Nicholas Jones Consultants Limited

Independent Professional Arboricultural Consultancy

Arboricultural Assessment

Site: King's House School

68 King's Road

Richmond

TW10 6ES

Prepared by Nicholas Jones BSc. (Hons). MSc. M Arbor A

On behalf of King's House School

Date: 25th January 2021

Ref: NJCL 764

Executive Summary

Nicholas Jones Consultants Limited were commissioned by King's House School to prepare an arboricultural report to advise on the potential impacts of the proposed development upon the existing tree population located at King's House School, 68 King's Road, Richmond, TW10 6ES.

The proposed development includes an extension to the existing hall and the construction of a new teaching block.

This report confirms that there are two trees proposed for removal to facilitate the proposed development.

The tree population in relation to the retention categories defined in British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations' is provided in table 1 along with the quantities proposed for retention and removal.

	Total	Retained	Removed
Category A	5	5	0
Category B	12	11	1
Category C	16	15	1
Category U	0	0	0

Table 1

Construction activity could potentially affect the retained trees. However, by implementing suitable protection measures and monitoring for the retained trees there is ample scope within the site for the construction process and associated activities required to facilitate the proposed development.

Contents

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Validation Statement

This report contains supporting information regarding trees in relation to the proposed development at King's House School, 68 King's Road, Richmond, TW10 6ES.

For Local Planning Authority purposes this report contains the following elements:

- A tree survey in accordance with the guidance contained in British Standard 5837:2012 Trees in relation to design, demolition and construction – recommendations. The survey has been undertaken by a competent and qualified arboriculturist.

- A plan indicating a North point, at an appropriate scale and containing tree survey information and tree retention categories as defined in British Standard 5837:2012.

- An assessment of the arboricultural impacts of the proposed development and details of all trees to be removed or retained and any associated measures proposed for their protection.

- An Outline Arboricultural Method Statement detailing the means of tree protection and any constraints posed on the implementation and phasing of work.

1. Introduction

1.1 Formal details – My name is Nicholas Jones I am the Principal Arboricultural Consultant for Nicholas Jones Consultants Limited. I have 31 years' experience in the arboricultural industry with the past 21 years acting as a consultant; I hold a BSc (Hons) in Arboriculture and an MSc in Arboriculture and Urban Forestry awarded by the University of Central Lancashire. I hold Professional Memberships of the Arboricultural Association, the International Society of Arboriculture and the Consulting Arborist Society. Moreover, I am Lantra accredited Professional Tree Inspector; giving advice to clients on a wide range of arboricultural and horticultural issues.

1.2 This report has been commissioned by King's House School in order to advise on the following:

- The species, size and position of any trees within the area of the proposed development and within neighbouring and adjoining areas where trees may have some significance to the proposed development.
- The maturity and condition of the trees surveyed with appropriate recommendations for action.
- The impact of the proposed development upon the tree population in and around the site.
- Outline measures required to protect retained trees during the development works and the ongoing monitoring of construction works to ensure that retained trees remain protected effectively.

1.3 The site was initially visited on 28th August 2018 and a survey carried out identifying and locating the relevant trees. Follow up visits were completed in July, August and December 2019 and March 2020.

1.4 The site is under the administrative jurisdiction of Richmond Borough Council. The council have confirmed that Tree Preservation Order No's. T0026 and T0779 afford statutory protection to key trees both on and adjacent to the site. An extract map is provided in Figure 1 below.

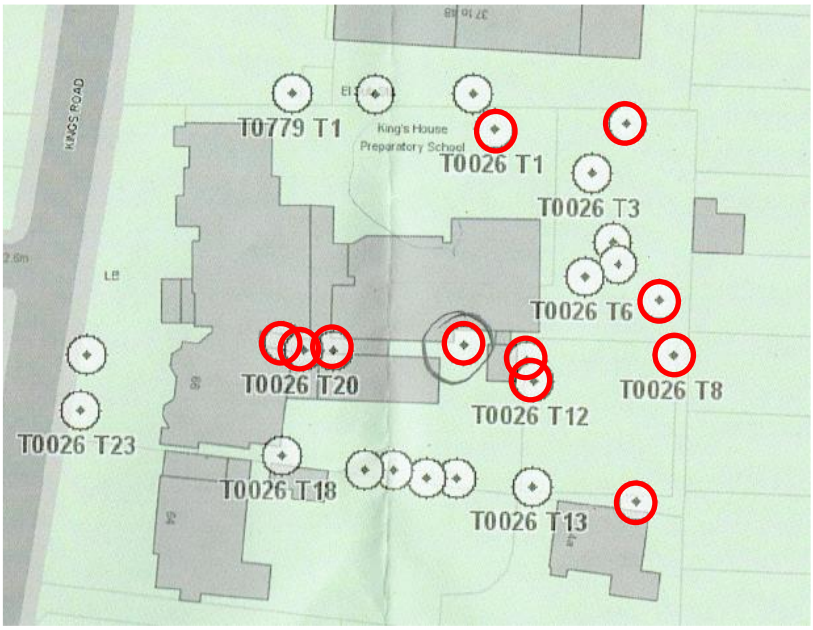

Figure 1 - TPO extract (red circles denote previously removed trees)

1.5 An assessment of the trees in the vicinity of the proposed development has been made in line with the guidance provided in British Standard 5837:2012 'Trees in relation to design, demolition and construction Recommendations'.

1.6 This report should be read with reference to the following drawings (Table 2):

Originator	Drg No	Title
Nicholas Jones Consultants Limited	NJCL 764_01_250121	Tree Layout Plan
Nicholas Jones Consultants Limited	NJCL 764_02_250121	Preliminary Tree Protection Plan
Nicholas Jones Consultants Limited	NJCL 572 A 30102019	Trial Excavation Plan & Photographs
Nicholas Jones Consultants Limited	NJCL 593 A 16122019	Additional Trial Excavation Plan & Photographs

Table 2

1.7 The following technical references are made in this report (Table 3):

Originator	Title/Reference
British Standards Institute	5837:2012 Trees in relation to design, demolition and construction - Recommendations
British Standards Institute	3998:2010 Recommendations for Tree Works

Table 3

2. Arboricultural Impact Assessment

2.1 Development proposals can impact on trees by requiring their removal or by adversely affecting their longevity through disturbance to their rooting environment or the impact of severe pruning. In many cases however it is possible to reduce the levels of disturbance by implementing precautionary measures and by adopting appropriate working practices.

