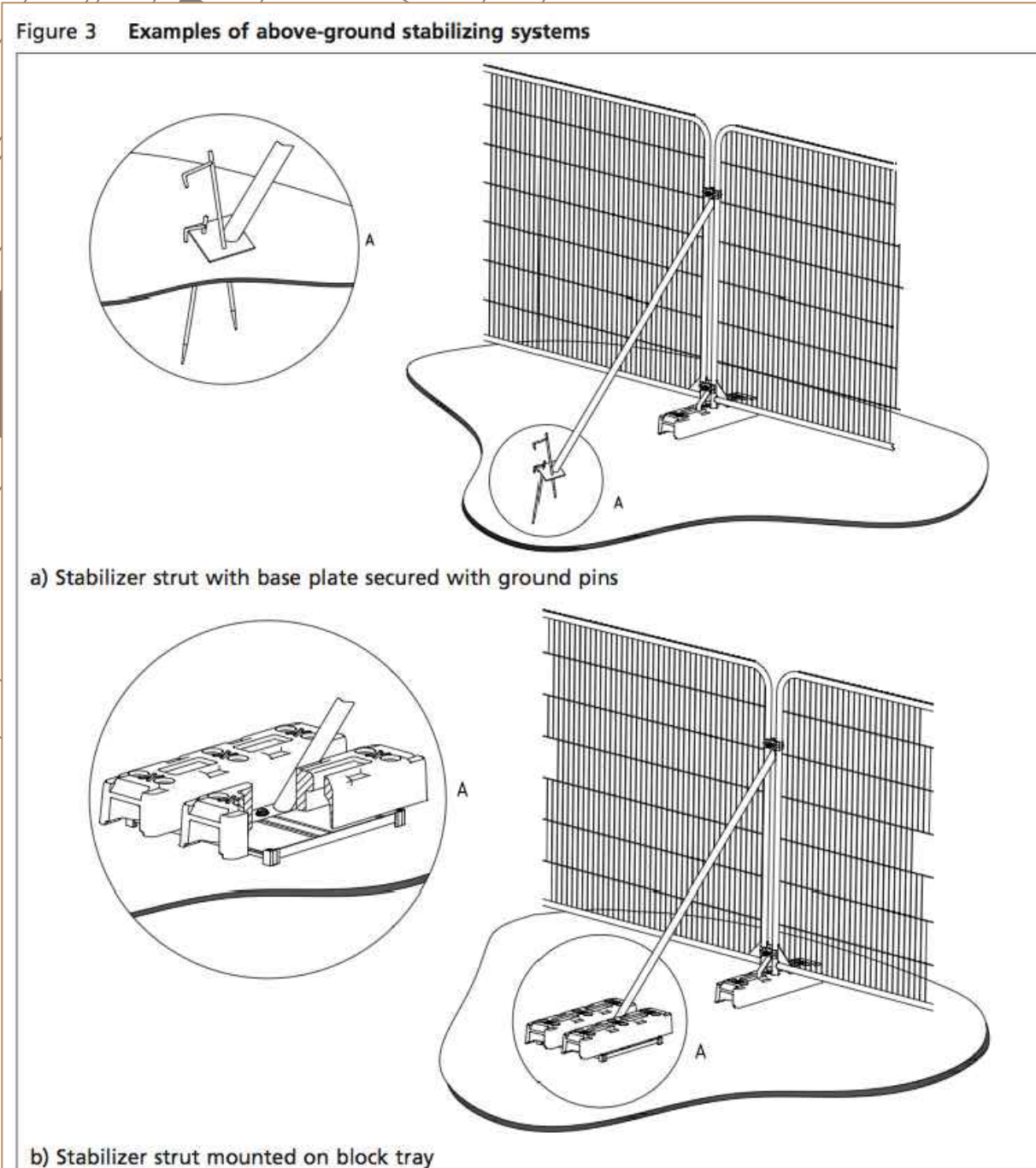
Tree Protection Specification

The tree protection measures outlined within the Arboricultural Method Statement (ref: 11381/A4_AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 20343/A4-TPP-01), and the additional details below, thus:

- Tree works are to be completed prior to commencement of any and all site processes: no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.
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- No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.
- During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.
- No mechanical digging or scraping is permitted within a RPA or CEZ.
- When all construction works are completed the PBF can be removed however, should be redesigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.
- On construction completion and finished use of the load bearing access ramp, the surface, gabion filled boxes and Cellweb are to be removed manually, the soils be aerated by Air-Spade and mulch applied to those area which are soft surfaced borders.



