

Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

BS 5837:2012 TREE SURVEY AND ARBORICULTURAL METHOD STATEMENT FOR HAMPSHIRE FIRE AND RESCUE HEADQUARTERS



**Prepared on instructions from:
David Ryder
Group Engineer
Engineering Consultancy
Hampshire County Council
The Castle
Winchester SO23 8UD**

Ref: SPH/IB/5837-01/13.03

20th March 2017



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

Unit H Bridge Farm
Reading Road
Arborfield
Reading
Berkshire
RG2 9HT
Tel: 0118 976 2902
Mobile: 0778 616 2202

CONTENTS

1. Summary
2. Introduction
3. Tree protection general
4. Site specific precautions and mitigation
5. Site monitoring
6. Contingency plans
7. Queries

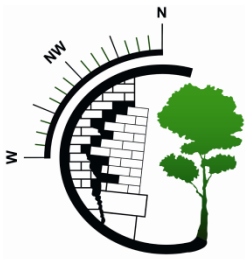
APPENDICES

1. Tree survey schedule
2. Tree location drawing
3. Root protection area drawing
4. Shade constraints drawing
5. Mitigation drawing
6. Figure 2, section 6, BS5837:2012 (by permission)
7. Tree protection sign
8. Site plan phase 1 completed phase 2 proposed ref E03312-SK9, and Vehicle tracking 3 Axle refuse vehicle drawing ref: W00837- 400
9. Generic ground protection

© 2017 Tree Surveys

All rights in this report are reserved. No part of it may be reproduced, edited or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of Hampshire County Council and their agents in dealing with this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without the written consent of Tree Surveys. It may be reproduced as part of a planning application.

The statements made in this report do not take account of extremes in weather, accidental damage including fire, chemical and physical injury, or vandalism. Tree Surveys cannot therefore accept any liability in connection to these factors, or for work not carried out to current industry best practice. The validity of this report ceases at the prescribed time limit or after two years from the site inspection, or if the site conditions change due to unspecified works that affect the subject tree(s) whichever is the sooner.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

Summary

We inspected all of the trees likely to be affected by a development proposal at Hampshire Fire and Rescue Service Headquarters Eastleigh, using information supplied by Hampshire County Council for reference. The tree details are contained in the schedule included at Appendix 1.

A total of 26 individual trees were assessed in accordance with the cascade chart for tree quality (Table 1: Section 4) of British Standard (BS) 5837:2012. They are categorised as follows:

- 6 individual trees are in Category 'B' "Trees of moderate quality".
- 18 individual trees are in Category 'C' "Trees of low quality".
- 2 trees are in Category 'U' "Trees unsuitable for retention".

Mitigation is required to demonstrate how the retained trees root protection areas (RPAs) will be protected during any development, including access to the proposed development area. The RPAs are shown on the drawing SPH/IB/RPA-01/13.03, included at Appendix 3. Tree protection measures are set out on mitigation drawings SPH/IB/MIT-01/13.03, at Appendix 5.

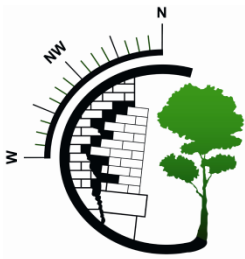
1. Introduction

1.1 Instructions

- 1.1.1 We are instructed by Mr David Ryder, Group Engineer, Hampshire County Council to visit Hampshire Fire and Rescue Service Headquarters Eastleigh, and survey the trees implicated in a forthcoming planning application and prepare an arboricultural method statement in support of the scheme.
- 1.1.2 The trees were surveyed in accordance with 'British Standard (BS) 5837:2012' a guide for 'Trees In Relation To Design, Demolition and Construction - Recommendations' (Section 4).

1.2 Validation

- 1.2.1 In accordance with the *Department for Communities and Local Government (DCLG) Circular 03/2010* document *Guidance on Information Requirements and Validation*, this report fulfils the recommended national listed criteria for tree survey information. This report should be read in conjunction with the following documents and drawings:
 - A tree survey, undertaken by a qualified arboriculturist, and tree schedule, included at Appendix 1.
 - Drawings at 1:200 scale with a north point, indicating the tree locations and colour coded, ref SPH/IB/5837-01/13.03 included at Appendix 2.
 - The root protection area drawings, ref SPH/IB/RPA-01/13.03 included at Appendix 3.
 - Shade constraints drawings, ref SPH/IB/SC-01/13.03 included at Appendix 4.
 - Mitigation drawings, ref SPH/IB/MIT-01/13.03 included at Appendix 5.
 - Default tree protection from BS 5837:2012 – Appendix 6.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

1.2.2 Legal status of the trees:

Protected Tree Status:

Tree Surveys have made enquiries of Eastleigh Borough Council Tree team on 20th March 2017 to identify the presence of any trees protected by Tree Preservation Orders (TPO) on the site, or whether the site stands within a conservation area. (The Council's tree team have not advised of the status of the trees on this site at the time of compiling this AMS. We will notify the outcome of this enquiry as soon as it is known).

2. Scope of this report

- 2.1 The purpose of this report is to quantify the trees most likely to be impacted upon by the development proposal, and to highlight how potential damage to them may be avoided.
- 2.2 This tree survey provides the basic data on the trees implicated in a forthcoming planning application. It does not set out to put arguments for or against the development. It does set out how to decide upon the retention of the trees, means of protecting the retained trees during development and on means of incorporating the trees into the developed landscape, along with appropriate management and protective measures.
- 2.3 The primary purpose of this report is for the client and council to review the information provided and use it for the purpose of considering a planning application or engaging in further discussions towards the same end. The information is provided on the basis that it will be available to people other than arboriculturists i.e. those without specialist knowledge of the subject.

3. Site visit and the collection of data

3.1 Site visit

- 3.1.1 The trees were surveyed by Mr E Power NCH Arb on the 13th of March 2017. The trees were inspected from ground level and without any form of detailed investigations; binoculars were used to aid the inspection process. The measurements we undertook on site were made with the aid of a rounded down diameter tape and TruPulse™ laser hypsometer. The trees were not tagged as they are easily identified on site. The weather at the time of the inspections was dull and overcast.

3.2 The trees

- 3.2.1 We surveyed 26 individual trees with stem diameters of 75 millimetres and above. The tree details have been entered into a tree schedule included at Appendix 1.
- 3.2.2 For ease of identification the trees are shown on the tree location drawing, included at Appendix 2, and have been allocated numbers. These numbers are cross-referenced within the BS 5837 survey schedule.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

3.2.3 In making our assessment, consideration has been given to:

- The health, vigour and condition of the trees.
- Any structural defects and safe life expectancy.
- The size and form of the trees.
- The rare, unusual or component part of a formal feature.
- Groups or individual trees that provide definite screening or softening effect.
- Trees forming distinct landscape features.

4. Constraints

4.1 Ecological constraints

4.1.1 The Conservation of Habitats and Species Regulations 2010 (as amended) and Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000 provides statutory protection to birds, bats, and other tree dwelling species. They could impose significant constraints on the use and timing of any tree matters considered in this report.

4.2 Root protection areas (RPAs)

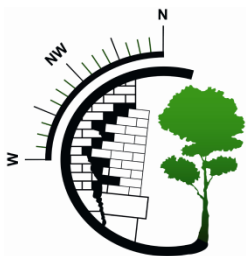
4.2.1 Using BS 5837:2012 the RPAs have been calculated for the trees by reference to section 4.6.1 (a) and/or (b). The RPA is frequently described as a circle with a radius of prescribed distance within which no unspecified activity should occur and a high level of care is needed during any activities that are authorised within them, if they are to be successfully retained.

4.2.2 Specified intrusions into the RPAs can take place only where the ground is adequately protected in accordance with the requirements of section 6 (6.2.3.3) of the BS or as may be agreed with the Local Planning Authority (LPA). We have plotted the RPAs as dodecagons taking account of the site constraints on the Root protection drawing, included at Appendix 3.

4.2.3 The shape and position of the RPA may only be modified by an arboriculturist to meet the pre-existing site conditions or other factors that indicate that rooting has occurred asymmetrically. In all cases, we have considered the adjacent constraints including such things as the existing site access and site topography.

4.3 Shade constraints

4.3.1 Large trees that cast dense shade may result in pressure to prune or remove them. Whilst either shade or sunlight might be desirable depending on the potential use; the design should avoid unreasonable obstruction of light. The shade constraints posed by the trees are plotted onto The Shade Constraints drawing, included at Appendix 4.



Tree Surveys

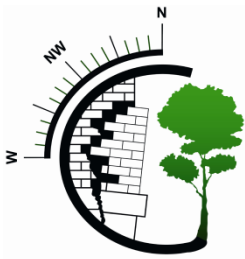
BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

5. Tree protective measures

- 5.1 In terms of tree protection barriers the accompanying Mitigation drawing, included at Appendix 5, shows the RPA locations and specific tree protection required prior to and during the construction activities.
- 5.2 The tree protection barrier is designed to provide construction exclusion zones around the RPA of all trees to be retained.
- 5.3 The tree protection fencing should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. The default specification for protective barriers is that specified in BS 5837:2012 Figure 2, section 6. A copy of Figure 2 is reproduced at Appendix 6. All weather signs must be attached by cable ties to each Heras panel as set out in Appendix 7.
- 5.4 The recommended position of the tree protective fencing is shown as a red line on Mitigation drawing, included at Appendix 5.