2.2 An assessment of the trees located both on and immediately adjacent to the site, and potentially affected by the proposed development, is summarised in Table 4 below. Full details of all the trees assessed are provided in the tree survey schedule in **Appendix 1**.

2.3 Tree locations are provided in the Tree Layout Plan (Ref: NJCL 764_01_250121 **Appendix 2**).

	BS5837:2012 Assessment Category			
	A	B	C	U
Trees to be removed	0	1	1	0
Trees to be retained & protected	5	11	15	

Table 4

Impacts of the proposed tree removal and pruning

2.4 The locations of the trees proposed for removal and pruning are provided in the Tree Layout Plan (Ref: NJCL 764_01_250121 **Appendix 2**). The impacts of the proposed tree removals and pruning are assessed in Tables 5&6 respectively.

2.5 The proposed pruning accords with the principles contained in British Standard 3998:2010 Tree work - recommendations.

Tree Number(s)	Reason for tree removal	Impact of tree removal	Photographs
20	To directly facilitate the proposed development	Low impact as this low-quality (C category) tree is only visible from limited vantage points within curtilage of the site. Existing mature trees located both on and off site provide established and effective screening, as a result the loss of this tree will be largely unnoticeable from outside the curtilage of the site.	
G2.1	To facilitate construction access	Limited impact as this low-quality tree has collective merit only in being a component of G2 (B category). With the exception of 64 King's Road the loss of this tree will be unnoticeable from outside the curtilage of the site.	

Table 5

Tree Number(s)	Reason for tree pruning
17	Low impact as the proposed pruning is limited to crown lifting of lower branches to 5.5m over the existing access.
19	Limited impact as the proposed pruning is limited to crown lifting of lower branches to 4.0m over the existing access.
21	Low impact as the proposed pruning is limited to the lateral reduction of the northern aspect of the crown only. The pruning will be largely unnoticeable from outside the curtilage of the site.
22	Low impact as the proposed pruning is limited to the lateral reduction of the northern aspect of the crown only. The pruning will be largely unnoticeable from outside the curtilage of the site.
G2	Low impact as the proposed pruning is limited to the lateral reduction of the northern aspect of the group only. The pruning will be largely unnoticeable from outside the curtilage of the site.

Table 6

2.6 Pre-application consultation with Richmond Borough Council confirmed that, in principle, the council raised no objection to the loss of trees 20, and G2.1.

2.7 Tree 5, located off site to the east, was removed by the neighbouring landowner in December 2019. For continuity the details of the tree remain included within the tree survey schedule and Tree Layout Plan (Ref: NJCL 764_01_250121 **Appendix 2**), however the tree has been removed from the associated Preliminary Tree Protection Plan (Ref: NJCL 764_02_250121 **Appendix 2**).

2.8 No significant issues relating to seasonal nuisance are considered to be associated with the locations of the retained trees.

Direct impacts of the proposed development on retained trees

2.9 The proposed development includes incursions into the calculated Root Protection Areas of trees 1, 2, 4, 21 & 22. The RPA's of all other retained trees on site are outside the footprint of the proposed development. Where construction access is located adjacent to retained trees the associated protection measures are detailed in section 3 of this report.

2.10 In order to fully assess the implications of the proposed development on retained trees 1, 2 & 4, trial excavations were completed along the extents of the proposed footprint. Initially the excavation was limited to a trench within the existing hard surfaced play area where the proposed development involves an incursion into the calculated RPA of tree 4.

2.11 The location and extent of the trial trench, along with photographs of the excavation are provided on Drg No. NJCL 573 A 31102019 **Appendix 2**. In summary, the excavation identified made ground to a depth of approximately 500mm with limited desiccated root growth (not exceeding 5mm in diameter) encountered at the westernmost end of the excavation.

2.12 Following pre-application consultation with Richmond Borough Council, additional trial excavations were requested on the eastern side of the existing sports hall to determine the extent of any root development within the lower-level playground.

2.13 Three additional trial excavations were completed adjacent to the low retaining wall separating the soft play area from the adjacent paved surfacing and lower playground. The locations and extents of the trial trench, along with photographs of the excavations are provided on Drg No. NJCL 593 A 101020 **Appendix 2**. In summary, the excavations identified made ground to depths of approximately 460mm with limited

root growth (not exceeding 5mm in diameter) encountered in excavations 1 & 2 only. The open excavations were reviewed by Paul Maher of Richmond Borough Council at a site meeting on 18th December 2019.

2.14 In consideration of the results of the trial excavations I determine that the excavation and foundation installation of the proposed development will have a negligible impact on trees 1, 2 & 4.

2.15 The incursion associated with tree 21 accounts for 54m² or 17% of the total Root Protection Area.

2.16 The incursion associated with tree 22 accounts for 1.9m² or 2% of the total Root Protection Area.

2.17 An incursion of <20% within the Root Protection Area (RPA) may be considered as low impact, given the permissive references to 20% RPA relocation and impermeable paving within BS5837:2012. The trees subject to this assessment are healthy specimens of species with a good resistance to development impacts, and capable of tolerating these low impacts.

2.18 In order to ensure the ongoing protection of the retained trees, a watching brief will be maintained during the construction phase with all excavation work within the RPA's of trees 1, 2 & 4 to facilitate the installation of the foundation system being completed under direct arboricultural supervision.

2.19 Moreover, as a precautionary measure the associated excavations shall be undertaken with due regard to the principles contained within section 7.2 of BS5837:2012 'Avoiding physical damage to the roots during demolition or construction'.

3. Outline Arboricultural Method Statement

3.1 The principal purpose of an Arboricultural Method Statement is to ensure the preservation of retained trees through setting out appropriate working practices, construction techniques and tree protection measures that will be adopted when construction work is undertaken.