Protective Barrier Fencing – Example Design



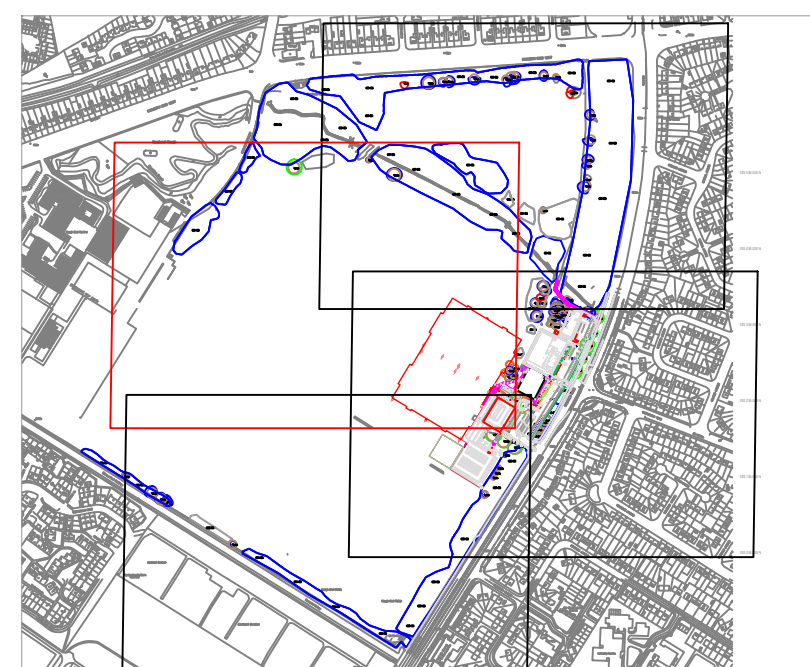
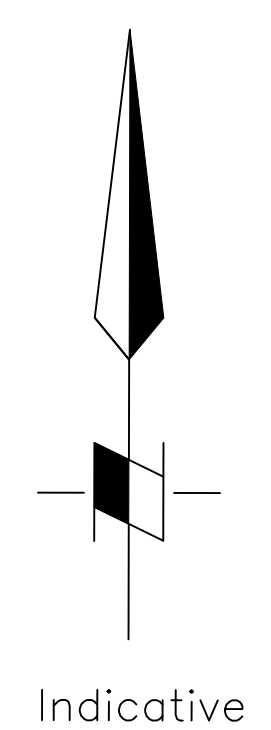
KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- Removed Tree

Tree Condition Category

- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



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Updates and Changes		RB	TB	DATE
A	Based on TCP 20343 & REV-PM-02-XX-08-1-79001-Rev11 Site Masterplan	RB	TB	20/12/21
	Based on TCP 20343 & REV-PM-03-XX-08-1-50411-Rev18	RB	TB	25/03/21
REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT: ISG

PROJECT: 20343/A2
Hough End Leisure Centre
480 Princess Rd, Manchester M20 1HD

TITLE: Tree Protection Plan
3 of 4

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	30/03/2021	AT	30/03/2021			1-500

Indigo Surveys Ltd
(Natl) Second Floor, 1 Hunter's Walk, Conishead, Chester, CH1 4EB
Telephone: 0333 123 7080 www.indigosurveys.co.uk

Drawing Number: 20343/A2/TPP/01

A0
REV. B

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KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

A

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The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration on this plan). PBF realignment (shown in yellow dash) to take place in the landscape phase or after construction phase.

Tree Protection Specification

The tree protection measures outlined within the Arboricultural Method Statement (ref: 11381/44_AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 20343_A4-TPP-01), and the additional details below, thus:

a)

Tree works are to be completed prior to commencement of any and all site processes; no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.

b)

Protective Barrier Fencing (PBF), with Tree Protection Signs fixed at least every 5m (see detail and illustration on this TPP), is to be installed prior to the site works commencing.

c)

Hard Surfaces within RPAs are to be retained where ongoing access

d)

No chemicals or materials are to be transported or stored or used or mixed within a RPA or Construction Exclusion Zone (CEZ).

e)

No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.

f)

During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.

g)