6. Tree survey key

No:	Tree number on survey drawing
Species:	Common/English and or Latin name
Height:	Height in metres above ground level
Number of stems:	Single stem, or number of stems if more than one
Canopy spread:	In metres taken at the four cardinal points (N.E.S.W.)
Diameter:	In millimetres measured in accordance with BS 5837 2012
Height & direction of 1st branch:	In metres and by cardinal compass points. This can be found on the detailed tree assessment
Age class:	Young Semi-mature Early-mature Mature Over-mature
Root protection area:	In square metres and the nominal radius of a circle required to achieve this in metres
Health - Physiological condition (Phy Con):	Good Fair Poor Declining Dead



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

6. Tree survey key continued:

Structural condition: Crown, Stem, Basal Area:

Good
Fair
Poor
Ivy

Survey comment:

i.e. Further investigation, aerial inspection, decay detection, wildlife study

Estimated remaining contribution (ERC) in years:

i.e. less than 10, 10 to 20, 20 to 40, 40+

Category grading:	Code U	Trees for removal	RED
	Code A	High quality category	GREEN
	Code B	Moderate category	BLUE
	Code C	Low category	GREY

Arboricultural Method Statement (AMS)

1. General

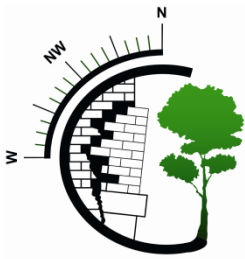
1.1 The key protection issues associated with this scheme in relation to existing trees, in the short, medium and long term, are the need for:

- The protection of trees to be retained from physical damage to their above and below ground structures.
- The protection of the soil structure and prevention of damage to tree root systems by chemicals and other noxious substances/materials.
- Monitoring, supervision and liaison.

2. Introduction

2.1 Terms of reference:

We are to review the British Standard (BS) 5837:2012 tree survey reference data in order to integrate the proposed development options and safeguard the long term preservation of the retained trees. This AMS provides general guidance on the typical range of processes that are involved during development and seeks to ensure that appropriate methods of implementation are carried out. It further aims to provide a holistic view of the development process and seeks to address any potential issues and conflicts that may arise and provide solutions to these, resolving them in line with current arboricultural and industry best practice guidance.



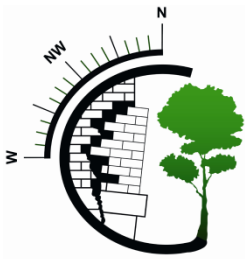
Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

- 2.2 The AMS sets out the management and protection details in support of the planning proposal and they must be implemented to secure successful tree retention. This is based upon the assumption that the minimum general standards for development are those set out in BS 5837:2012 and the National Joint Utilities Group (NJUG) 2007 Volume 4, Issue 1: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*. We have used our extensive experience to interpret these references in the context of evolving good practice and site specific issues relating to the proposed development at: Hampshire Fire and Rescue Service Headquarters Eastleigh.
- 2.3 The proposal consists of; providing a two story conference center and office building at the south west corner of the site, and the construction of a car parking area within the existing level area north of the proposed conference center. There is proposed a carpark connection with the existing service road alongside the western boundary of the site. The proposal is set out in site plan: Phase 1 completed, Phase 2 proposed, ref: E03312-SK9, and vehicle tracking 3 axle refuse vehicle drawing ref: W00837-400, at Appendix 8. The proposal impacts on the root protection areas (RPAs) of retained trees (T) T20, and T22.
- 2.4 The root protection area drawings included at Appendix 3, are illustrative and based entirely on information provided by HCC. The drawing can only be used for dealing with the tree issues. The precise location of the tree protective measures must be confirmed at a pre-commencement meeting before any construction activity starts.
- 2.5 General precautions when working in the RPA.

The following prohibitions apply within any tree RPA:

- No linear mechanical excavation whatsoever without prior agreement from the LPA and Arboricultural Consultant (AC), unless site specific mitigation has been agreed and implemented.
- No excavation by any other means unless a scheme of arboricultural site monitoring is agreed, implemented and a documentary record maintained.
- No lowering of levels unless agreed in writing with the LPA and AC, except for the removal of grass sward using hand tools in accordance with BS 5837:2012 (section 7.4.2.1).
- No construction of sealed hard surfacing unless site specific mitigation is in place.
- No storage of plant, fuel, oil or materials.
- No storage or handling of any chemical including cement washings, unless site specific mitigation is approved by the AC.
- No vehicular access unless site specific mitigation is in place.
- No fire lighting.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

- 2.6 In addition to the measures in 2.5 further precautions are necessary adjacent to trees:

A 10 metre separation distance shall be observed between any tree RPA during the cement mixing phases including storage and other substances injurious to tree health, this should include such things as fuels, oil, bitumen, cement (including cement washings), builders' sand, concrete mixing and other chemicals.

- 2.7 Avoiding damage to stems and branches:

Care shall be taken when planning site operations in proximity to trees to ensure that contact with the retained trees and overhanging branches is avoided. Such contact can result in serious injury to the tree and might make the safe retention impossible. Consequently, any tree protection in proximity to the trees shall be constructed and agreed by the AC, to ensure that adequate clearance from the trees is at all times maintained.

- 2.8 Access pruning:

Minor pruning operations are considered necessary on the retained trees, in particular trimming the lower crowns to allow erection of tree protection fencing. All pruning must only be conducted following consent and must be undertaken in accordance with BS 3998:2010 and current arboricultural practices. At no time must the trees be pruned by construction contractors. All tree pruning must be undertaken by suitably qualified and insured arboricultural contractors under the guidance of the AC.

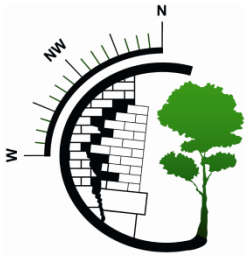
3. Tree protection general

- 3.1 Default fencing location:

It is considered that the minimum default type fencing must be that shown at Appendix 6, and the default location for this type of fencing is shown on mitigation drawing, included at Appendix 5. If alternate tree protection barriers are to be considered a contingency plan must be submitted to the AC, it should identify the reasons why the default cannot be used, the location and duration required for the substitute fence and it must be inspected by the AC prior to work commencing on site. The AC must be given reasonable time to provide advice on any changes.

- 3.3 Grade Changes:

The soil embankment to the south of the proposed carpark area is to be removed and the area levelled, trees T1, T2, and T3, growing on the bank will be lost.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

4. Site specific precautions and mitigation

- 4.1 Tree loss: There is a loss of 21 trees, see accompanying Arboricultural Impact Assessment.

Mitigation:

- A full landscape plan must be provided indicating replacement planting proposals for the tree loss.

- 4.2 Access Pruning – Access pruning will be necessary and the following mitigation applies.

Mitigation:

- Pruning works are required; they must be undertaken in accordance with BS 3998:2010 and current arboricultural practices. At no time must the trees be pruned by the construction contractors. All tree pruning must be undertaken by suitably qualified and insured arboricultural contractors and may only be undertaken following a briefing by the AC to ensure the scope of work is understood.
- A detailed specification must be provided by the AC for any tree pruning operations and where required consent must be obtained prior to any pruning work. All pruning must be restricted to secondary branches only and in the specific areas of the canopy where clearance is required.

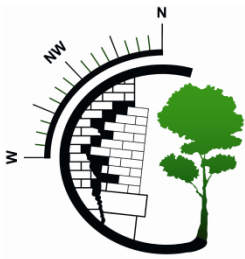
At the present time the following tree works are considered necessary:

- Lateral lower crown reduction by 1metre on the eastern crowns of trees T20, and T22. To give clearance for erection of tree protection fencing.

- 4.3 Protection of Retained Trees.

Mitigation:

- The tree protection fencing must be erected as shown on mitigation drawing and must remain in situ until all construction activity is completed, see Appendix 5.
- Prior to any barrier being moved temporarily or otherwise, the AC must be informed and given reasonable time to provide advice. If the barrier has to be temporarily moved to allow construction access ground protection must be applied. An example of ground protection is set out at Appendix 9 and is considered generic to this scheme. Changes to this specification must be agreed by the AC before the changes are made.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

4.3 Continued

- The temporary tree protection fence and ground protection must be installed and remain in situ, until all construction activity utilizing heavy plant, piling rigs or mobile cranes is completed. Prior to any barrier being moved temporarily or otherwise, the AC must be informed and given reasonable time to provide advice. Where the barrier has to be temporarily moved to allow construction access additional ground protection must be applied. An example of ground protection is set out at Appendix 9 and is considered generic to this scheme. Changes to this specification must be agreed by the AC before the changes are made. The AC must be given reasonable time to provide advice.