3.2 The following Outline Arboricultural Method Statement includes a Preliminary Tree Protection Plan (Ref: NJCL 764_02_250121 **Appendix 2**) which identifies the following:

3.2.1 Trees to be retained.

3.2.2 Proposed Construction Exclusion Zone.

3.2.3 Precautionary Areas.

3.2.4 Tree Protection Measures.

Proposed Construction Exclusion Zone (CEZ)

3.3 British Standard 5837:2012 recommendations provide a formula for calculating the Root Protection Area which indicates the area around a tree deemed to contain sufficient roots and soil rooting volume to maintain the trees viability. The protection of the roots and soil within these areas should be treated as a priority. The shape of the RPA and its exact location will depend upon arboricultural considerations and the area will normally be represented on a constraints plan as a circle or polygon. This information will inform the extent of the CEZ. No work should be undertaken within any of the defined CEZ's that may cause compaction to the soil or the severance of any tree roots.

Precautionary Areas (PA)

3.4 The Precautionary Areas are deemed any area inside the RPA of a retained tree that is subject to construction activity. The Precautionary Areas are indicated on Drg No. NJCL 764_02_250121 Preliminary Tree Protection Plan **Appendix 2**. All excavation work within the Precautionary Area should be completed under the supervision of the Project Arborist.

Tree Protection Measures

3.5 Protective fencing should be erected in accordance with section 6 of BS5837:2012 and as indicated in Figure 2. The proposed location of the protective fencing is indicated on Drg No. NJCL 764_02_250121 Preliminary Tree Protection Plan **Appendix 2**.

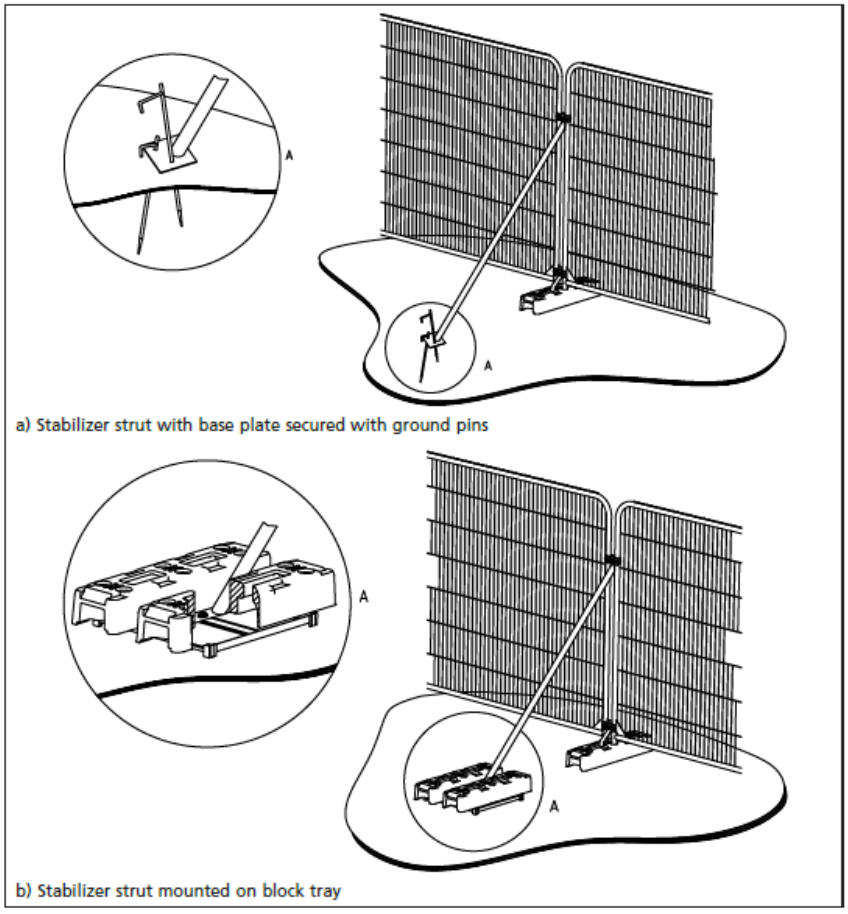

Figure 2

3.5.1 In addition, to facilitate construction access temporary ground protection will be installed to maintain the integrity of the Root Protection Areas of the component trees of G2, and trees 21 & 22. The proposed location of the temporary construction access is indicated on Drg No. NJCL 764_02_250121 Preliminary Tree Protection Plan **Appendix 2**. The temporary construction access will consist of a trakway or similar ground guard system overlaying a 100mm compressible layer of woodchippings.

3.6 Pursuant to the Council's preference to ensure confident tree retention during development, a detailed Arboricultural Method Statement should be prepared, which expands on the outline detail provided above. This could reasonably be requested by Condition.

3.7 Within a Detailed Arboricultural Method Statement, Heads of Terms are advised to include:

- specification and final locations for tree protection barriers and ground protection measures.
- a detailed method statement for the installation of foundations and the removal of existing hard surfacing within the defined Precautionary Areas.
- a detailed method statement for the installation of the additional play equipment and play surfacing within the defined Precautionary Areas.
- details of the proposed construction layout and the locations of site offices, welfare facilities and arrangements for the delivery and storage of materials and the removal of waste from site.
- details of the phasing of work and a scheme for auditing tree protection, site supervision and monitoring with subsequent reporting to the LPA.

4. Summary & Conclusions

4.1 British Standard 5837: 2012 contains clear and current recommendations for a best practice approach to the assessment, retention and protection of trees on development sites. The proposed development has followed this guidance by:

- Seeking arboricultural advice to inform the layout and design of the proposal
- Respecting the constraints posed to development of the site by the retained trees, and taking proactive steps to ensure their protection during development
- Continuing to take advice on all aspects of the proposal that may impact upon the retained trees

4.2 It is our professional opinion that the proposals put forward allow for confidence in the long-term retention of the existing tree cover and would not result in any detriment to the character of the local area, the wider treescape and the protected trees.

