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Ref:

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Report Title: Arboricultural Impact Assessment and Tree Protection Plan

Project: Title: Residential Development at St Edmunds Phase 3

Client: Moykerr Limited

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1. Introduction

1.1 TREE MANAGEMENT SERVICES have been commissioned by St Edmunds Phase 3 Limited to prepare this Arboricultural Impact Assessment and Tree Protection Plan for a proposed Residential Development at St. Edmunds Phase 3, Palmerstown, Co. Dublin. This report details the Arboricultural implications of the proposed development on the existing tree population on the site.

1.2 The development is an amendment to the development currently being undertaken on site, previously granted SHD proposal ABP 305857-19. It consists of the construction 4 no apartment blocks ranging height from 2-9 storeys comprising 313 no. residential units, a creche and amenity space. This will provide an increase of 61 no. additional apartments. All the residential units will have associated private open space/ balconies/ terraces facing north/ south/ east/ west. The development will include 214 no. car parking spaces, 5 motorcycle parking spaces and 378 no. bike parking spaces. The site is accessed through the existing vehicular access to the west, off the unnamed road to the west. There will be a number of pedestrian entrances along St. Loman's Road, the Fonthill Road (R113) and the unnamed road to the west. The upgrading and re-landscaping of 4,400sq.m of land to the east of the site in the ownership of South Dublin County Council. In addition to all of the new facilities all other site services and works to enable the development of the site will also be provided including site, bin stores, ESB substations, associated roadworks and services connections, a large quantity of public and communal open space, boundary treatment works and landscaping. A full development description is included in the statutory notices.

1.2 An updated Tree Survey was carried out on 29th. November 2021 as a visual ground assessment by a qualified and certified arborist. The survey was carried out to the ISA's *Best Management Practices –Level 2 Assessment* and the *BS 5837:2012 Trees in relation to Design, Demolition and Construction – Recommendations*. The Tree Survey recorded information about the trees on the site, and trees were assessed objectively and without reference to site layout proposals. This Report should be read in conjunction with the Arboricultural Tree Survey Report *Ref TMS.CD.11.21.01* and the attached Tree Protection Plan *Ref: TMS.CD.11.21.02A.*

1.3 Trees were plotted on a topographical survey drawing and a Tree Survey drawing Ref: TMS.CD.11.21.01A was prepared.

1.4 A total of 96 nr. trees (tag nos. 621-693, 696-718), were surveyed, measured and assessed. Refer to our Arboricultural Tree Survey Report *Ref TMS.CD.11.21.01* dated 29th. November 2021.

2 The Site and surrounding environment.

2.1 The study area is at the site of a proposed Residential Development at St. Edmunds Phase 3, Palmerstown, Co. Dublin.

2.2 The site is enclosed by fencing along the northern boundary, by fencing, hoarding and *Prunus spp*. hedging along the southern boundary, by fencing and hoarding the eastern boundary, and by fencing and a row of mature *Fagus spp.* (Beech) along the western boundary. The site is currently under construction and there are no internal trees, shrubbery or scrub vegetation. The site is adjacent to a public roadway on the southern and eastern sides and by an access road leading to the completed earlier phases of the St. Edmunds apartment developments on the western side.

Photo 1: The Site at St. Edmunds, Palmerstown, Co. Dublin.

3. Statutory Legislation.

3.1 The Forestry Act 2014 and accompanying Forestry Regulations 2017 sets out the legislation governing the felling of trees, the licenses required and offences and penalties for breaches of the legislation. It is important to note that certain tree felling activities are exempted from the need to obtain a felling license. Trees on this site may be defined as:-

3.1.2 Under clause 2.3 of the document entitled Felling and Reforestation Policy dated May 2017, these are trees defined as: - *'A tree in an urban area. (An urban area is an area that comprised a city, town or borough specified in Part 2 of Schedule 5 of the Local Government Act 2001, before the enactment of the Local Government Reform Act 2014.*

3.2 There are also scenarios where a felling license is not required including: *'A tree outside a forest, the removal of which is specified in a grant of planning permission'*

3.3 In relation to the felling of trees, refer to Felling and Reforestation Policy document dated May 2017 issued by the Department of Agriculture, Food and The Marine dated May 2017.

4. Details of Tree Population:

4.1 A total of 96nr. trees, were surveyed within influencing distance of the development. Tree Species comprise of mixed broadleaf species of *Fagus sylvatica* (Beech), *Acer spp.* (Maple), *Populus spp.* (Poplar), *Aesculus hippocastanum* (Horse chestnut), and other minor species. There are four young *Sorbus spp.* (Whitebeam) growing close to the southern boundary of the site. A summary of the Tree Survey Arboricultural Data Sheets is provided in Appendix 1 detailing tree height, girth diameter, crown spread, condition and preliminary management recommendations.

4.2 The trees were planted at a date unknown in the past. The Beech Maple and Poplar species are regarded as non-indigenous or non-native species. The Chestnut, Ash and Birch species can be regarded as native species. The trees vary in age from young (15 years) to mature (>80 years).

4.3 There is one Category A tree and defined as 'Trees of high quality with an estimated remaining life expectancy of at least 40 years.' This tree is a mature Horse Chestnut (tree no. 693) growing close to the access road and footpath close to the western boundary.

4.4 There are no Category B trees growing on the site and defined as *'Trees of moderate quality with an estimated remaining life expectancy of at least 20 years'*.

4.5 There are a total of 68 nr. Beech trees growing along the western boundary of the site and abutting the access road to the St. Edmunds Apartment Complex.

4.6 The Beech trees are generally in poor condition and the trees have a very low or fell category retention ratin classified as either 'C' as defined in BS 5837:2012 as *'Those of low quality and value, but can make a contributio until new planting is established'* or 'U' retention category trees - defined in BS5837: 2012 as *'Those in such conditio that they cannot be realistically be retained as living trees in the context of the current land use for longer than 1 years'*. The characteristics and condition of the Beech trees, the site conditions, and the potential targets nearb (busy road, cycle lane, footpath and buildings) all combine to provide a high tree hazard evaluation with limite abatement options.