4.5 Installation of underground services to the new building, and car park area. No RPA incursions are anticipated and we have not been supplied with any detailed information regarding the location and type of new services into the site.

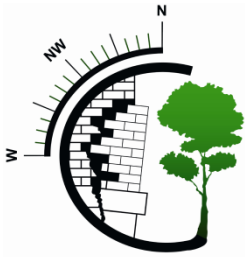
Mitigation:

- Any new services are required to comply with the minimum standards set out in the National Joint Utilities Group (NJUG) 2007 Volume 4, Issue 1: Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
- Soakways and septic tanks must be sited outside of any RPA. Spoil and building materials must not be stored in the RPA of retained trees.

4.6 Spoil movements, storage of materials, welfare facilities and contractor parking.

Mitigation:

- There is adequate space for the storage of materials on site however; space may become progressively more difficult as the scheme progresses. Therefore the main contractor must provide a contingency plan setting out a phased program of works and any storage/access arrangements to ensure that the work phases can be completed without compromising the RPA.
- Contractor parking arrangements must be set out within the contractor's contingency plan. Where vehicle access is required within the RPA of retained trees the main contractor must provide a contingency plan setting out the equipment and procedures for dealing with vehicle spillages, for example the use of spill kits or temporary ground protection.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

5. Site Monitoring

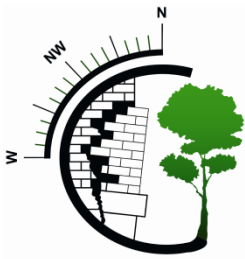
- 5.1 Site supervision during work within or close to the RPAs must be undertaken at regular intervals and a written record of the meetings maintained. This scheme should include the following supervision visits at key stages including:
- Pre-commencement site meeting and 'tool box talk'.
 - Tree and ground protection installation.
 - Temporary relocation of fencing for pre-approved works within the RPA.
 - Installation of contractors access

Upon completion a copy of the site monitoring notes must be forwarded to the LPA.

- 5.2 The AC must attend all meetings associated with changes or modifications to work within the RPAs not already covered by mitigation within this document. For example moving tree protection fencing, alteration to agreed ground protection and alterations to services.

6. Contingency plans

A general contingency plan for this project should be prepared by the main contractor for controlling such things as storage of materials, chemical/fuel spillage, run off from cement washings, sewage or water leaks, site collisions and emergency access into or adjacent to tree RPAs. A copy should be forwarded to the AC.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

7. Queries

Any queries regarding this tree survey and AMS should be addressed, in the first instance, to Tree Surveys:

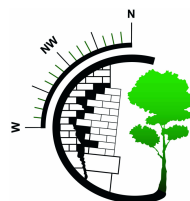
Tree Surveys
Unit H, Bridge Farm
Reading Road
Arborfield
Berkshire RG2 9HT

Telephone: 0118 976 2902
Mobile: 07786 162202
Email: info@tree-surveys.com

A handwritten signature in black ink, appearing to read 'Ian Barrow', is positioned above the printed name.

Ian Barrow MSc.
Arboricultural Consultant
Tree Surveys

BS5837:2012 Tree Survey



Client: Hampshire County Council
 Project: Eastleigh FR 2017
 Survey Date: 13/03/2017
 Surveyor: Ed Power

Tree Surveys

Unit H Bridge Farm
 Reading Road
 Arborfield
 Berkshire
 RG2 9HT
 Phone: 0118 976 2902

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
1														
Jacquemont's Birch <i>Betula utilis var.jacquemontii</i>		14	1	265	N E S W	4 4 4 4	2 1 2 2	M A: 31.8 R: 3.18	Poor	C: Poor S: Good B: Poor	None			B.2 20 to 40 yrs
2														
Jacquemont's Birch <i>Betula utilis var.jacquemontii</i>		11	1	200	N E S W	4 2 4 3	3 3 3 3	M A: 18.1 R: 2.4	Fair	C: Fair S: Fair B: Fair	None			B.2 20 to 40 yrs
3														
Jacquemont's Birch <i>Betula utilis var.jacquemontii</i>		14	1	420	N E S W	5 3 4 4	3 3 3 3	M A: 79.8 R: 5.03	Fair	C: Good S: Good B: Good	None			B.2 20 to 40 yrs
4														
Maple <i>Acer Unknown</i>		8	1	180	N E S W	4 3 4 2	2.5 2.5 3 2.5	SM A: 14.7 R: 2.16	Fair	C: Fair S: Fair B: Poor	None			C.2 10 to 20 yrs
Age Classifications:		N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature	Condition:		C S B	Crown Stem Basal area	Stems:		Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition	

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
5													
Maple	9	1	190	N	4	3	SM	A: 16.3	Fair	C: Fair			C.2
Acer Unknown				E	3	3		R: 2.27		S: Fair	None		10 to 20 yrs
				S	4	3				B: Poor			
				W	2	3							
6													
Maple	8	1	210	N	3	2.5	SM	A: 20	Fair	C: Fair			C.2
Acer Unknown				E	2	2.5		R: 2.52		S: Poor	None		10 to 20 yrs
				S	1	3				B: Poor			
				W	3	2.5							
7													
Maple	11	1	380	N	4	3	M	A: 65.3	Fair	C: Good			B.2
Acer Unknown				E	6	2		R: 4.55		S: Fair	None		20 to 40 yrs
				S	6	1.5				B: Poor			
				W	6	3							
8													
Maple	10	1	390	N	3	3	M	A: 68.8	Fair	C: Fair			B.2
Acer Unknown				E	5	3		R: 4.67		S: Fair	None		20 to 40 yrs
				S	6	3				B: Fair			
				W	6	3							
9													
Maple	9	1	250	N	3	2.5	SM	A: 28.3	Fair	C: Fair			B.2
Acer Unknown				E	3	2.5		R: 3		S: Fair	None		20 to 40 yrs
				S	4	3				B: Poor			
				W	4	3							
10													
Maple	7	1	100	N	2	2	Y	A: 4.5	Poor	C: Poor			C.2
Acer Unknown				E	0.5	4		R: 1.19		S: Poor	None		<10 yrs
				S	2	3				B: Poor			
				W	3	2							
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature			Condition:	C S B	Crown Stem Basal area	Stems:	Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition	

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
11													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	22	1	660	N	3	4	M	A: 197.1 R: 7.92	Fair	C: Poor S: Fair B: Poor	None	C.2 10 to 20 yrs	
12													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	330	N	2	7	M	A: 49.3 R: 3.96	Poor	C: Poor S: Poor B: Poor	Leaning tree with lifted root plate	U.2 <10 yrs	
13													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	230	N	3	12	M	A: 23.9 R: 2.75	Fair	C: Fair S: Ivy B: Poor	None	C.2 10 to 20 yrs	
14													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	460	N	2	7	M	A: 95.7 R: 5.51	Fair	C: Fair S: Ivy B: Poor	None	C.2 10 to 20 yrs	
15													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	420	N	2	4	M	A: 79.8 R: 5.03	Fair	C: Fair S: Ivy B: Poor	None	C.2 10 to 20 yrs	
16													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	11	1	160	N	1	3	SM	A: 11.6 R: 1.92	Dead	C: Poor S: Poor B: Poor	Dead stem leaning towards carpark	U <10 yrs	
Age Classifications: N Newly planted EM Early Mature Y Young M Mature SM Semi-mature OM Over Mature Condition: C Crown S Stem B Basal area Stems: Ø Diameter (Eq) Equivalent stem diameter using BS5837:2012 definition													

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
17													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	20	1	320	N	1.5	12	M	A: 46.3	Fair	C: Fair	None	10 to 20 yrs	
				E	2	12		R: 3.83		S: Ivy			
				S	2	12				B: Poor			
				W	2	12							
18													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	19	1	470	N	3	4	M	A: 99.9	Fair	C: Fair	None	10 to 20 yrs	
				E	6	4		R: 5.63		S: Ivy			
				S	3	4				B: Poor			
				W	3	15							
19													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	180	N	1	14	M	A: 14.7	Fair	C: Fair	None	10 to 20 yrs	
				E	2	14		R: 2.16		S: Ivy			
				S	2	14				B: Poor			
				W	1	14							
20													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	19	1	300	N	2	14	M	A: 40.7	Fair	C: Fair	None	10 to 20 yrs	
				E	2	14		R: 3.59		S: Ivy			
				S	3	2				B: Poor			
				W	4	2							
21													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	20	1	330	N	1	10	M	A: 49.3	Fair	C: Fair	None	10 to 20 yrs	
				E	1	10		R: 3.96		S: Ivy			
				S	2.5	10				B: Poor			
				W	3	10							
22													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	210	N	1	10	M	A: 20	Fair	C: Fair	None	10 to 20 yrs	
				E	1	10		R: 2.52		S: Ivy			
				S	2	10				B: Poor			
				W	2	10							
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature			Condition:	C S B	Crown Stem Basal area	Stems:	Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition	

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
23													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	15	1	190	N	1	8	M	A: 16.3 R: 2.27	Decline	C: Poor S: Poor B: Poor	None		C.2 <10 yrs
24													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	350	N	1	15	M	A: 55.4 R: 4.19	Poor	C: Poor S: Ivy B: Poor	None		C.2 10 to 20 yrs
25													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	18	1	460	N	2	5	M	A: 95.7 R: 5.51	Fair	C: Poor S: Ivy B: Poor	None		C.2 10 to 20 yrs
26													
Leyland Cypress <i>X Cupressocyparis leylandii</i>	17	1	220	N	1	10	M	A: 21.9 R: 2.64	Fair	C: Poor S: Ivy B: Poor	None		C.2 10 to 20 yrs

Report selection criteria.