4.3 From an arboricultural perspective the principle of the proposed development is therefore considered supportable in terms of Local Policy relating to trees. This opinion is strongly subject to the adoption of future safeguards for protecting trees.

4.4 In summary, we consider that there are no valid arboricultural issues that reasonably restrict the proposed development of the site.

Prepared by Nicholas Jones *BSc (Hons). MSc. M Arbor A.*

Date: 25th January 2021

No. PRO 1672

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Appendix 1 – Tree Survey

All trees on site have been assessed and are recorded in the tree schedule (**Appendix 1**) with all key trees plotted onto Drg No. NJCL 764_01_250121 Tree Layout Plan (**Appendix 2**). The trees have been visually assessed from ground level only using non-invasive methods of inspection. Tree height is an estimation, crown spread and height to underside of canopy are measured with a Disto laser measure.

The survey information collated for each tree is as follows:

- Tree reference number: As recorded on the site plan.
- Tree species: Common name only
- Life stage: (J) Juvenile, (SM) Semi mature, (EM) Early mature, (M) Mature, (OM) Over mature, (V) Veteran
- Estimated remaining contribution in years e.g.: Less than 10, 10-20, 20-40, more than 40
- Height: In metres
- Stem diameter measured in millimetres as follows:
    - Single stem trees - measured at 1.5m above ground level
    - Multi stem trees (less than five stems) total of all stem diameters measured at 1.5m above ground level
    - Multi stem trees (more than five stems) mean stem diameter measured at 1.5m above ground level
- Adjusted root protection area radius (Metres) calculated in accordance with the formulas provided in chapter 4.6 and Annex D of BS5837:2012
- Crown Spread: Measured at the four cardinal points (Metres)
- Height to underside of canopy: Measurement from ground level to the lowest branch (Metres)
- Physiological condition: Excellent, Fair, Poor, Dead

- Structural condition: Assessed as previous item on presence of decay and potential structural defects
- Quality assessment category: As defined in Table 1
- Comments and observations: Information regarded as relevant by the assessing arborist
- Preliminary management recommendations: Details of any remedial action required to address significant defects and or facilitate development

A full hazard assessment of the trees, such as decay detection and mapping, has not been undertaken as this is considered beyond the scope of this report. Obvious hazards and defects that would reasonably affect the trees contribution to the landscape have been fully considered and are detailed in the tree survey schedule.

British Standard 5837:2012 provides guidance for the assessment of trees on development sites and suggests four primary quality assessment categories and three associated sub categories into which trees should be placed. These categories are defined in Table 1.1:

Category & Definition	Criteria	Identification on Plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (i.e. Where for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant immediate and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality **NOTE:** Category U trees can have existing or potential conservation value which it might be desirable to preserve	Dark Red

Trees to Be Considered for Retention				
Category & Definition	**Criteria - Subcategories**			**Identification on Plan**
	1. Mainly arboricultural qualities	**2. Mainly landscape qualities**	**3. Mainly cultural values, including conservation**	
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups, or formal or semi-formal arboricultural features (e.g. The dominant and/or principal trees within an avenue)	Trees, groups or woodlands or particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. Veteran trees or wood-pasture)	Light Green
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating that they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mid Blue
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present on groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary/transient landscape benefit	Trees with no material conservation or other cultural value	Grey

Table 1.1

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

Site:	Kings House School	**Survey date:**		06.03.2020			**Reference No:**				NJCL - 764			**Surveyor:**	N D Jones	
Tree number	**Tree species**	**Age class**	**Estimated remaining contribution (years)**	**Tree Height (m)**	**Number of stems**	**Stem diameter (mm)**	**Crown spread (m)**				**Height to underside of canopy (m)**	**Physiological condition**	**Structural condition**	**Quality Assessment Category**	**Comments and observations**	**Preliminary Management Recommendations**	**Root Protection Area Radius (m) for retained trees**
							N	**E**	**S**	**W**							
1	Holm Oak *(Quercus ilex)*	M	<20	15	3	520 420 425	5.5	5.0	3.0	6.0	4.0	Fair	Fair	B	Fair specimen built up at base minor decay in stems, recently crown reduced	None	9.5
2	Holm Oak *(Quercus ilex)*	M	<20	16	1	1380	7.5	7.5	4.5	6.5	3.0	Fair	Fair	B	Fair specimen, recently crown reduced	None	15.0
3	Holm Oak *(Quercus ilex)*	M	<20	17	2	550 590	2.5	6.5	4.5	6.5	3.0	Fair	Fair	B	Bark damage evident on the southern side, recently crown reduced	None	9.7
4	Holm Oak *(Quercus ilex)*	M	<20	18	1	1320	5.5	7.0	5.5	7.5	2.5	Fair	Fair	B	Fair specimen, recently crown reduced	None	15.0
5	Horse chestnut (*Aesculus hippocastanum)*	M	<20	13	1	1200	3.5	7.0	6.5	5.0	3.0	Poor	Fair	B	Felled by the tree owner in December 2019	N/A	N/A
6	London plane (*Platanus x hispanica)*	M	40+	20	1	1200	5.0	5.0	5.0	5.0	6.0	Fair	Fair	A	Ivy clad tree, located off site to the north. Recently crown reduced	None	14.4

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							N	**E**	**S**	**W**							
7	Norway maple (*Acer platanoides)*	SM	<15	10	1	270	4.0	4.0	5.0	4.5	2.0	Fair	Fair	C	Fair specimen located off site to the east	None	3.2
8	Common holly *(Ilex aquifolium)*	M	<15	6	2	210 350	4.0	4.0	3.5	3.5	2.5	Poor	Fair	C	Sparse foliage, located off site to the north	None	4.9
9	Common holly *(Ilex aquifolium)*	SM	<15	5	1	175	2.5	3.0	2.0	2.0	1.5	Fair	Fair	C	Fair specimen located off site to the north	None	2.1
10	Common yew (*Taxus baccata)*	M	40+	13	1	370	4.0	4.0	5.0	4.0	2.0	Fair	Fair	A	Fair specimen, located off site to the north within the adjacent car park	None	4.4
11	London plane (*Platanus x hispanica)*	M	40+	20	1	940	5.0		7.5	9.5	6.0	Fair	Fair	A	Fair specimen, located off site to the north within the adjacent car park. Recently crown reduced	None	11.2
12	London plane (*Platanus x hispanica)*	M	40+	23	1	980	8.0	7.5	7.0		7.0	Fair	Fair	A	Fair specimen, located off site to the north within the adjacent car park. Recently crown reduced	None	11.7