4.7 The Tree Survey Report Ref: *TMS.CD.11.21.01* dated 29th. November 2021 recommends the removal of the 68 nr. row of Beech trees (tree nos. 621-688).

4.8 The group of Poplar, Maple and other minor species growing in a group on SDCC Lands close to the eastern boundary are generally in fair to poor condition. The trees have suffered from storm damage in the past leading tc broken, hung--up and storm-damaged crowns. A total of 3 nr. of the Poplar trees are categorized as Category U or fell with a strong recommendation to fell a further 6 nr. trees. Given characteristics of the species, poplar trees when exposed strong winds are often affected by the breakage of tops and branches, therefore they are not a desirable species to retain on a public open space close to the busy slip road to the N4. Removal of the species is recommended. Two maple trees and one Ash tree are also proposed for felling for reasons of sound arboricultural management and two additional Maples and one Ash have a strong recommendation to remove.

4.9 There is a small group (4 nr.) of young *Sorbus aria* (Whitebeam) growing in the south-western corner of the site. These trees are in good condition, but because of their size are categorized as Category 'C' trees and defined as *'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'*. These trees should be protected and retained. The trees are also suitable for transplanting (if required) to another part of the site.

4.10 There section of Laurel screen hedging (H2) along the southern boundary can be trimmed back and retained.

4.11 BS 5837: 2012 determines that trees on the site should be categorized using the criteria shown in Table 1 below:

Retention Category	Description	Number of trees
Category A	Trees of high quality with an estimated remaining life expectancy of at least 40 years. Chestnut tree no. 693.	1
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	0
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. Of this total, 9 nr. trees growing on SDCC Lands have been assigned with an added option to remove.	21
Category U	Those in such condition that they cannot be realistically be retained as living trees in the context of the current land use for longer than 10 years. The 68 nr. Beech trees growing on the western boundary are included in this category as well as 6 nr. trees growing on SDCC Lands eastern side.	74

Table 1: BS 5837:2012 - Categorization of trees on the site.

5. Impact of the Proposed Development:

Table 2 below lists the trees x category that are impacted due to the proposed development and those trees that can be retained. Trees that require removal for reasons of sound arboricultural management are also listed.

	A	B	C	U	Totals
Trees proposed for retention. - 5 nr. trees are growing within the development lands and 17 nr. are growing on SDCC Lands.	Tree nos. 693	0	Tree nos. 689 -692, 698, 699, 703-714, 716-718 *		22
Trees to be removed for reasons of sound arboricultural management growing on Development Lands. This is the row of Beech trees - western boundary.	0	0	0	Tree nos. 621-688,	68
Trees proposed for felling for reasons of sound arboricultural management growing on SDCC Lands, subject to SDCC approval.				696,697,700, 701,702,715	6

Table 2: Summary of Impact of the Proposed Development on the Tree Population.
* This category includes tree nos. 703,704,705,707,708,710,712,716 growing on SDCC Lands with a strong recommendation to remove.

5.1 There is one 1 nr. tree proposed for retention and categorized as Grade A or *'Trees of high quality with an estimated remaining life expectancy of at least 40 years.'*

5.2 There are no trees proposed for retention and categorized as Grade B or *'Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.'*

5.3 There are 21 nr. trees proposed for retention and categorized as Grade C or *'Trees of low quality with an estimated remaining life expectancy of at least 10 years'*. 4 nr. trees (689-692) are growing within the development lands and 17 nr. are growing on SDCC Lands.

5.4 A total of 68 nr. Beech trees growing on the development lands on the western boundary are proposed for removal for reasons of sound arboricultural management or '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'.

5.5 A total of 6 nr. trees growing on SDCC Lands are proposed for removal for reasons of sound arboricultural management or *'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'*. No trees are to be felled on SDCC Lands without the prior consent and approval of SDCC.

5.6 The section of Laurel screen hedging (H2) along the southern boundary is proposed for retention for screening purposes.

5.7 A 'no-dig' solution access pedestrian footpath is proposed at the southwestern corner of the site that minimizes the impact on the existing trees.

5.8 Fencing to protect the retained trees and hedging shall be erected prior to the commencement of any works. Refer to The Tree Protection Plan drawing Ref. *TMS.CD.11.21.02A*.

5.9 Any trees that remain and integrate within any proposed development will require ongoing assessments and regular tree works may be necessary to help reduce the risk of failure, prolong longevity or maintain the condition of the trees.

5.10 The main differences between the proposed scheme and the permitted scheme is that the terraced houses in the north-eastern corner (Block 3) are to be replaced with an apartment block. Block 4 has also been reconfigured slightly and the heights have increased. There is no difference between the impact of the proposed scheme and the permitted scheme on the existing trees on the site.

6. Tree Protection measures during the proposed development:

6.1 All trees proposed for retention shall be protected during the construction phase of the proposed development sc as to minimize damage to roots, stems or overhanging limbs. Refer to the attached Tree Protection Plan *Ref TMS.CD.11.21.02A*. The guidelines as outlined in BS5837: 2012 shall be implemented in order to minimize or preven damage to the trees during construction. These guidelines are copyrighted and cannot be reproduced for inclusior in this report. Refer to paragraph 4.6 – Root Protection Area (RPA). Refer to Table 3: Tree Root Protection Zones Appendix 2. For single stemmed trees, the RPA is calculated as an area equivalent to a circle with a radius 12 time: the stem diameter. In general the ability of the trees to tolerate disturbance within the RPA depends on prevailin site conditions and on individual circumstances. It is generally recommended that where construction occurs withir the RPA then precautions should be taken to: -

- Prevent physical damage to roots during construction
- Make provision for oxygen and water to reach the roots
- Allow for the future growth of the root system
- Preserve the soil structure at a suitable bulk density for root growth and function.