Projects.

Eastleigh FR 2017

Date Range.

Any Date

Work types.

----> -No Selection made-

Latest Survey.

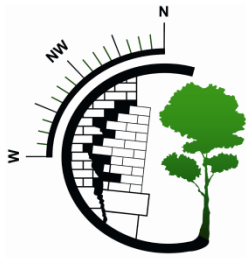
All surveys for the selected trees.
---> Last survey for each selected tree.

Work Completed.

---> Work Completed
---> Work Not Completed

Number of trees in selected Project(s) 26
Number of trees in Report selection 26

Age Classifications:	N	Newly planted	EM	Early Mature	Condition:	C	Crown	Stems:	Ø	Diameter
	Y	Young	M	Mature		S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area			



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

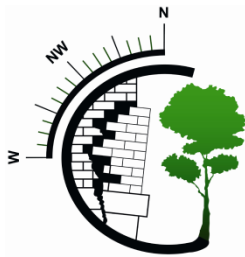
ARBORICULTURAL IMPACT ASSESSMENT FOR HAMPSHIRE FIRE AND RESCUE HEADQUARTERS



**Prepared on instructions from:
David Ryder
Group Engineer
Engineering Consultancy
Hampshire County Council
The Castle
Winchester SO23 8UD**

Ref: SPH/IB/AIA-01/13.03

20th March 2017



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

Unit H Bridge Farm
Reading Road
Arborfield
Reading
Berkshire
RG2 9HT
Tel: 0118 976 2902
Mobile: 0778 616 2202

CONTENTS

Section	Description
1.	Report details
2.	The site
3.	Introduction
4.	Analysis
5.	Impact on existing trees
6.	Visual impact on the landscape and tree character
7.	Direct or indirect impacts of trees
8.	Leaf fall and shade
9.	Conclusions
10.	Recommendations

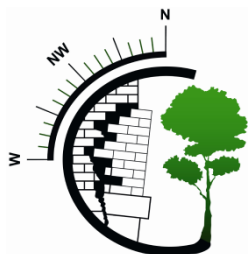
APPENDICES

1.	Mitigation drawings
2.	Site plan: phase 1 completed phase 2 option 8 proposed ref E03312-SK9, and Vehicle Tracking 3 Axle refuse vehicle drawing ref: W00837- 400,
3.	Tree survey schedule

© 2017 Tree Surveys

All rights in this report are reserved. No part of it may be reproduced, edited or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of Hampshire County Council in dealing with this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without the written consent of Tree Surveys. It may be reproduced as part of a planning appeal for the site.

The statements made in this report do not take account of extremes in weather, accidental damage including fire, chemical and physical injury, or vandalism. Tree Surveys cannot therefore accept any liability in connection to these factors, or for work not carried out to current industry best practice. The validity of this report ceases at the prescribed time limit or after two years from the site inspection, or if the site conditions change due to unspecified works that affect the subject tree(s) whichever is the sooner.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

1. Report details

1.1 Arboricultural Impact Assessment (AIA)

1.1.1 An arboricultural impact assessment (AIA) is a term used to describe a specific type of tree survey which examines the relationship between trees and adjacent features (existing & proposed) such as buildings, roads etc. The study describes how the trees and features will interact and influence each other and should consider both present and future interactions.

1.1.2 AIA studies are commonly used to determine whether a proposed development will adversely affect established trees and whether these trees will be the cause of nuisance to the proposed development.

1.2 Scope

1.2.1 This assessment is concerned with the arboricultural aspects of the site only.

1.2.2 This assessment was undertaken in accordance with British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS: 5837).

1.3 Limitations

1.3.1 The assessment contained within this document is based upon plans and other supporting information (verbal or documented) as supplied to us by Hampshire County Council and the tree survey conducted by ourselves between the 13th and 14th February 2017.

1.4 Clients instructions

1.4.1 We are instructed by Mr David Ryder, Group Engineer, Hampshire County Council to visit Hampshire Fire and Rescue Service Headquarters Eastleigh and survey the trees implicated in a forthcoming planning application and prepare an arboricultural impact assessment to determine the effects of the proposal on the trees and visa-versa.

1.5 Supplied information

1.5.1 Hampshire County Council Site plan: phase 1 completed phase 2 option 8 proposed; ref: E03312-SK9 and Vehicle Tracking 3 Axle refuse vehicle drawing ref: W00837-400, plus British Standard (BS) 5837:2012 tree survey report, ref SPH/IB/5837-01/14.02.

2. The site

2.1 Site description

2.1.1 The topography of the site is generally level with a soil embankment to the south of the existing car park area.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

2.2 Proposed development

- 2.2.1 The tree survey ref SPH/IB/5837-01/13.03 identified 26 individual trees, the tree details have been assessed against the proposed scheme set out on Hampshire County Council (HCC) Plan ref: E03312-SK 9 and Vehicle tracking 3 axle refuse vehicle drawing ref: W00837-400, at Appendix 2.
- 2.2.2 The proposal will require the removal of: 6 category B trees: T1, T2, T3, T7, T8, T9, 13 category C trees; T4, T5, T6, T10, T11, T13, T14, T15, T17, T18, T19, T21, and T25, and 2 category U trees; T12, and T16.

The remaining 5 trees surveyed are categorised as follows;

- 5 individual trees are in Category 'C' "Trees of low quality".

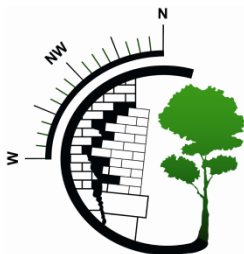
2.3 Tree survey

- 2.3.1 A tree survey was carried out for this site ref SPH/IB/5837-01/13.03. All tree identification numbers used within this report correspond with those contained within the tree survey schedule included at Appendix 3.

3. Introduction

3.1 AIA objectives

- 3.1.1 To assess the areas within this site where proposed works are to be carried out in close proximity to established trees.
- 3.1.2 To determine whether the proposed works can be carried out successfully without adversely affecting the trees both in the short and long term.
- 3.1.3 To determine whether the trees will have adverse effects on the proposed development both in the short and long term.
- 3.1.4 To suggest ways to mitigate any conflicts that may arise between the trees and the proposed development and to offer recommendations relating to the protection of the trees during redevelopment works.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

3.2 Items for consideration

3.2.1 Trees and development located within close proximity to each other can influence each other in a number of ways. The following items are normally considered during arboricultural impact studies:

- Root disturbance caused by demolition, excavation & construction e.g. buildings and roads.
- Location of service runs, welfare/office buildings & materials storage.
- Changes in levels & surface types.
- Sunlight shading of exterior amenity areas (such as gardens, playgrounds etc.).
- Physical encroachment by roots, tree stem & branches.
- Allowance for future tree growth.
- Health, safety and nuisance items e.g. leaves, fruit and residues.

3.3 Guidance whilst assessing trees in relation to development includes:

- BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations. Published by the British Standards Institute.
- Tree Preservation Orders: A Guide to the Law and Good Practice. Published by the Department of the Environment, Transport and the Regions.
- NJUG 10 - Guidelines for the planning, installation and maintenance of Utility Services in relation to trees. Published by the National Joint Utilities Group (NJUG).

4. Analysis

4.1 Introduction

4.1.1 Tree Surveys has been instructed to undertake an AIA on trees located within the proposed site at Hampshire Fire and Rescue Headquarters Eastleigh.

4.2 Assessment methodology

4.2.1 The assessment is based on the guidance given in BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

4.3 Key issues

4.3.1 The key issues associated with the proposed items identified above in relation to trees are:

- Will there be direct impacts from tree losses on the landscape, both in terms of impacts on visual amenity and impacts on the landscape character of the area?
- Will the proposal require grade and ground level alterations that may have significant implications for root systems of retained trees?
- The tree constraints and tree protection measures.
- Services in close proximity to the retained trees
- Leaf/fruit or sap fall and shade constraints leading to pressure to prune or fell.
- Damage to mature trees with low canopy heights growing in close proximity to machinery and contractors plant operating areas.

4.3.2 These key issues and associated impacts are considered below along with possible tree protection measures and mitigation as necessary.

5. Impact on existing trees

5.1 Tree loss, tree damage and pruning works

5.1.1 There is a loss of 21 trees, see section 2.2.2 above, details of the trees to be lost are shown on drawing SPH/IB/MIT/13.03 included at Appendix 1 and in the tree survey schedule at Appendix 3.