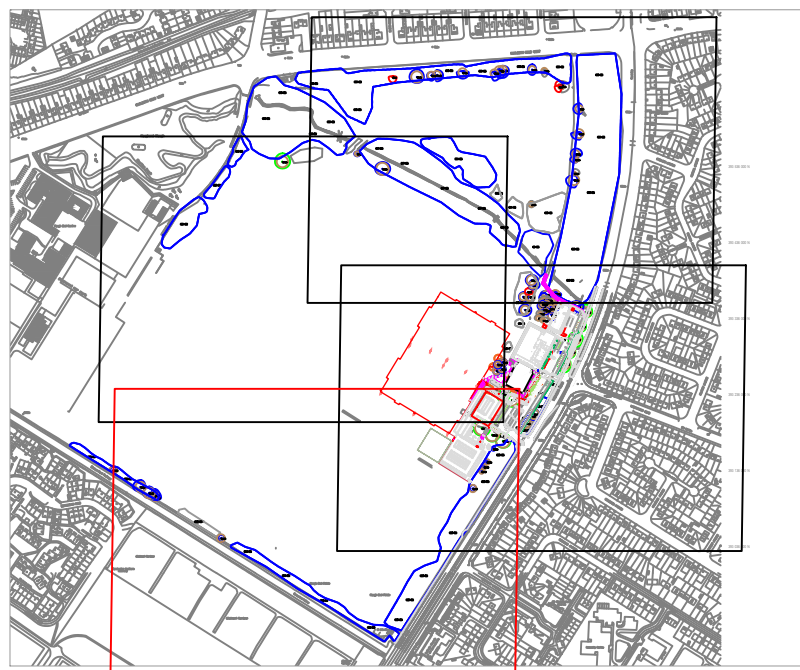
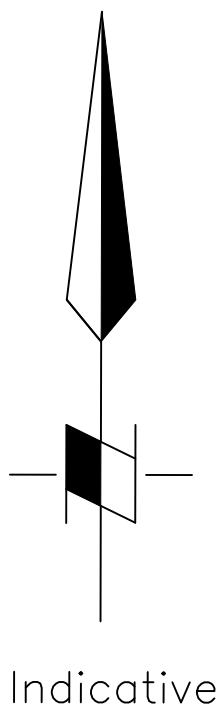
No mechanical digging or scraping is permitted within a RPA or CEZ.

h)

When all construction works are completed the PBF can be removed however, should be realigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.

i)

On construction completion and finished use of the load bearing access ramp, the surface, gabion filled boxes and Cellweb are to be removed manually, the soils be aerated by Air-Spade and mulch applied to those area which are soft surfaced borders.



Updates and Changes		RB	TB	08/02/22
A	Based on TCP 20343 & REV-PM-02-XX-08-1-79001-Rev11 Site Masterplan	RB	TB	20/12/21
	Based on TCP 20343 & REV-PM-02-XX-08-1-79001-Rev11 Site Masterplan	RB	TB	25/03/21
	REV-PM-02-XX-08-1-79001-Rev11 Site Masterplan	RB	TB	25/03/21
REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT

ISG

PROJECT

20343/A2
Hough End Leisure Centre
480 Princess Rd, Manchester M20 1HD

TITLE

Tree Protection Plan
4 of 4

DWN

DATE

CHK'D

DATE

APP'D

DATE

SCALE

RPHB

30/03/2021

AT

30/03/2021

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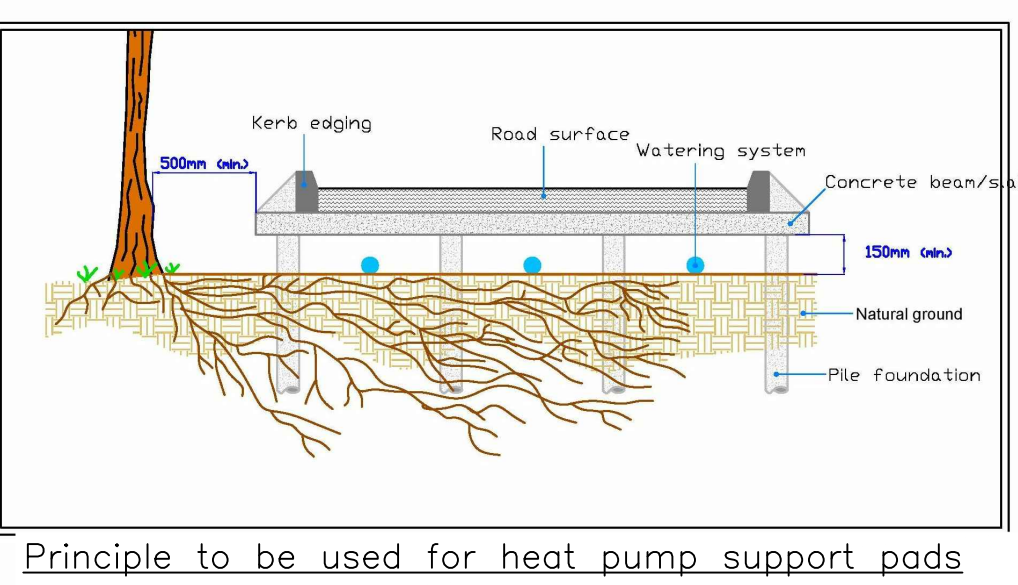
Drawing Number