6.2 Retained trees and hedging shall be protected by protective barriers during the course of any site developmen works. Protective fencing alignment is shown on the Tree Protection Plan drawing ref: *TMS.CD.11.21.02A*. Refer alsc to BS 5837:2012 paragraph 6.2 - Barriers and Ground Protection. Great care shall be exercised during the construction phase to protect all trees designated for retention. Damage to root or stem structures will be avoided Vertical barriers will be erected and ground protection installed before any materials or machinery is brought ontc the site and before any demolition, development or stripping of soil commences.

6.3 Tree barriers to protect the trees and hedgerows shall consist of a scaffold framework. The default specificatior should consist of a scaffold framework, well braced to resist impacts - See Appendix 3. Refer also to BS 5837:201: – Figure 2 and Figure 3 and clauses 6.2.2.2 and 6.2.2.3. To ensure the protected barriers are recognized anc respected, clear signage shall be affixed to the barriers in unrestricted easily viewed locations with words such a: 'CONSTRUCTION EXCLUSION ZONE - NO ACCESS'.

6.4 The protective barriers shall remain in place until completion of all construction works. Any breech of the barrie shall be reported to the consulting arborist.

6.5 Where movements are to occur within the RPA, then the installation of ground protection measures shall be carriec out. New temporary ground protection should be capable of supporting any traffic entering or using the site withou being distorted or causing compaction of underlying soil.

6.6 Topsoil or other materials should not be stacked on or close to the main tree trunks or within two metres of retainec hedgerows.

6.7 Soil compaction shall be avoided. Compaction is a common cause of post-construction tree loss on developmen sites. Soils on this site have a high clay content, thus there is an increased risk from compaction. The passage o vehicles or the storage of top-soil within root protection zones shall be avoided.

6.8 Storage areas for any containers, toilets, fuels, liquids, gas tanks, shall be located to the outer edge of the Roo Protection Areas due to the risk of ground compaction or soil contamination.

6.9 Damage to overhanging limbs by heavy machinery shall be avoided. A professional Tree Surgery Company shall be engaged where necessary to prune back any overhanging limbs where required.

6.10 Refer to other relevant sections of BS 5837:2012 most notably the following:-

- Paragraph 7.4 – Permanent hard surfacing within the RPA.
- Paragraph 7.5 – Special engineering for foundations within the RPA.
- Paragraph 7.7 – Underground and above ground utility apparatus.

7. Proposed Tree Works:

7.1 Any proposed tree work should be carried out to BS 3998:2010 Tree Work - Recommendations.

7.2 The works as detailed in the Tree Schedule below shall only be carried out by a competent, professional and fully insured, trained and certified Tree Surgery firm. During any felling works, care shall be taken to protect surrounding healthy trees, buildings and other structures. Strict safety precautions shall be put in place to safeguard site occupants, visitors and members of the general public. If possible, felling work should not be carried out during the bird-nesting season. While tree felling and removal works are being carried out, appropriate measures should be put in place to prevent access from unauthorized persons to the work sites. No tree works shall be carried out on SDCC Lands without the prior consent and approval of SDCC.

8. Summary:

8.1 A total of 96 nr. trees were identified and surveyed within or close to the site boundaries.

8.2 The row of Beech trees (68 nr.) along the western boundary are in poor condition and are proposed for removal for reasons of sound arboricultural management. The Beech trees are generally in poor condition and carry a high hazard rating when taking into account their condition, the structural defects present, the location and potential targets.

8.3 The trees to the east of the development growing on SDCC Lands comprise of Poplar, Maple and Ash. The trees are generally in fair to poor condition. The Poplar trees are an unsuitable species to retain on a public open space. Six (6) nr. trees are proposed for felling. There are an additional 6 nr. Poplar trees, 2 nr. Maple trees and one Ash tree growing on SDCC Lands that are low retention Category trees and assigned with an added option to remove. All tree works on SDCC Lands to be carried out only with the prior consent and approval of SDCC.

8.2 There are twenty-two 22 nr. trees proposed for retention within or close to the site. These includes 4 nr. Whitebeam trees (Category C trees) and one Category A tree growing within the site boundaries. The remaining trees 17nr. are growing on SDCC Lands outside the eastern boundary.

8.3 The sections of mature laurel hedging along the northern and southern boundaries shall be retained for screening purposes.

8.4 In conclusion, the proposed development has a low impact on the existing tree population on the site. The retention of the one Category A tree and 4 nr. young Category C trees is proposed within the development. The proposed removal of 74 nr. trees that includes the row of 68 nr. mature Beech trees along the western boundary and 6 nr trees growing on SDCC Lands is based on reasons of sound arboricultural management irrespective of any development proposals for the site. The proposed replanting of 289 no. trees as detailed on the Landscape Masterplan within the proposed new development will help mitigate against any tree loss.