5.2 Impacts on root protection areas (RPAs)

5.2.1 The proposal for the new conference center, offices, and parking area, impacts on the RPAs of retained trees T20, T22, T23, T24 and T26. However, the infringement of the tree's RPA's is on the extremities of their eastern RPA's, such that we do not consider that the incursions will have an adverse impact on the trees vitality and longevity, providing tree and ground protection measures are fully implemented during construction of the proposal.

5.3 Grade changes

5.3.1 The soil embankment to the south of the proposed carpark area is to be removed and the area levelled, trees T1, T2, and T3 growing on the bank will be lost.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

5.4 Tree protection measures

- 5.4.1 To protect the retained trees from construction activities, notwithstanding the need for an AMS in specific instances, the retained trees must be protected by suitable fencing and ground protection, as set out on drawing SPH/IB/MIT/13.03 included at Appendix 1.
- 5.4.2 We do not anticipate any long term negative impacts upon the retained trees provided that the tree protection and arboricultural supervision is implemented as per the AMS.

5.5 Underground services in close proximity to retained trees

- 5.5.1 We are not aware if it is intended to install new underground services and or to make alterations to the existing services related to the proposal. If there is a need to replace/renew or install services close to retained trees the proposal must be considered by the Arboricultural Consultant (AC) prior to any amendments to the scheme.

5.6 Access Pruning

- 5.6.1 Minor lateral reduction of the eastern lower crown sides of trees will be required to prevent damage to trees T20, T22, T23, T24, and T26. The pruning is necessary to allow access for the erection of tree protection fencing during the construction phase of the carpark access.

6. Visual impact on the landscape and tree character

The loss of 21 trees will result in a minor loss of visual amenity within the proposal area as the substantial tree line alongside the eastern edge of Manor way adjacent to the site provides robust screening. The proposed car parking area provides opportunities to plant replacement trees of suitable species within the proposal to mitigate the tree loss and add shade benefit for parked cars during summer months.

7. Direct or indirect impacts of trees

The retained trees will have no impact on existing or proposed structures.

8. Leaf, fruit or sap fall and shade

- 8.1 The shade provided by the retained trees will not have any adverse impact on the proposal.
- 8.2 Leaf fall is unlikely to have any adverse impact upon the proposal.
- 8.3 There will be no adverse impact on the proposal from sap and fruit fall.



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

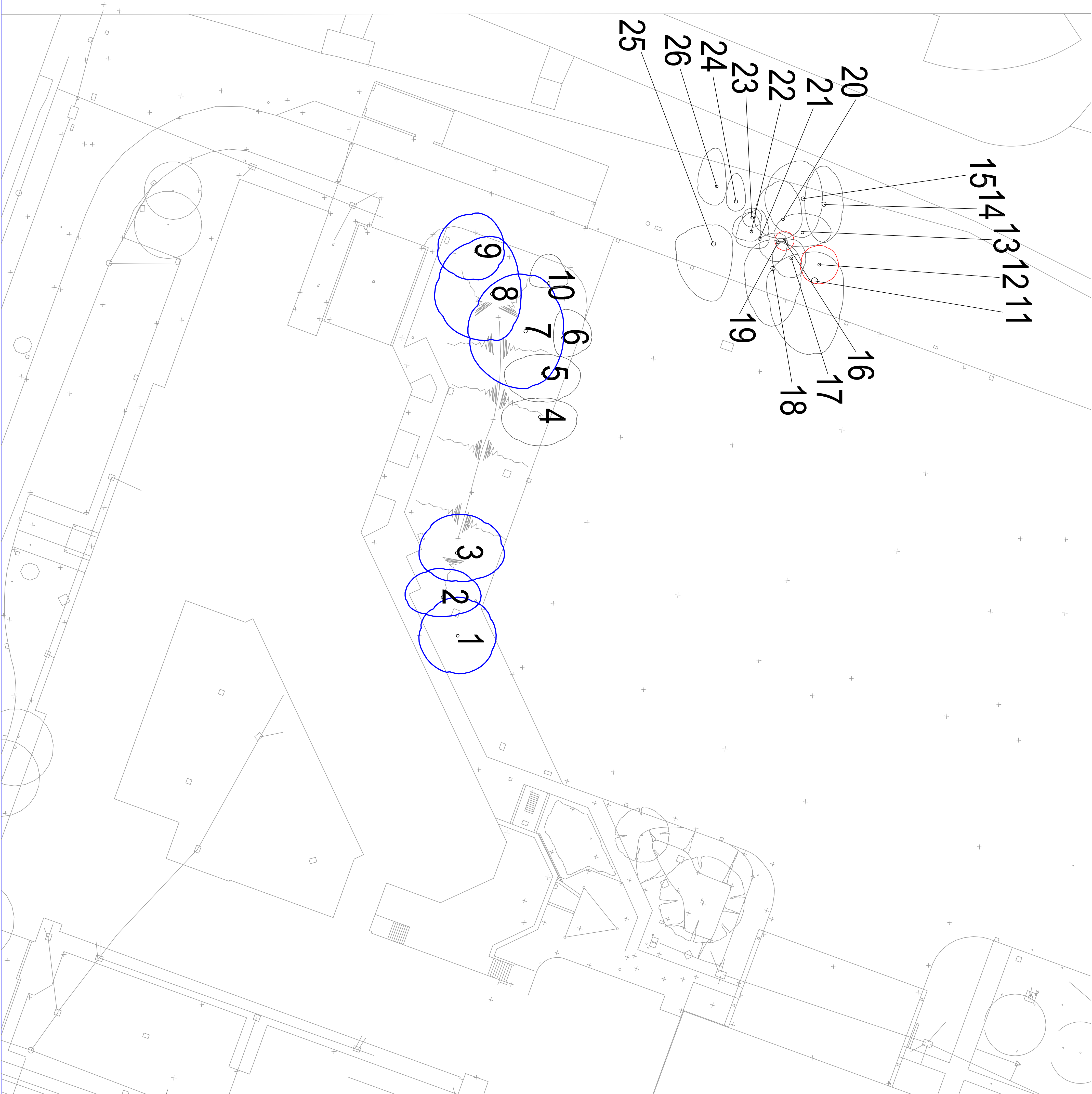
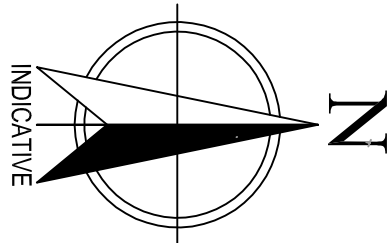
9. Conclusions

- 9.1 The proposed scheme results in a direct loss of 21 trees and as a result there will be a short term impact on the local internal landscape until new tree planting has established.
- 9.2 Providing the protection measures set out above are implemented in the form of an adopted AMS by planning condition the impact on retained trees will be minimal.

10. Recommendations

We recommend that the site is properly supervised by an AC with appropriate experience and a minimum level 3 qualification in arboriculture to ensure that all tree protection matters and mitigation relating to the scheme are observed and recorded and that an AC is available should any unforeseen problems arise.

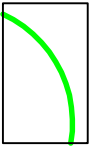
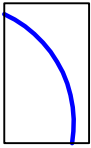
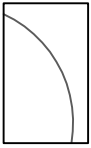
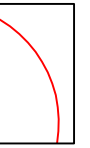
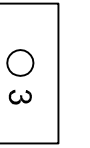
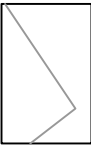
Ian Barrow MSc.
Arboricultural Consultant
Tree Surveys

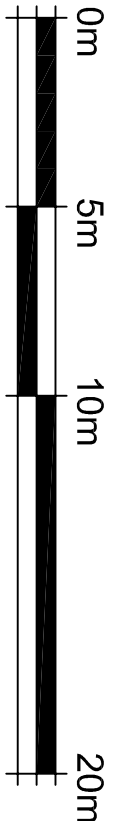


NOTES

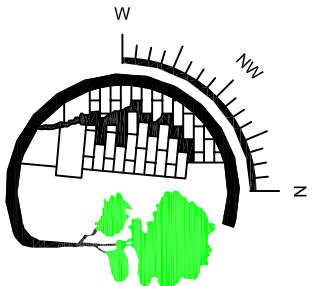
- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Drawings to be read in conjunction with arboricultural report
- Drawing based upon topographical drawings by others

Key:

-  Tree Category A 1,2 or 3
- trees of high quality
-  Tree Category B 1,2 or 3
- trees of moderate quality
-  Tree Category C 1,2 or 3
- trees of low quality
-  Tree Category U
- trees that cannot realistically be retained due to their condition
-  Tree number
- refer to report for information
-  Existing site features



© copyright



Unit H, Bridge Farm
Reading Road, Arborfield
Berkshire RG2 9HT
Tel: 0118 762902
Fax: 0118 9761168
e-mail: info@tree-surveys.com