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							N	**E**	**S**	**W**							
13	Common yew (*Taxus baccata)*	M	40+	8	1	300	2.0	2.0	2.0	2.0	2.0	Fair	Fair	A	Fair specimen, located off site to the east	None	3.6
14	Common lime (*Tilia x europaea)*	M	<20	12	1	490	4.0	4.0	3.5	4.0	4.0	Fair	Fair	B	Fair specimen located within a raised bed adjacent to the western boundary of the site	None	5.8
15	Common lime (*Tilia x europaea)*	M	<10	12	1	440	3.5	4.0	3.5	3.0	4.0	Fair	Fair	B	Fair specimen located within a raised bed adjacent to the western boundary of the site	None	5.2
16	Strawberry tree (*Arbutus unedo)*	M	<15	7	5	300 300 300 350 320	4.0	4.0	3.5	4.5	4.5	Fair	Fair	C	Fair specimen located within a raised bed adjacent to the western boundary of the site	Consider crown reduction pruning over the adjacent highway	8.4

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

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17	False acacia (*Robinia pseudoacacia)*	M	<15	20	1	750	5.5	6.5	6.5	6.5	5.0	Fair	Poor	C	Fair specimen located within a raised bed adjacent to the western boundary of the site, suspect stem union at the base	Consider crown reduction pruning and the installation of a flexible bracing system in the upper crown. Crown lift to approximately 5.5m above ground level to facilitate construction access	9.0
18	Common yew (*Taxus baccata)*	SM	40+	4	2	100 100	3.3	3.5	3.0	2.5	1.0	Fair	Fair	C	Fair specimen located within a raised bed adjacent to the western boundary of the site	None	1.7
19	Strawberry tree (*Arbutus unedo)*	M	<15	5	4	300 300 175 380	2.0	5.5	4.5	4.5	1.5	Fair	Fair	C	Fair specimen located within a raised bed adjacent to the western boundary of the site	Consider crown reduction pruning over the adjacent highway. Crown lift over the existing access to approximately 4.0m above ground level to facilitate construction access	7.2

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

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Tree number	**Tree species**	**Age class**	**Estimated remaining contribution (years)**	**Tree Height (m)**	**Number of stems**	**Stem diameter (mm)**	**Crown spread (m)**				**Height to underside of canopy (m)**	**Physiological condition**	**Structural condition**	**Quality Assessment Category**	**Comments and observations**	**Preliminary Management Recommendations**	**Root Protection Area Radius (m) for retained trees**
							N	**E**	**S**	**W**							
20	*Common ash (Fraxinus excelsior)*	SM	40+	12	1	300	5.5	5.0	1.0	6.5	4.5	Fair	Fair	C	Fair specimen, located adjacent to the southern boundary of the site	Fell to facilitate the proposed development	N/A
21	Maidenhair tree *(Ginkgo biloba)*	M	<20	17	3	500 500 450	5.0	3.5	4.5	3.0	6.5	Fair	Fair	B	Fair specimen, located adjacent to the southern boundary of the site	Reduce and reshape the northern aspect of the crown only by approximately 25% (up to 2m) to facilitate the proposed development	10.1
22	Common lime (*Tilia x europaea)*	M	<20	16	1	520	7.0	4.0	4.5	6.5	3.0	Fair	Fair	B	Fair specimen, located adjacent to the southern boundary of the site	Reduce and reshape the northern aspect of the crown only by approximately 25% (up to 2.5m) to facilitate the proposed development	6.2
G1	Leyland cypress *(× Cuprocyparis leylandii)*	SM	<15	5	10	200						Fair	Fair	C	Group of 10 trees off site to the east, forming a poor quality hedge	None	2.4

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

Site:	Kings House School	**Survey date:**		06.03.2020			**Reference No:**				NJCL - 764				**Surveyor:**	N D Jones	
Tree number	**Tree species**	**Age class**	**Estimated remaining contribution (years)**	**Tree Height (m)**	**Number of stems**	**Stem diameter (mm)**	**Crown spread (m)**				**Height to underside of canopy (m)**	**Physiological condition**	**Structural condition**	**Quality Assessment Category**	**Comments and observations**	**Preliminary Management Recommendations**	**Root Protection Area Radius (m) for retained trees**
							N	**E**	**S**	**W**							
G2.1	*Holly (Ilex aquifolium)*	M	<20	8	1	300	3.0	3.0	2.0	5.0	2.0	Fair	Fair	B1	Located within the raised rockery area	Fell to facilitate the proposed development	N/A
G2.2	*Holly (Ilex aquifolium)*	M	<15	8	1	160	2.0	1.0	1.5	2.0	2.5	Fair	Fair	C	Located within the raised rockery area, sparse crown and suppressed by adjacent trees	None	1.9
G2.3	*Leyland cypress (× Cuprocyparis leylandii)*	M	<20	10	1	275	4.0	1.5	2.0	3.0	1.5	Fair	Fair	B1	Located within the raised rockery area, one sided due to the adjacent sycamore (G2.4)	Reduce lateral crown on the northern side only by approximately 1.5m to facilitate construction access	3.3
G2.4	*Sycamore (Acer pseudoplatanus)*	EM	<15	11	6	Ave 275	3.0	2.5	3.0	2.5	3.0	Fair	Poor	C	Multi-stemmed stump regrowth from a previously felled tree located within the raised rockery area. Previously crown reduced	None	3.3