Appendix 1:

ARBORICULTURAL TREE SURVEY DATA SHEETS

Tree No.	Species Common Name See Appendix 3 for Scientific Name	Ht. Ms. m.	Girth	Branch Spread m.	Age Y-Young M - Middle-aged MA - Mature OM - Over mature	Physiological Condition and Comments • Good • Fair • Poor • Dead	Preliminary Management recommendations	Estimated Remaining Contribution In years. <10 10-20 20-40 >40	Retention Category A - High B - Moderate C - Low U - Remove
621	Common Beech	9.0	20	0N 0S 0E 1W	MA	Dead. Removal recommended.	Fell.	<10	U
622	Common Beech	14.5	46	2N 1S 4E 1W	MA	Fair. Forked at 2m. Ivy growth to 4m. Basal sucker growth present. Forked at 2m. Could develop into a weak stem union in time. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
623	Common Beech	10.0	17	0N 0S 0E 1W	MA	Poor. Light ivy growth to 2m. Asymmetrical crown. More crown weight to west. Unbalanced and deformed crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
624	Common Beech	19.0	75	4N 0S 5E 3W	MA	Poor. Forked at 1.5m and 2.5m. Weak forking points. Could be prone to stem failure. Co-dominant stem at base - west side. Cavity on main stem on south side at 4m. Fused stems at 6m. Dead stems east side. Wire attached to main trunk east side. More crown weight to east over site. Poor shape and form.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
625 1262	Common Beech	7.0	17	0N 0S 3E 0W	MA	Poor. Suppressed tree. Crooked main stem. Cavity on main stem to 1m. Wire attached to main trunk east side.	Fell.	10-20	U
626 1263	Common Beech	17.0	45	0N 0S 5E 4W	MA	Poor. Fused tree with no 627. Crooked main stem. Forked at 2m. Over-extended limbs to east. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
627	Common Beech	19.0	33	2N 0S 0E 2W	MA	Poor. Fused tree with no 626. Could be a weak point where fused. Wire attached to main trunk east side. Light crown. Suppressed on south side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

628	Common Beech	17.0	41	0N 0S 3E 3W	MA	Fair. Slightly crooked stem. Branched from 7m. Light crown. Suppressed on south and north sides. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
629	Common Beech	18.0	47	0N 1S 4E 0W	MA	Poor. Crevice on northern side at 1.5m. Wire attached to main trunk east side. Minor cavities along main stem. Fused with tree no. 630. Over-extended limbs to east.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
630	Common Beech	13.0	41	1N 0S 0E 4W	MA	Poor. In advanced state of decline. Peeling bark along main trunk. Fused tree with no. 629. Hangar in crown at 5m. Wire attached to main trunk east side. Deformed and suppressed crown.	Fell.	<10	U
631	Common Beech	16.0	37	1N 0S 0E 4W	MA	Poor. Crooked stem. Wire and metal objects attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
632	Common Beech	15.0	36	1N 0S 0E 3W	MA	Fair. Unbalanced crown. More crown weight to west. Wire attached to main trunk east side. Suppressed crown on west side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
633	Common Beech	6.0	18	0N 0S 0E 2W	MA	Dead tree	Fell.	<10	U
634	Common Beech	17.0	42E	2N 0S 6E 0W	MA	Poor. Crooked main stem. Fused with tree no 635. Broken stem at 2m. East Side. More crown weight to east. Leaning to NE. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
635	Common Beech	15.0	27	0N 0S 0E 1W	MA	Poor. Light stem. Light high crown. Suppressed on east side. Fused with tree no. 634. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
636	Common Beech	14.5	37	1N 0S 0E 5W	MA	Poor. Crevice at base on southern side. Pocket cavities at base. Limbs overhang footpath and street lighting to west. Suppressed crown on east side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

637	Common Beech	15.0	28	0N 0S 3E 0W	MA	Poor. Suppressed on west side. Ivy growth to 2m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
638	Common Beech	14.0	26	0N 0S 0E 2W	MA	Fair. Straight stem to 6m. Light crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
639	Common Beech	13.0	41	0N 0S 4E 4W	MA	Fair. Heavy ivy growth to 2m. Lower stem not assessed. Suppressed on south side. Limbs overhang footpath to west. Over-extended limbs to east and west. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
640	Common Beech	14.5	50	0N 0S 4E 0W	MA	Poor. Ivy growth to 3m. Forked at 1.3m. Suppressed on northern side. Lower stem not assessed. Fused stems. Dead stems along trunk. Wire attached to main trunk east side. Dead limbs on east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
641	Common Beech	7.0	35	0N 0S 1E 0W	MA	Dead.	Fell	<10	U
642	Common Beech	16.0	35	1N 0S 0E 4W	MA	Fair. Heavy ivy growth to 6m. Lower stem not assessed. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
643	Common Beech	17.0	45	2N 1S 2E 4W	MA	Fair. Crooked stem to 1m. Ivy growth to 6m. Dominant tree. More crown weight to west over footpath and road. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
644	Common Beech	12.0	28	0N 0S 3E 0W	MA	Poor. Suppressed on south side. Leaning to northeast. Crooked stem. Cracked stem at 4m. Heavy ivy growth to 3m. Lower stem not assessed. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
645	Common Beech	14.5	38E, 30E	1N 0S 4E 4W	MA	Poor. Heavy ivy growth to7m. Lower stem area not assessed. Forked close to base. Leaning stem to west. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
646	Common Beech	14.0	42E	0N 2S 0E 2W	MA	Poor. Heavy ivy growth to 7m. Lower stem not assessed. Close to no. 645. Dead stems on south and west sides.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

