Proposed Site:

Craddockstown, Naas, Co.Kildare

Client:

Hayes Higgins Partnership

on behalf of

Kildare County Council

Arboricultural Report

BS5837:2012 Trees in Relation to

Design, Demolition and Construction

-Recommendations

Job Reference:

KCC - CT

Prepared by:

Rik Pannett - Arbtech Ireland

Date: 21st June 2024

Arbtech

Ireland

Contents

Appendices

1.0 Project Brief and Objectives

1.1 Arbtech Ireland was retained by Hayes Higgins Partnership on behalf of Kildare County Council, to undertake a pre-development tree survey in relation to the construction of 28 no. dwelling units at Craddockstown, Naas, County Kildare in accordance with British Standards 'Trees in relation to design, demolition & construction – Recommendations (BS 5837:2012). The surveyed trees are located within and adjacent to the boundaries of the proposed site.

1.2 All trees have been inspected from ground level only. No climbing inspections have been undertaken. Should a more detailed inspection be deemed appropriate, this will be covered within recommendations. Trees are dynamic living organisms, whose health and condition can be subject to rapid change, depending upon external and internal factors. The conclusions and recommendations contained in this report relate to the trees only at the time of inspection, and do not constitute a tree risk assessment report.

1.3 A tree survey and visual assessment was undertaken on 10th June 2024 by Rik Pannett. The trees were surveyed during daylight hours in dry and calm weather conditions.

1.4 The objective of this survey was to gather information regarding the location of trees, tree groups and hedgerows within the site and how these may be impacted by construction works and development of the site. The survey report will detail any constraints posed by existing trees to the proposed development. An arboricultural impact assessment addresses the likely impact of the proposed development on trees within the site. Recommendations for the protection of trees and hedgerows during construction work is based on BS 5837: 2012. Any recommendations for tree work are based on BS 3998: 2010.

2.0 Survey Methodology

2.1 Unless otherwise stated tree inspections have been undertaken from ground level using Visual Tree Assessment (VTA) techniques. The survey concentrated primarily on the significant trees within and adjacent to the proposed development site.

2.2 All trees, groups of trees and hedgerows surveyed have been given a number prefixed by the letter T, G or H. All trees were assessed using the 'Cascade chart for tree quality assessment' as described in table 1 of the BS 5837:2012 (appendix C). The locations of trees and hedgerows are illustrated on the Tree Constraints Plan (TCP: appendix D).

2.3 Tree species, estimated maximum height, stem diameter and crown spread were recorded for significant trees and hedgerows within the site, some of which may be a constraint on development based on information supplied by the client. In accordance with BS 5837: 2012, only trees with a stem diameter of 75mm or greater were surveyed. As per section 4.4.2.3, some trees forming obvious groups were assessed as such.

2.4 The findings of the survey are given in tabular form in the Tree Survey Schedule in appendix A. A full explanation of the survey headings is given in appendix B.

2.5 No assessment of the soil has taken place as part of this report. BS 5837:2012 states that a soil assessment should be carried out by a competent person to establish the structure, clay content and potential volume for change of the soil. A survey of this nature is considered outside the scope of this arboricultural assessment. For guidance on soil structure in relation to construction, advice should be sought from a Structural Engineer.

2.6 An arboricultural method statement is included to provide guidance in relation to tree protection during construction of the development. Tree protection measures are illustrated on the Tree Protection Plan (TPP: appendix E).

2.7 A list of drawings referenced in preparation of the report is shown below in Table 1.

23052-KCC-00-SK-M2-A-1000	Kildare County Council

***Table 1**: Referenced drawings.*

3.0 Site Overview

3.1 The survey focuses on the area located as illustrated within the continuous red line in the aerial view below (fig. 1).