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

Site:	Kings House School	**Survey date:**		06.03.2020			**Reference No:**				NJCL - 764				**Surveyor:**	N D Jones	
Tree number	**Tree species**	**Age class**	**Estimated remaining contribution (years)**	**Tree Height (m)**	**Number of stems**	**Stem diameter (mm)**	**Crown spread (m)**				**Height to underside of canopy (m)**	**Physiological condition**	**Structural condition**	**Quality Assessment Category**	**Comments and observations**	**Preliminary Management Recommendations**	**Root Protection Area Radius (m) for retained trees**
							N	**E**	**S**	**W**							
G2.5	*Holly (Ilex aquifolium)*	M	<20	7	1	300	4.5	2.0	3.0	3.0	1.5	Fair	Fair	**B1**	Located within the raised rockery area	Reduce lateral crown on the northern side only by approximately 1.5m to facilitate construction access	3.6
G2.6	*Holly (Ilex aquifolium)*	SM	<15	7	1	200	2.0	2.0	2.0	2.0	1.5	Fair	Fair	**C**	Located within the raised rockery area	Reduce lateral crown on the northern side only by approximately 1.5m to facilitate construction access	2.4
G2.7	*Holly (Ilex aquifolium)*	SM	<15	7	1	100	1.5	1.5	1.5	1.5	1.5	Fair	Fair	**C**	Located within the raised rockery area	Reduce lateral crown on the northern side only by approximately 1.0m to facilitate construction access	1.2
G2.8	*Holly (Ilex aquifolium)*	SM	<15	5	1	100	1.5	1.5	1.5	1.5	1.5	Fair	Fair	**C**	Located within the raised rockery area	None	1.2
G2.9	*Holly (Ilex aquifolium)*	SM	<15	5	1	100	1.5	1.5	1.5	1.5	1.5	Fair	Fair	**C**	Located within the raised rockery area	None	1.2

Notes: Root Protection Areas have been omitted for Category U trees and others proposed for removal as it is assumed they will not be subject to retention. RPA's are capped at a 15m radius (707m²) in accordance with British Standard 5837:2012.

Site:	Kings House School	**Survey date:**		06.03.2020			**Reference No:**				NJCL - 764				**Surveyor:**	N D Jones	
Tree number	**Tree species**	**Age class**	**Estimated remaining contribution (years)**	**Tree Height (m)**	**Number of stems**	**Stem diameter (mm)**	**Crown spread (m)**				**Height to underside of canopy (m)**	**Physiological condition**	**Structural condition**	**Quality Assessment Category**	**Comments and observations**	**Preliminary Management Recommendations**	**Root Protection Area Radius (m) for retained trees**
							N	**E**	**S**	**W**							
G3	*Hornbeam (Carpinus betulus)*	Y	40+	3	4	50	1.0	1.0	1.0	1.0	1.0	Good	Good	**C1**	Group of four newly planted trees	None	0.6

Appendix 2 - Drawings

*Do not scale from the drawings reproduced within this report

Category A - Trees with an estimated remaining life expectancy of at least 40 years

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

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Client's Name
King's House School

Job Title
68 King's Road, Richmond
TW10 6ES

Drawing Title
Tree Layout Plan

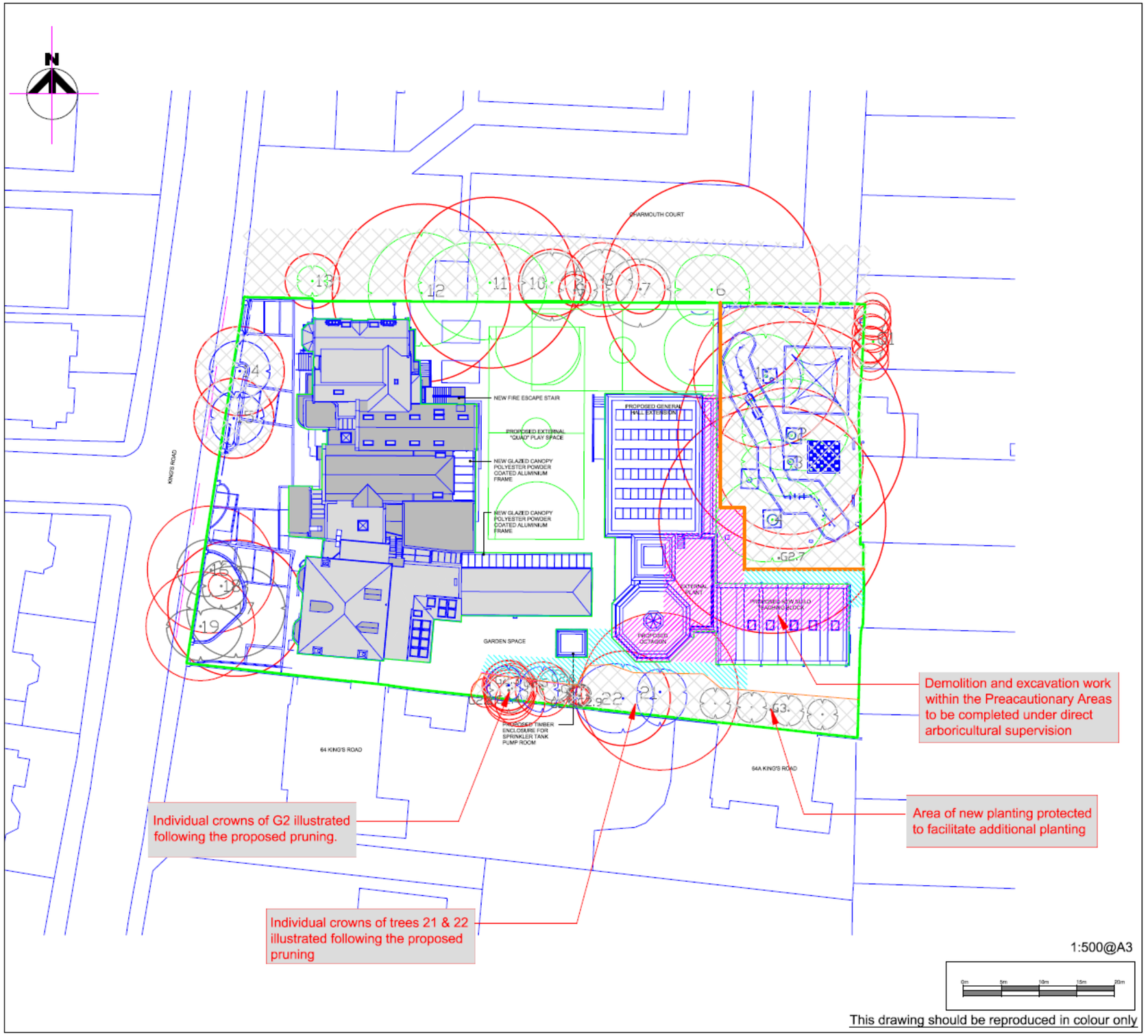
Scale
1:500 @ A3

Drawn
NDJ

Date
25.01.2021

Drg No
NJCL 764_01_250121

Status
INFORMATION



Category A - Trees with an estimated remaining life expectancy of at least 40 years