647	Common Beech	13.0	34E	1N 0S 0E 0W	MA	Fair. Heavy ivy growth to 7m. Lower stem not assessed. Suppressed on south side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
648	Common Beech	16.0	76	1N 1S 4E 4W	MA	Poor. Forked at 1m. Weak stem union. Water retention in stem union. Crooked stems. Poor shape and form. Suppressed on south side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
649	Common Beech	15.0	40	1N 0S 3E 1W	MA	Poor. Crooked main stem. Wire attached to main trunk east side. Light ivy growth attached.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
650	Common Beech	16.0	41, 33	0N 0S 6E 6W	MA	Poor. X 2 stems. Light ivy growth attached. Fused stems at base. Weak stem union. Prone to stem splitting. Limbs overhang footpath to west. Heavy over-extended limbs to east. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
651	Common Beech	19.0	27, 24	0N 1S 2E 3W	MA	Poor. Forked at base. Could be prone to stem splitting. Light ivy growth to 4m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
652	Common Beech	17.0	62	2N 0S 5E 3W	MA	Poor. Forked at 1.5m. x 3 stems. Weak stem union. Unbalanced crown. Heavy over-extended limbs to east. Light ivy growth attached. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
653	Common Beech	18.0	32	0N 1S 1E 0W	MA	Poor. Fused with tree no. 652. Fused stems at 4m. Suppressed crown on northern side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
654	Common Beech	14.0	47	0N 0S 0E 4W	MA	Poor. Forked at 1.5m. Leaning stem over path to west. Wire attached to main trunk east side. Unbalanced crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
655	Common Beech	16.0	36E, 30E	0N 0S 2E 4W	MA	Poor. Forked at base. Heavy ivy growth attached to about 12m. Crooked main stem. Forked from .5m. Lower stem not assessed. Wire attached to main trunk east side. Multiple forking points from 2m. Leaning stems to west over path.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
656	Common Beech	15.0	43, 27	1N 0S 6E 4W	MA	Poor. Forked at 1m. Light ivy growth attached. Suppressed on south side. Heavy over-extended limbs to east. More crown weight to east. Wire attached and embedded in main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

657	Common Beech	16.0	30	1N 0S 0E 2W	MA	Poor. Heavy ivy growth to 12m. Crooked main stem. Suppressed light crown. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
658	Common Beech	7.0	9	-N -S -E -W	MA	Poor. Suppressed tree. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
659	Common Beech	17.0	44,41 20	3N 0S 5E 4W	MA	Poor. X 3 stems. Forked at base. Light ivy growth attached. Over-extended limbs to east and west. Dead stems on east side. Leaning stems to west. Deformed crown. Wire and cable embedded in main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
660 1310	Common Beech	19.0	38, 31, 36	2N 2S 5E 4W	MA	Poor. X 3 stems from 1m. Ivy growth attached to 10m. Fused and crossing stems. Limbs overhang path on west side. Wire attached to main trunk east side. Dead stems over path.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
661	Common Beech	15.0	29	0N 0S 5E 0W	MA	Poor. Cavities along trunk. Crooked and deformed main stem. Cavity on main trunk at elbow. Could be prone to stem breakage. Leaning to east. Wire attached to main trunk east side.	Fell.	<10	U
662	Common Beech	16.0	53	1N 0S 3E 5W	MA	Fair. Forked at 1.7m. Wire attached to main trunk east side. Ivy growth to 14m. Leaning stems to west over path and cycle lane. Deformed and unbalanced crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
663	Common Beech	15.0	40	0N 2S 3E 3W	MA	Poor. Light ivy growth to 5m. Multiple forking points from 2m. Old pallet in crown. Wide-spreading crown. Leaning stem to west. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
664	Common Beech	17.0	34	1N 0S 2E 1W	MA	Poor. Crooked stem. Self-corrected. Heavy ivy growth to 10m. Wire attached to main trunk east side. High crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
665	Common Beech	16.0	45	1N 0S 2E 4W	MA	Poor. Slightly crooked stem. Heavy ivy growth to 8m. Light co-dominant stem on north side. Minor hangars in crown. Wire attached to main trunk east side. Limbs overhang footpath and cycle lane to west.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

666	Common Beech	12.0	24	0N 0S 0E 5W	MA	Poor. Suppressed crown. Crooked stem. Minor cavity at base east side. Deformed crown. More crown weight to west over path and cycle lane. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
667	Common Beech	14.0	43	0N 0S 7E 7W	MA	Poor. Ivy growth to 7m. Major forking point at 2m. More end weight to east and west. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
668	Common Beech	6.0	20,14	0N 0S 0E 5W	MA	Poor. Light ivy growth to 3m. Forked from base. Leaning to west. In advanced state of decline. Wire attached to main trunk east side.	Fell.	<10	U
669	Common Beech	16.0	36, 32	1N 1S 4E 2W	MA	Poor. Forked close to base. Fused stems at 2m. Could be prone to stem breakage. Crooked stems. Poor shape and form. Suppressed crown. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
670 1322	Common Beech	5.0	12	0N 1S 0E 0W	MA	Poor. Suppressed tree. Dead stems on west side. Wire attached to main trunk east side. Hangar in crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
671	Common Beech	6.0	12	0N 0S 0E 1W	MA	Poor. Suppressed tree. Ivy growth attached. Wire attached to main trunk east side. Deformed crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
672 1324	Common Beech	18.0	34,30 18	2N 0S 3E 2W	MA	Poor. Forked at .5m. Leaning stem to west. Fused and crooked stems. Self-corrected. Dead stem on west side. Light ivy growth to 14m. High crown Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
673	Common Beech	17.0	53	0N 0S 5E 0W	MA	Poor. Leaning to east. Could be prone to wind throw. Heavy ivy growth to 8m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
674	Common Beech	8.0	14, 16	0N 0S 0E 2W	MA	Poor. X 2 stems. Suppressed on northern side. Wire embedded in main trunks east side. Poor long-term potential.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
675	Common Beech	14.0	22	0N 0S 2E 0W	MA	Poor. Crooked stem. Leaning to east. Heavy ivy growth to 12m. Suppressed on west side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