20343/A2/TPP/01

A0

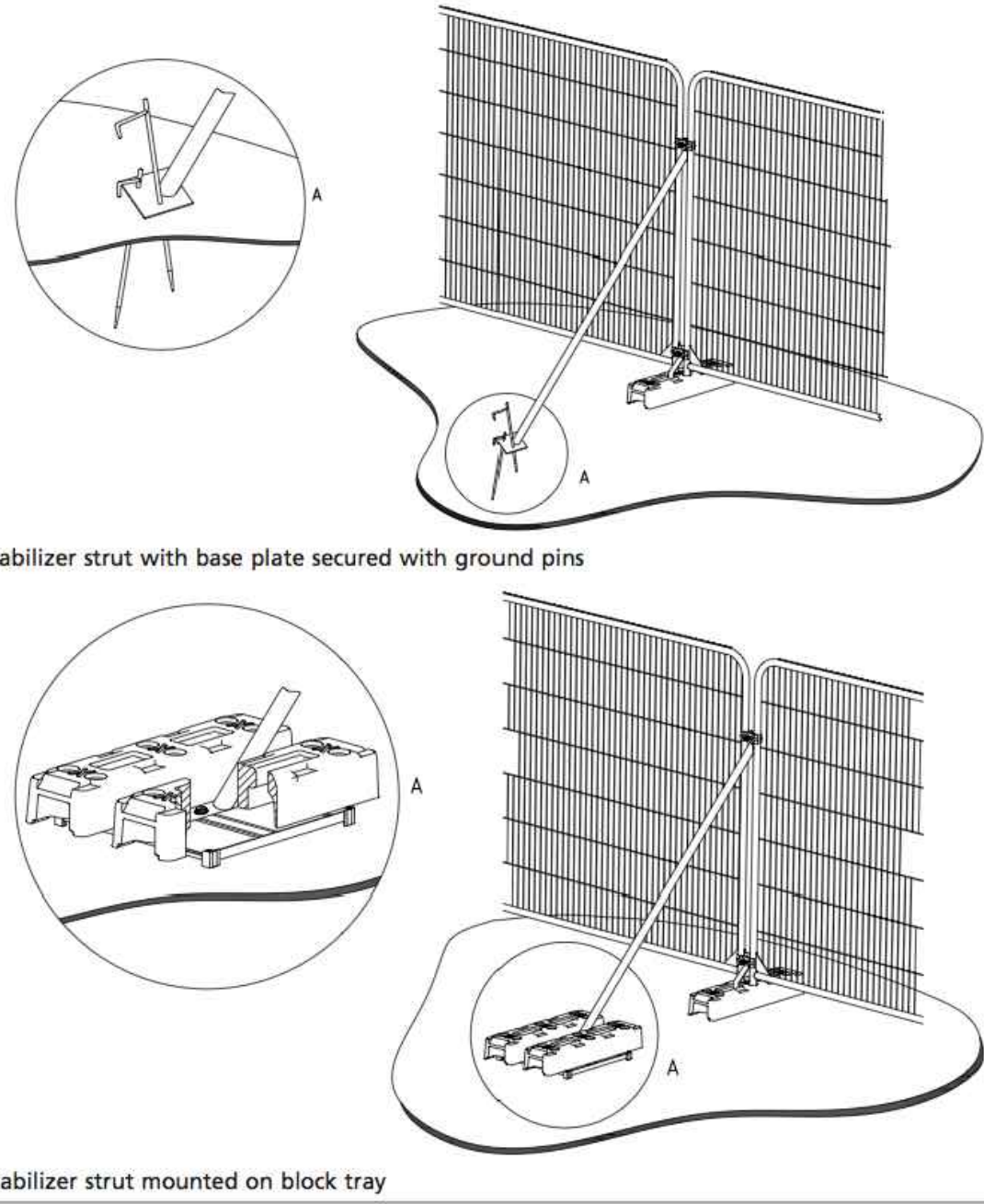
REV. B

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Protective Barrier Fencing – Example Design