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

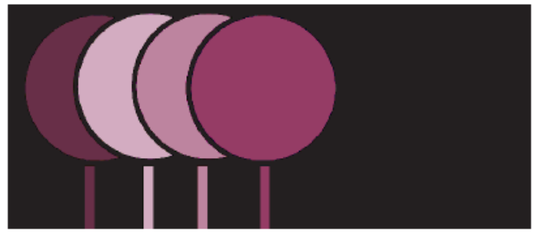
Root Protection Area (RPA)

Tree Protection Fencing (TPF)

Construction Exclusion Zone (CEZ)

Extent of Precautionary Areas (PA)

Extent of temporary ground protection during the construction phase



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Client's Name
King's House School

Job Title
68 King's Road, Richmond
TW10 6ES

Drawing Title
Preliminary Tree Protection Plan

Scale
1:500 @ A3

Drawn
NDJ

Date
25.01.2021

Drg No
NJCL 764_02_250121

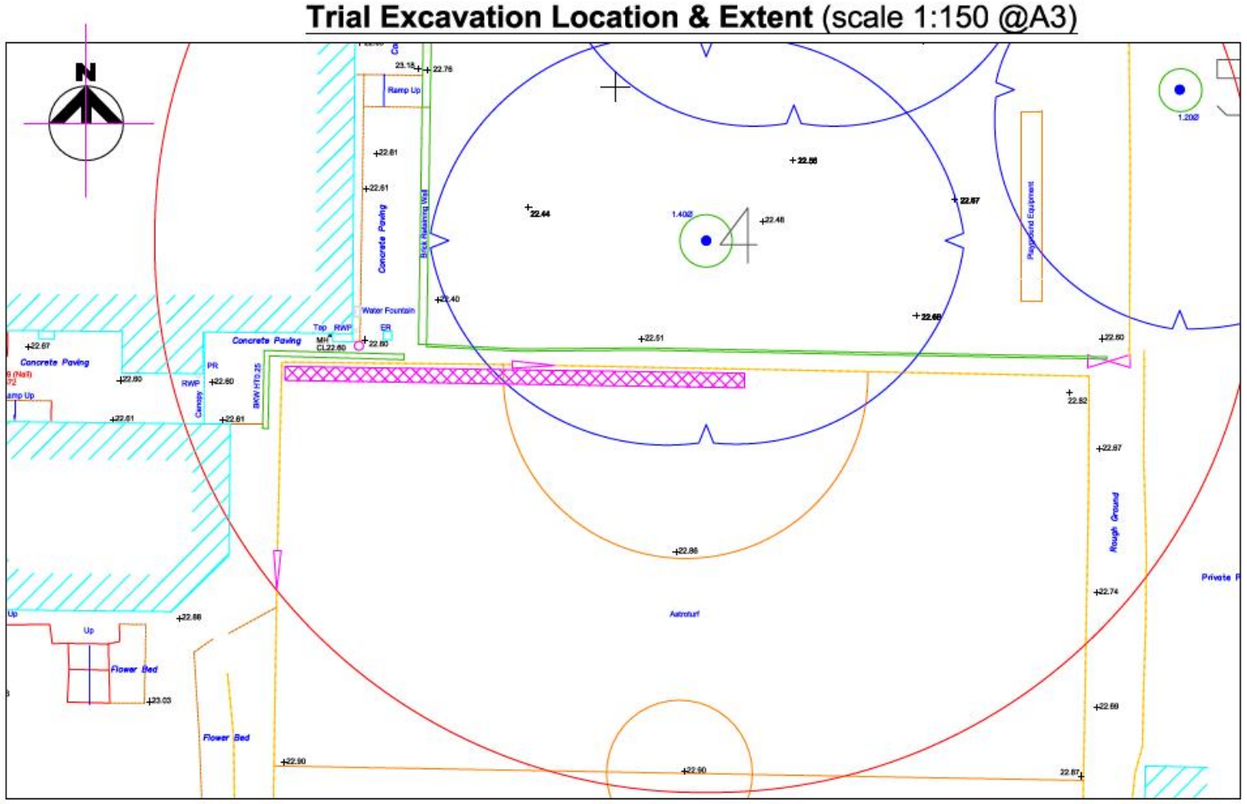
Status
INFORMATION

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Extent of calculated Root Protection Area (RPA) of tree 4 (15.0m radius 707m2)

Location and extent of trial excvation (12.5m in length x 400mm wide x 450-500mm depth)

Trial Excavation Location & Extent (scale 1:150 @A3)



Excavation notes:
The excavations confirmed the construction make up of the area underlying the existing sports surface.

Beneath the astroturf surfacing (50mm) is a layer of porous tarmac(50mm) over a sub base of type 1 roadstone (100mm). Beneath this depth and to the extent of the excavation, ranging from 450-500mm in depth, was made ground consisting of soil and hardcore (as illustrated in the adjacent photographs).

Root development notes:
Limited root growth was identified within the excavation with the maximum diameter root encoutered being approximately 5mm found at the westernmost end of the excavation.

There was a marked reduction in root activity adjacent to tree 4 and consequently the excavation was not continued for the full width of the pitch.

Conclusions:
Due to the historical levels and material used in the build up the area beneath the existing sports pitch contains no significant root development.