676	Common Beech	16.0	34	0N 0S 0E 5W	MA	Poor. Forked at 6m. Leaning to west. Suppressed crown on east and south side. Heavy ivy growth to 8m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
677 1329	Common Beech	14.0	35	1N 0S 3E 0W	MA	Poor. Suppressed by ivy to 12m. Wire attached to main trunk east side. Deformed crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
678	Common Beech	17.0	31	0N 0S 3E 1W	MA	Poor. Suppressed on west side. Forked from 2m. Light ivy growth to 13m. Unbalanced crown. More end weight to east. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
679	Common Beech	15.0	36	1N 1S 3E 1W	MA	Poor. Light ivy growth to 4m. Crooked main stem. More crown weight to east. Wire attached to main trunk east side. High crown.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
680	Common Beech	6.0	19	0N 0S 2E 0W	MA	Poor. Suppressed tree. Deformed crown. Heavy ivy growth to 4m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
681	Common Beech	15.0	75E	2N 2S 2E 4W	MA	Poor. Forked at 1.2m. Fused stems. Heavy ivy growth to 14m. Lower stem not assessed. Leaning stem over cycle lane and path to west. Deformed crown. Suppressed crown on south side. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
682	Common Beech	6.0	16	-N -S -E -W	M	Poor. Suppressed tree. Heavy ivy growth to 4m.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
683	Common Beech	18.0	38	1N 0S 1E 4W	MA	Poor. Heavy ivy growth to 4m. Wire attached to main trunk west side. High crown	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
684	Common Beech	17.0	54E	0N 0S 4E 1W	MA	Poor. Forked at 1.5m. Decay in forking point. Could be prone to splitting. Heavy ivy growth to 14m. Wire attached to main trunk east side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
685	Common Beech	16.0	46E	0N 0S 3E 3W	MA	Fair. Heavy ivy growth to 14m. Lower stem not assessed. Main forking point from 6m. High crown. Wire attached to main trunk. Electrical service unit box on western side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U

686	Common Beech	16.0	33	0N 0S 2E 0W	MA	Poor. Suppressed by ivy. Suppressed crown. Heavy ivy growth to 14m. Wire attached to main trunk. Electrical service unit box on western side.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
687	Common Beech	15.0	32, 70E	3N 0S 3E 2W	MA	Fair. Close to entrance. Forked at .5m. Suppressed by ivy. Elder scrub at base. Forked at base. Multiple forking points from 3m. Heavy ivy growth attached to 16m. Lower stem not assessed. Wire attached to main trunk.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
688	Common Beech	14.0	47E	0N 2S 6E 0W	MA	Fair. Wooden plank attached. Suppressed by ivy. Close to entrance. Heavy basal sucker growth. Major forking point at 7m. More end weight to east. Wire attached to main trunk.	Fell the tree - see paragraphs 4.6 and 4.7.	20-40	U
689	Whitebeam	4.5	8	0N .5S .5E .5W	Y	Good. Staked and tied. Clear Stem to 2m.	Readjust stake and tie.	>40	C
690	Whitebeam	5.0	11	.5N .5S .5E .5W	Y	Good. Clear stem to 2m. Crown-raised in recent past.	NAR	>40	C
691	Whitebeam	5.0	14	.5N .5S 1E .5W	Y	Good. Crown-raised in recent past. Clear stem to 2m.	NAR	>40	C
692	Whitebeam	5.0	14	1N .5S 1E .5W	Y	Good. Slight lean to north. Crown-raised in recent past. Clear stem to 2m.	NAR	>40	C
693	Horse chestnut	13.0	44	2N 2S 1E 3W	MA	Good. Forked at 2m. Early signs of oozing sap blotches along main trunk. Small open wound on main trunk on west side. Close to path. Well-balanced crown.	Lightly tip prune back limbs over path. Clean the crown.	>40	A
696	Poplar	15.0	85	4N 3S 4E 3W	MA	Poor. Forked at 1.3m. x 3 stems. Open wound with decay at 1m. west side. Broken stem on NE side. Structurally weak and prone to stem or whole tree failure. Minor hangar in crown.	Fell	10-20	U

697	Maple	8.0	19	0N 0S 3E 0W	MA	Poor. Major open wound at Northern side to 1m. Broken stem at 1 and 2m. north side. Suppressed and deformed crown. Poor long-term potential.	Fell.	10-20	U
698 1904	Maple	11.0	32	1N 2S 3E 1W	MA	Fair. Forked at 2m. Could develop into a weak stem union. Minor hangars in crown. Light crown. Broken limbs in crown.	Remove minor hangars in crown. Remove broken limbs in crown on northern side. Prune crown to improve balance and shape. Clean the crown.	>40	C
699	Poplar	15.0	53	1N 3S 1E 2W	MA	Fair. Forked at 1m. Water retention in stem union. Canker and burrs along stems. Storm damage and multiple fracture points in crown. Suppressed crown on north side.	1. Prune crown to improve balance and shape. Clean the crown. Or 2. Fell tree to ground level.	>40	C/U
700	Maple	4.0	23	0N 0S 0E 0W	MA	Poor. Broken main stem at 4m. Crevice to 1m. on north side.	Fell	<10	U
701	Poplar	17.0	48	1N 0S 4E 0W	MA	Poor. Ivy growth to 2m. Broken main stem at 8m. Broken and storm-damaged limbs in crown. Leaning towards east.	Fell.	10-20	U
702	Poplar	17.0	36	1N 0S 0E 5W	MA	Poor. Storm damage in crown. Light debris in crown. Straight stem to 6m. Old fracture point to .5m. east side. Open to decay. Structurally weak. Unbalanced crown.	Fell.	10-20	U
703	Poplar	15.0	34	1N 1S 2E 3W	MA	Good. Straight stem. Well-balanced crown. Given the location of the tree - removal of tree to be considered.	1. Crown raise to 2.5m. Clean the crown. Or 2. Fell tree to ground level.	>40	C/U
704	Poplar	17.0	37	1N 1S 4E 0W	MA	Fair. Slight lean to east. Unbalanced crown. More crown weight to east. Given the location of the tree - removal of tree to be considered.	1. Crown raise to 2m. Prune crown to improve balance and shape. Clean the crown. Or 2. Fell tree to ground level.	20-40	C/U
705	Common ash	5.0	11, 14	0N 0S 1E 0W	M	Poor. Twin-stemmed. Suppressed. Leaning towards east. Poor long-term potential.	Consider removing both stems.	20-40	C/U
706	Field maple	7.0	15, 11	0N 0S 2E 0W	MA	Fair. Twin-stemmed. Scaring at base west side. Open to decay. Suppressed crown. Leaning towards east. Unbalanced crown.	Prune crown to improve balance and shape. Clean the crown.	20-40	C