Client Hampshire County Council

Job Title

Eastleigh FR

Drawing Title

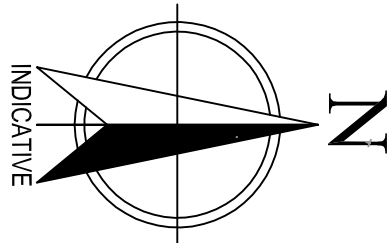
TREE LOCATION PLAN

Scale 1:200 @ A1

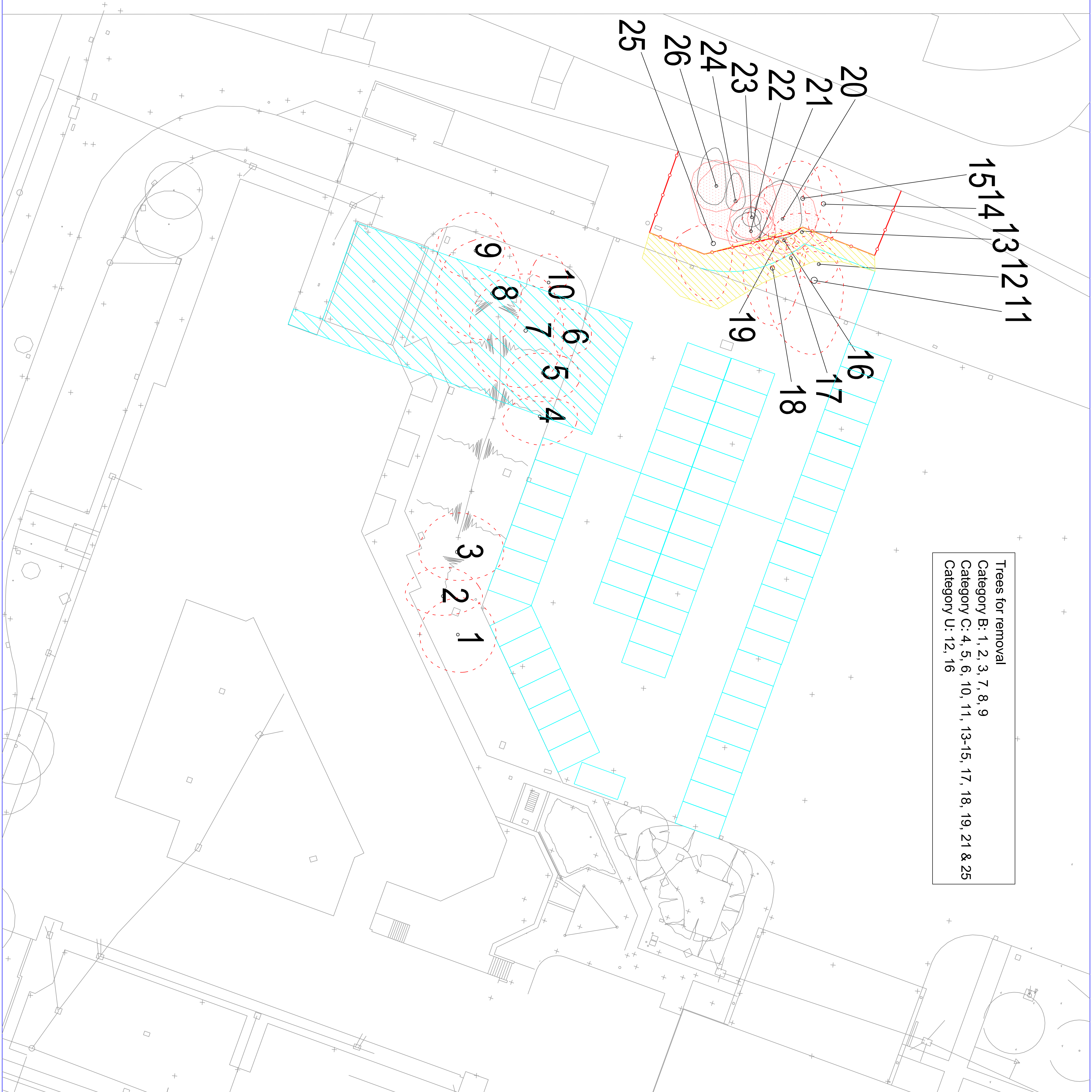
Date March 2017 Drawn: MJF Checked: SPH

Dwg No. IB/EP/5637-01/13.03

Rev.



Trees for removal
Category B: 1, 2, 3, 7, 8, 9
Category C: 4, 5, 6, 10, 11, 13-15, 17, 18, 19, 21 & 25
Category U: 12, 16

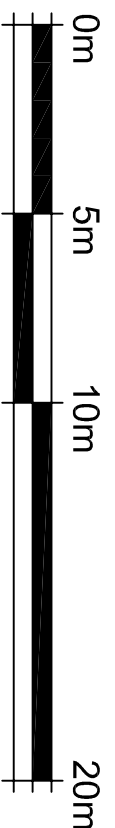


NOTES

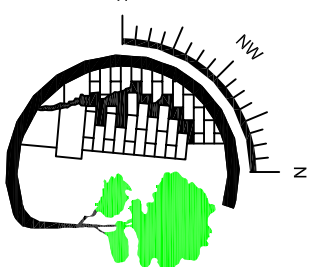
- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Drawings to be read in conjunction with arboricultural report
- Drawing based upon topographical drawings by others

Key:

- Trees retained - refer to report for information
- Tree Removed
- Proposed area of works
- Tree number - refer to report for information
- Existing site features
- Root protection area (RPA)
- Tree protection barrier (indicative) - refer to report for information
- Ground protection - refer to arboricultural method statement



© copyright



Unit H, Bridge Farm
Reading Road, Arborfield
Berkshire RG2 9HT
Tel: 0118 762902
Fax: 0118 9761168
e-mail: info@tree-surveys.com

Client Hampshire County Council

Job Title

Eastleigh FR

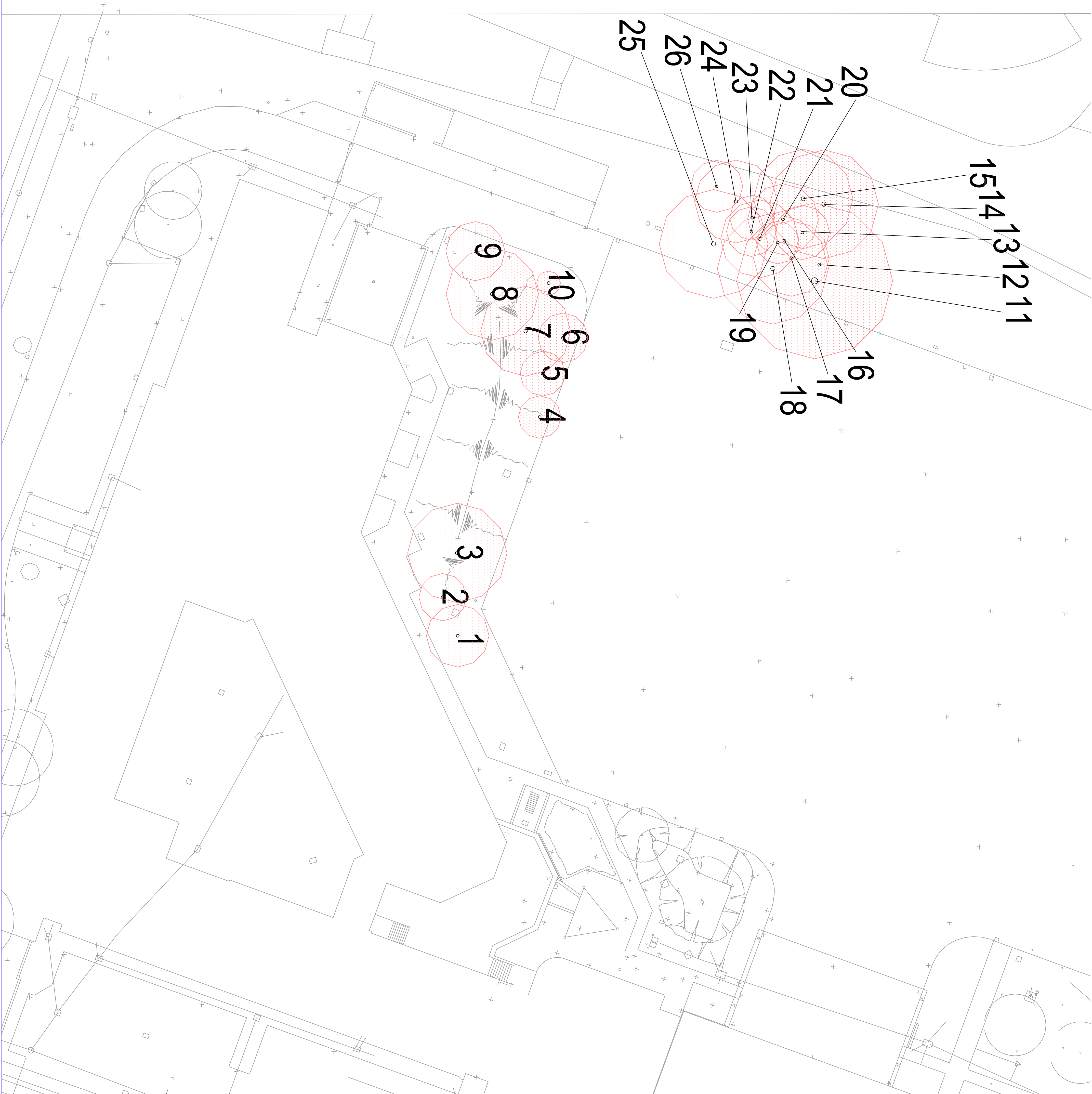
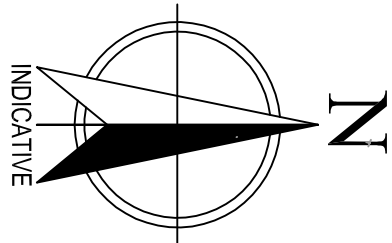
Drawing Title

MITIGATION PLAN

Scale 1:200 @ A1

Date March 2017 Drawn: MJE Checked: SPH

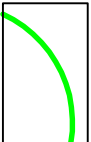
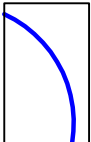
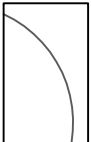
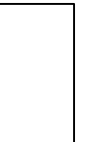
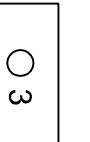
Dwg No. IB/MIT/13.03 Rev.