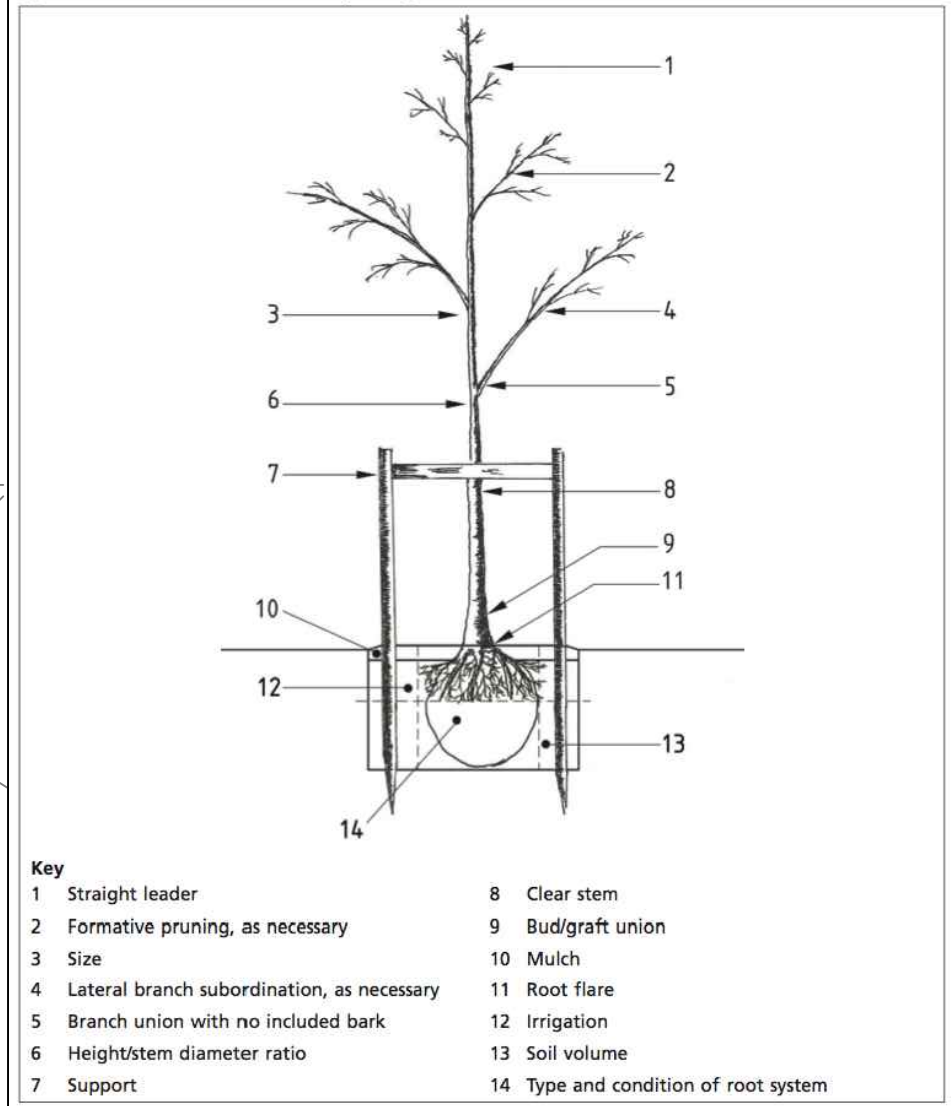
Figure 3 Examples of above-ground stabilizing systems



Tree Planting – Example Design

(c) British Standards Institute (www.bsigroup.com)

Figure 18 Factors involved in tree planting



PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

TREE PROTECTION AREA
KEEP OUT!
(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION.
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY.

DO NOT SCALE
FROM DRAWING

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