Consequently the proposed reduced finished floor level will have no detrimental impact on the longevity of tree 4.

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Client's Name
Kings House School

Job Title
68 Kings Road, Richmond
TW10 6ES

Drawing Title
Trial Excavation Plan & Photographs
(Completed 28th October 2019)

Scale
1:150 @ A3

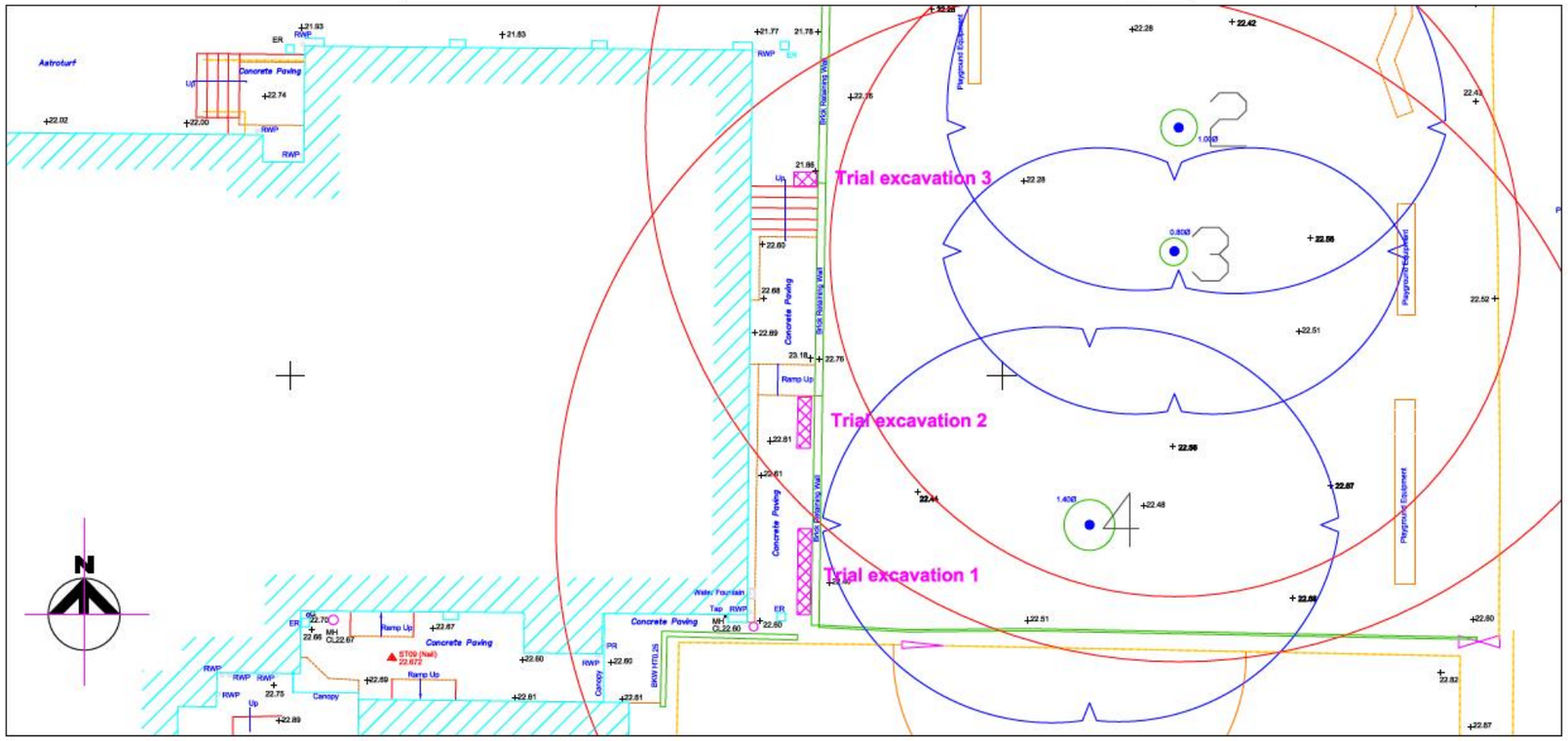
Drawn
NDJ

Date
31.10.2019

Drg No
NJCL 573 A 31102019

Status
INFORMATION

Additional Trial Excavation Locations (scale 1:150 @A3)



Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Extent of calculated Root Protection Areas (RPA's) of trees 2, 3 & 4

Location and extent of trial excvations

Trial excavation 1

Trial excavation 2

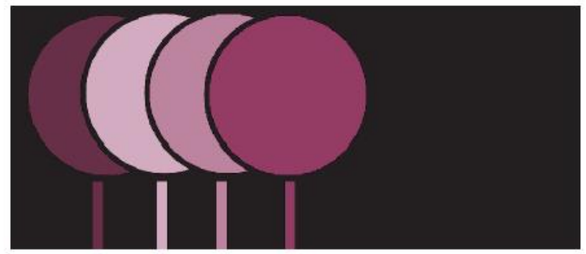
Trial excavation 3

Excavation notes:
The excavations confirmed the construction make up of the area underlying the existing retaining wall and paved surface.
Beneath the paved surfacing (trial excavations 1&2) made ground was encountered to depths of 460mm below ground level.
Beneath the lower payground level (trial excavation 3) a 200mm concrete footing was encountered at a depth of 600mm below ground level.

Root development notes:
Limited root growth was identified within trial excavations 1&2, with the maximum diameter root encoutered being approximately 5mm.
No root growth was encountered in trail excavation 3.

Conclusions:
Due to the historical levels and material used in the build up the area adjacent to the retained trees, no significant root development was identfied.

Consequently the proposed layout and associated finished floor level will have no detrimental impact on the longevity of the adjacent retained trees.



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Client's Name
Kings House School

Job Title
68 Kings Road, Richmond
TW10 6ES

Drawing Title
Additional Trial Excavation Plan
& Photographs (Completed 16th December 2019)

Scale
1:150 @ A3

Drawn
NDJ

Date
13.01.2020

Drg No
NJCL 593 A 16122019

Status
INFORMATION

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