707	Poplar	16.0	33	0N 0S 3E 0W	MA	Poor. Slight lean to east and towards road. Ivy growth to 3m. Lower stem not assessed. Dead stem at 4m. Light crown. Given the location of the tree - removal of tree to be considered.	1. Sever ivy growth at base and reassess tree after ivy dies off. Remove dead stem back to main trunk - east side. Prune back limbs in crown on east side. Clean the crown. Or 2. Fell tree to ground level.	>40	C/U
708	Poplar	20.0	72	4N 2S 0E 6W	MA	Fair. Forked at 1.3m. Weak stem union. Could be prone to stem splitting. More end weight to west over adjoining site. Leaning to west over hoarding. Given the location of the tree - removal of tree to be considered.	1. Prune back limbs on west side. Crown raise to 3m. Prune crown to improve balance and shape. Clean the crown. Or 2. Fell tree to ground level.	20-40	C/U
709	Maple	11.0	22	2N 0S 4E 0W	MA	Poor. Scaring at base on southern side. Open wound and not occluded. Straight stem to 2m. Suppressed crown on west side. Broken and storm-damaged limb at 2m. east side. Unbalanced crown. Suppressed on west side. Poor long-term potential.	Remove broken limb east side. Prune crown to improve balance and shape. Clean the crown.	>40	C
710	Poplar	20.0	42	4N 0S 4E 1W	MA	Fair. Straight stem to 6m. Light crown. Suppressed crown on southern side. Given the location of the tree - removal of tree to be considered.	1. Clean the crown. Remove all dead stems. Prune crown to improve balance and shape. Or 2. Fell tree to ground level.	>40	C/U
711	Maple	10.0	24	1N 0S 4E 1W	MA	Fair. Vigourous growth habit. Forked at 2m. Small open wound at .5m. east side. Unbalanced crown. More end weight to east. Storm damage on west side. Minor hangar in crown.	Prune crown on east side to improve balance and shape. Remove hangar in crown. Clean the crown.	>40	C
712	Maple	9.0	24	0N 1S 4E 2W	MA	Poor. Old fracture wound at 2.5m. SE side. Structurally weak. Deformed crown. More end weight to east. Slight lean to east. Old pruning point 1m west side.	1. Prune crown to improve balance and shape. Crown raise to 2m. Clean the crown. Or 2. Consider removing tree.	>40	C/U
713	Maple	12.0	26	1N 1S 0E 4W	MA	Fair. Lacks vigour. Poor extension growth. Forked at 2m. Broken limbs on northern side at 2m.	Remove broken limbs in crown. Prune crown to improve balance and shape. Clean the crown.	>40	C
714	Maple	14.5	28	1N 1S 1E 1W	MA	Fair. Forked at 2m. and 2.2m. Minor storm damage in crown.	Crown raise to 2m. Clean the crown.	>40	C

715	Common ash	11.0	18	1N 0S 2E 0W	MA	Poor. Crooked stem. Crevice and decay on southern side of main trunk to 2m. Signs of decline in crown. Unbalanced crown with more end weight to east. Removal recommended.	Fell	<10	U
716	Maple	12.0	30, 22	1N 0S 2E 3W	MA	Poor. Forked at .5m. Weak forking point. Broken stem at 2m. SW side. Open wound and fracture point at 2m. on SW side not occluded. Open to decay. Poor shape and form.	1. Prune crown on east side to improve balance and shape. Clean the crown. Or 2. Consider removing tree.	20-40	C/U
717	Silver Birch	15.0	26	1N 1S 1E 2W	MA	Good. Crooked stem. Self-corrected. Clear stem to 4m. Well-balanced light crown.	Clean the crown.	>40	C
718	Maple	12.0	29, 29	3N 1S 4E 3W	MA	Poor. Forked at .4m. Weak union. Fused stems at 1.5m. Could be prone to stem splitting in time. Well-balanced crown.	Crown raise to 2m. removing lower lateral stem on west side. Clean the crown.	20-40	C

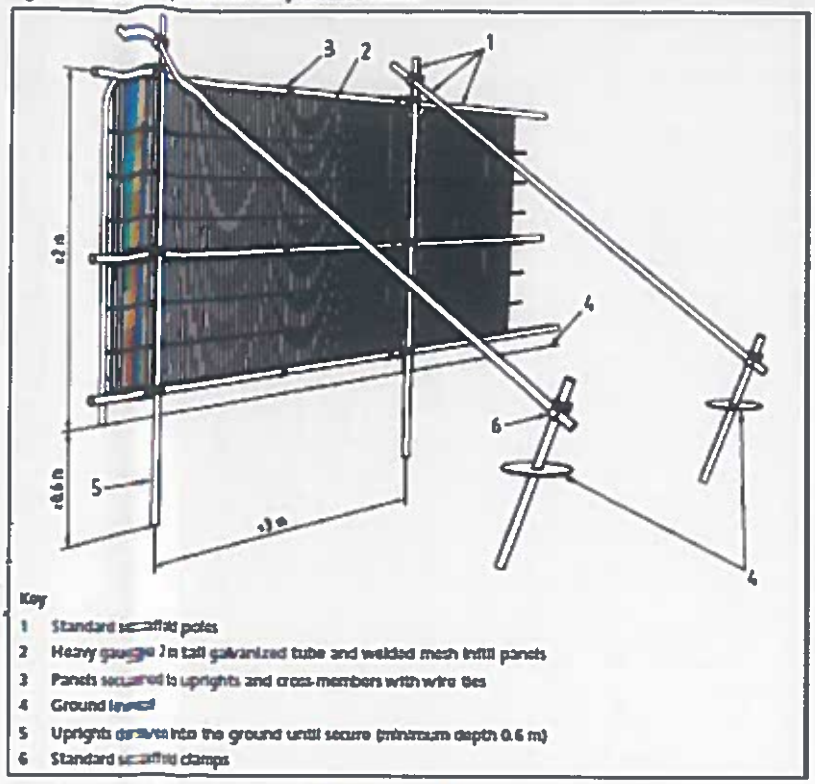
Appendix 2: Tree Root Protection Areas (RPA)