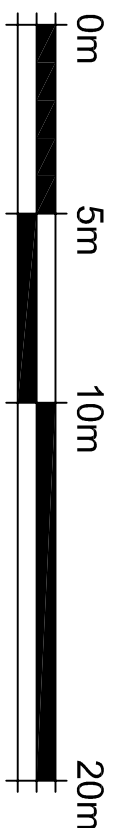


NOTES

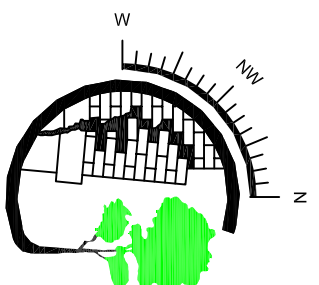
- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Drawings to be read in conjunction with arboricultural report
- Drawing based upon topographical drawings by others

Key:

-  Tree Category A 1,2 or 3
- trees of high quality
-  Tree Category B 1,2 or 3
- trees of moderate quality
-  Tree Category C 1,2 or 3
- trees of low quality
-  Tree Category U
- trees that cannot realistically be retained due to their condition
-  Tree number
- refer to report for information
-  Existing site features
-  Root protection area (RPA)



© copyright



Unit H, Bridge Farm
Reading Road, Arborfield
Berkshire RG2 9HT
Tel: 0118 762902
Fax: 0118 9761168
e-mail: info@tree-surveys.com

Client Hampshire County Council

Job Title

Eastleigh FR

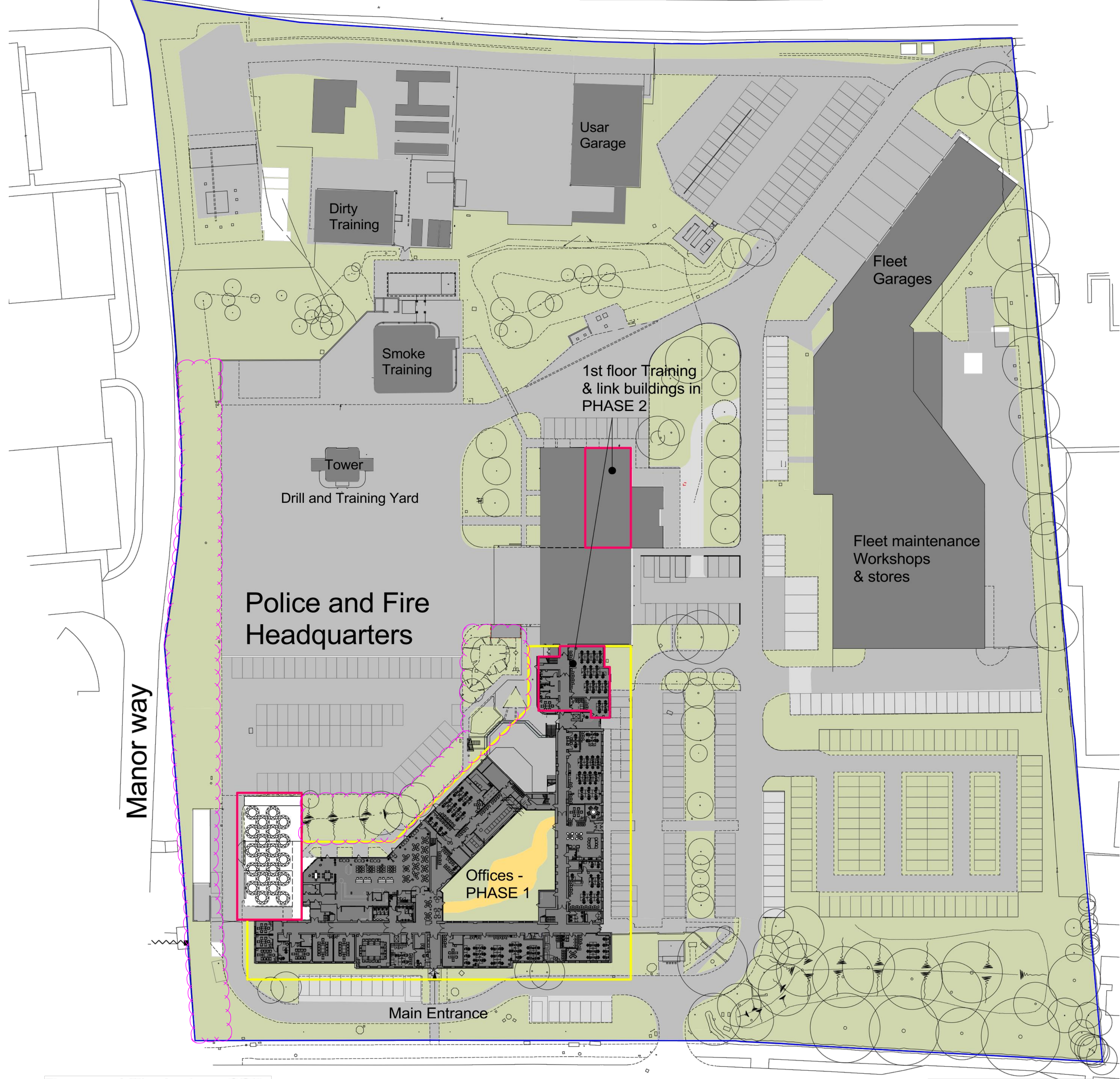
Drawing Title

ROOT PROTECTION AREA PLAN

Scale 1:200 @ A1

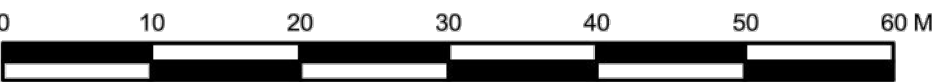
Date March 2017 Drawn: MJF Checked: SPH

Dwg No. IB/EP-01/13.03 Rev.



Proposed Block plan of Site
Scale 1:500

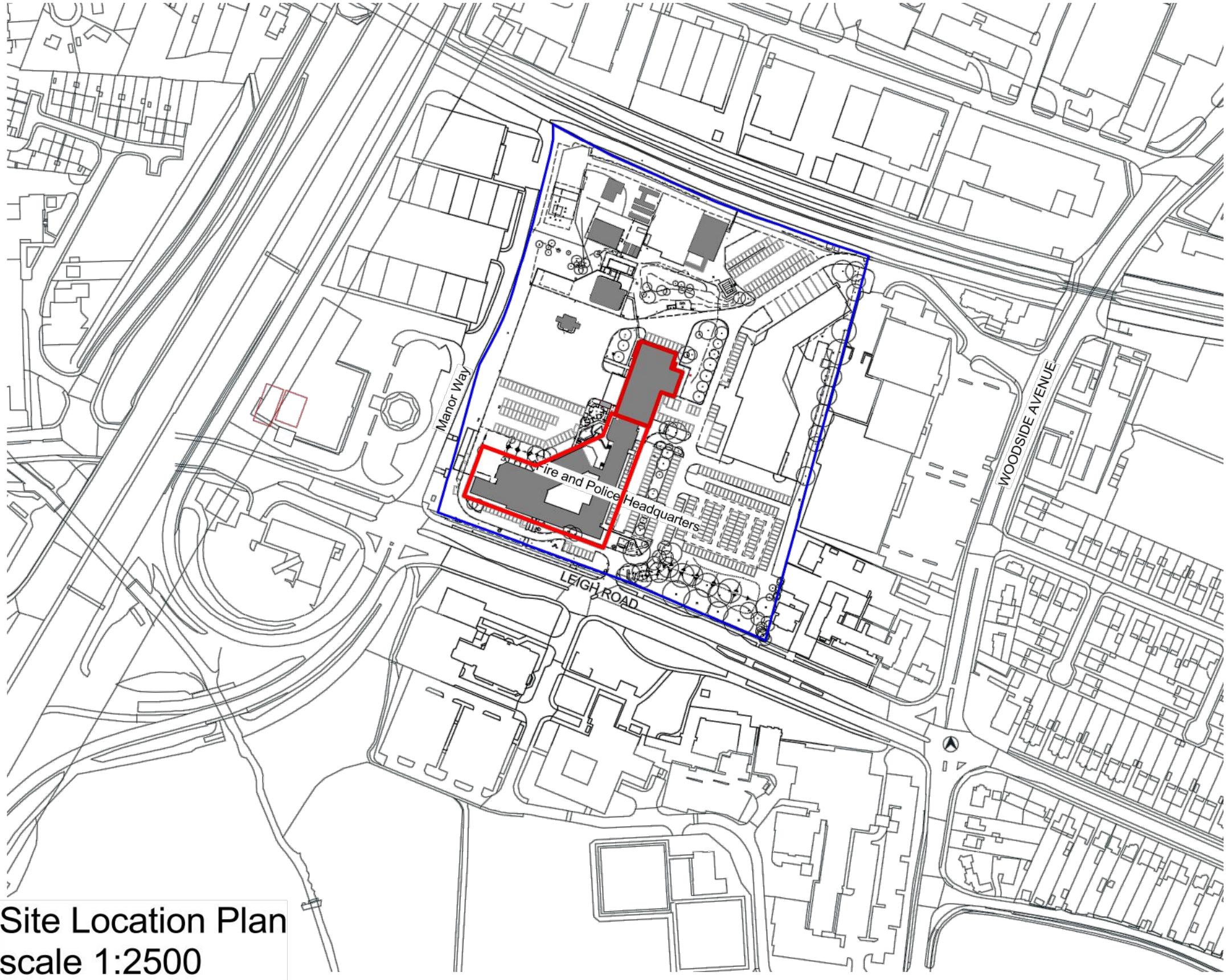
Proposed site for Phase 2
Site Boundary of ownership



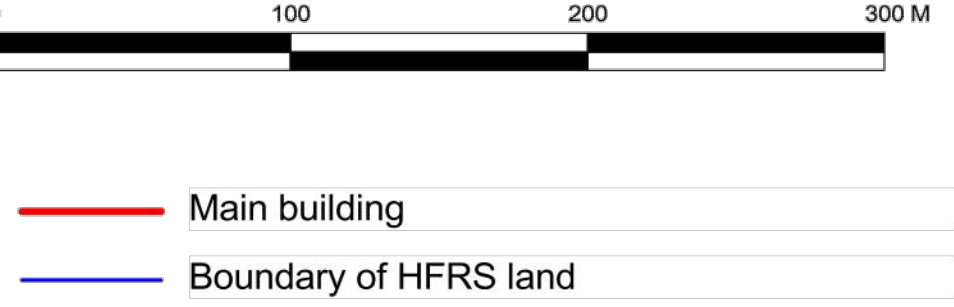
Leigh Rd

Notes
1 This drawing is © copyright Hampshire County Council 2015. No unauthorised reproduction of any kind is permitted.
2 No Dimensions to be scaled from this drawing
3 This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. (100019100), (2015)

rev	description	date	by
R1	Record Drawing		



Site Location Plan
scale 1:2500

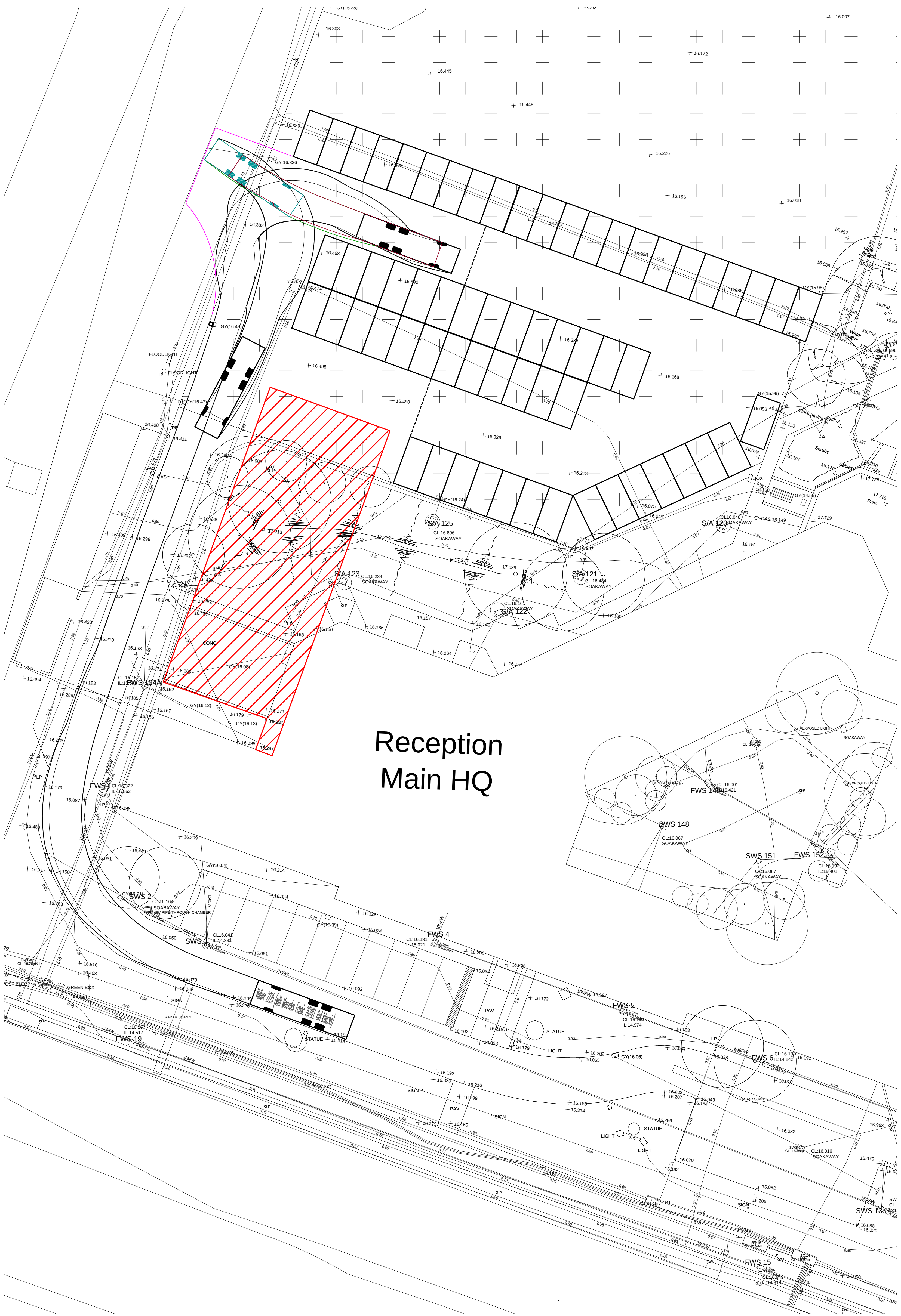


feasibility

 Hampshire County Council		HCC Property Services, Three Ministers House, 76 High Street, Winchester SO23 8UL. tel: (01962) 847801			
PROJECT Police & Fire HQ Ph 2 - Option 8 Leigh Road, Eastleigh, SO50 9SJ		SHEET CONTENTS Site Plan Phase 1 completed Phase 2 - Option 8 proposed			
SCALE 1:500/1:2500 @ A1 1:1000/1:5000 @ A3	DATE 02.09.16	DRAWN SC	CHKD -	DRAWING No. FILE REF. E03312- SK9 -Location Plan-Active	REVISION -

Notes

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS.
2. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
3. CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE. ANY DISCREPANCIES TO BE ADVISED TO THE ENGINEER.
4. DRAWING STATUS DEFINITIONS:-
 - P01 – PRELIMINARY – FOR INFORMATION ONLY (NOT TO BE USED FOR CONSTRUCTION).
 - T01 – TENDER – FOR TENDER / INFORMATION ONLY (NOT TO BE USED FOR CONSTRUCTION).
 - D01 – DESIGN DEVELOPMENT – FOR INFORMATION ONLY (NOT TO BE USED FOR CONSTRUCTION).
 - C01 – CONSTRUCTION – FOR INFORMATION / PROCUREMENT / CONSTRUCTION.
 - Z01 – AS BUILT – FOR INFORMATION ONLY.



P02	REVISED FOOTPRINT OF EXTENSION	JH	—	—	13.03.17
P01	PRELIMINARY	TP	JH	—	12.03.17
Rev.	Amendment	Drn.	Chkd.	Appd.	Date

Hampshire Fire and Rescue Service New Building Feasibility

Drawing

Vehicle Tracking

3 Axle Refuse Vehicle

Client

Scott White and Hookins

Civil/Structural
Engineers

Harman House, Andover Road, Winchester, Hampshire SO23 7BS
T: +44 (0)1962 844855 F: +44 (0)1962 841328 www.swh.co.uk

Scale at A1 - 1:200		Status: Preliminary
Project / Drawing No. W00837-400		Rev. P02

DO NOT SCALE FROM THIS DRAWING