Tree No	DBH	RPA(m2)	RPA equiv. to circle with rad.of
621	20	18	2.40
622	46	66	4.60
623	17	13	2.04
624	75	255	9.00
625	17	13	2.04
626	45	92	5.40
627	33	49	3.96
628	41	76	4.92
629	47	69	4.70
630	41	76	4.92
631	37	43	3.70
632	36	59	4.32
633	18	15	2.16
634	42	80	5.04
635	27	33	3.24
636	37	62	4.44
637	28	35	3.36
638	26	31	3.12
639	41	76	4.92
640	50	113	6.00
641	35	55	4.20
642	35	55	4.20
643	45	92	5.40
644	28	25	2.80
645	48.41487	74	4.84
646	42	80	5.04
647	34	52	4.08
648	76	261	9.12
649	40	72	4.80
650	52.63079	125	6.32
651	36.12478	59	4.33
652	62	174	7.44
653	32	46	3.84
654	47	100	5.64
655	46.8615	99	5.62
656	50.77401	117	6.09
657	30	41	3.60
658	9	4	1.08
659	63.37981	182	7.61
660	60.83584	167	7.30
661	29	38	3.48
662	53	127	6.36
663	40	72	4.80
664	34	52	4.08
665	45	92	5.40
666	24	26	2.88
667	43	84	5.16
668	24.41311	27	2.93
669	48.16638	105	5.78
670	12	7	1.44
671	12	7	1.44
672	48.78524	108	5.85
673	53	127	6.36
674	21.26029	20	2.55
675	22	22	2.64
676	34	52	4.08
677	35	55	4.20
678	31	43	3.72
679	36	59	4.32
680	19	16	2.28
681	75	255	9.00
682	16	12	1.92
683	38	65	4.56
684	54	132	6.48
685	46	96	5.52
686	33	49	3.96
687	76.96753	268	9.24
688	47	100	5.64
689	8	3	0.96
690	11	5	1.32
691	14	9	1.68
692	14	9	1.68
693	44	88	5.28
696	85	327	10.20
697	19	16	2.28
698	32	46	3.84
699	53	127	6.36
700	23	24	2.76
701	48	104	5.76
702	36	59	4.32
703	34	52	4.08
704	37	62	4.44
705	17.80449	14	2.14
706	18.60108	16	2.23
707	33	49	3.96
708	72	235	8.64
709	22	22	2.64
710	42	80	5.04
711	24	26	2.88
712	24	26	2.88
713	26	31	3.12
714	28	35	3.36
715	18	15	2.16
716	37.20215	63	4.46
717	26	31	3.12
718	41.01219	76	4.92

Table 3: *Tree Root Protection Zones*

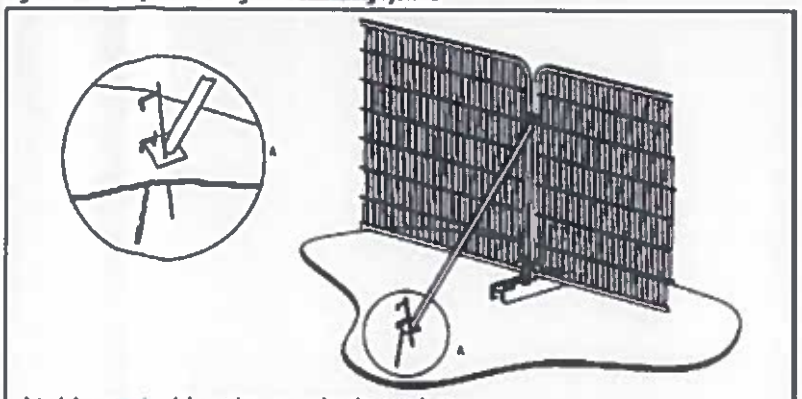
Appendix 3: *- Default specification for protective barrier - Figure 2.*
- Examples of above-ground stabilizing systems - Figure 3.

Figure 2 Default specification for protective barrier

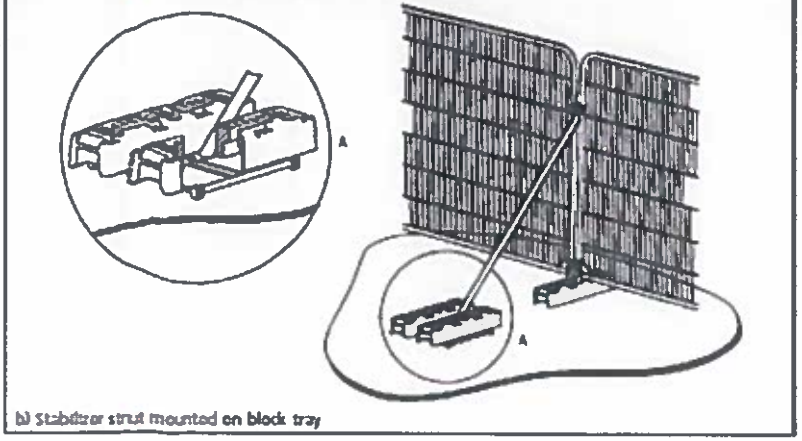


Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

APPENDIX 4 - Tree Protection Plan *TMS.CD.11.21.02A*