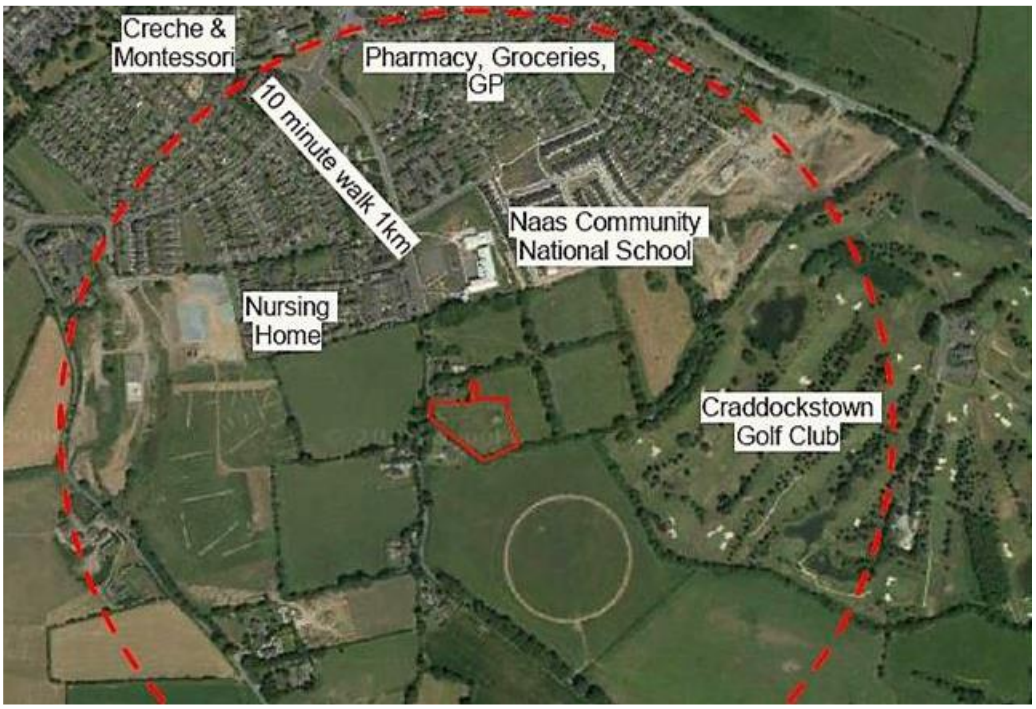

***Figure 1:** Redline drawing illustrating survey area.*

3.2 The proposed development is on a site of approximately 0.83 ha located to the southeast of Naas town at Craddockstown Road adjacent the Eustace Demesne housing estate and

various private dwellings. The remainder of the surrounding land is in agricultural pasture and arable use.

3.3 The proposed development (fig. 2) consists of 28 no. residential social housing units; a new access road from Craddockstown Road; 33 car parking spaces; a landscaped public open space including nature-based SUDS; new boundary walls; associated site works; pedestrian and cycle lane connection to the adjacent Eustace Demesne housing estate.

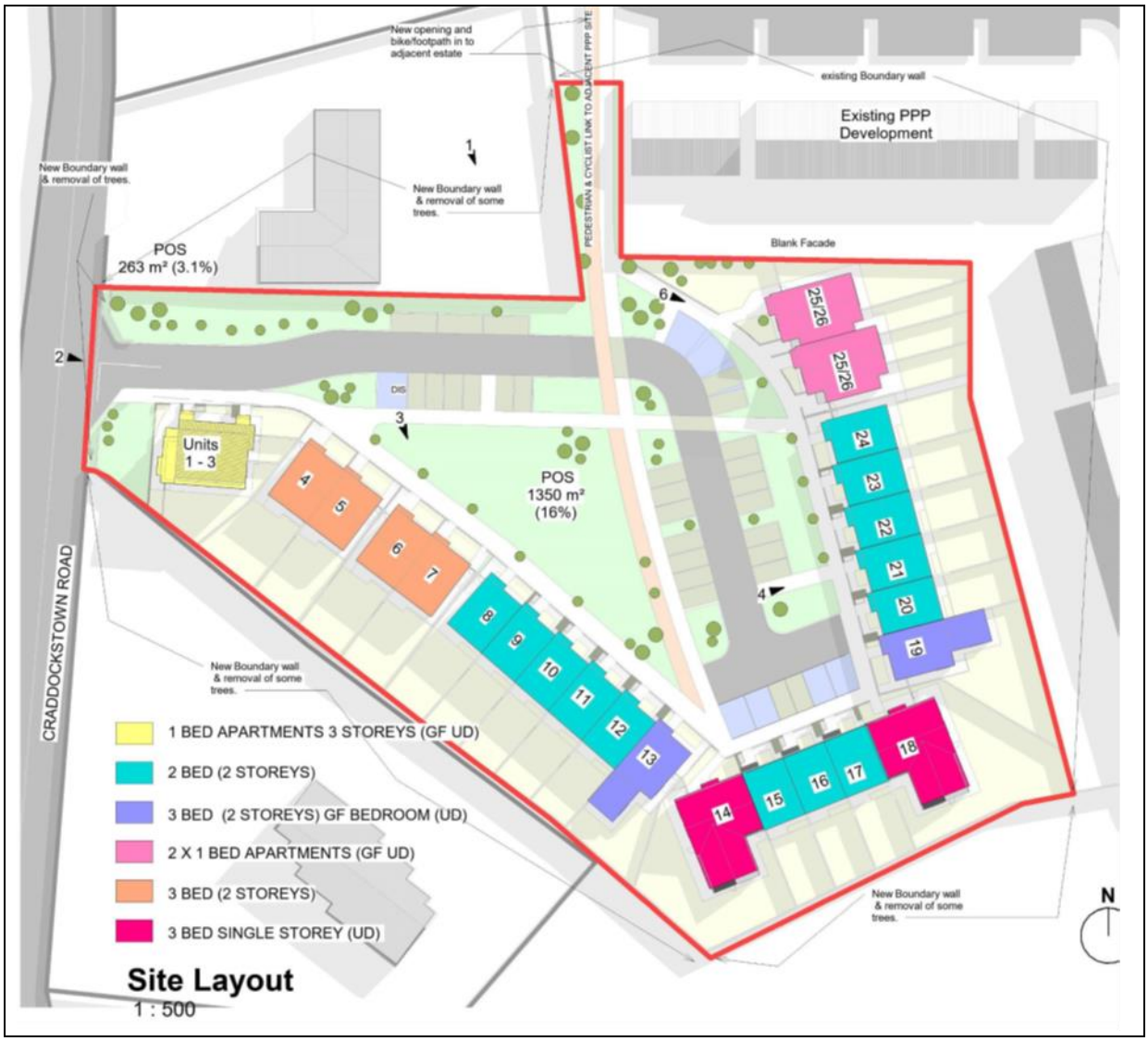

***Figure 2**: Plan for proposed development.*

3.4 The existing site is bordered on the west by Craddockstown Road. There is a semi-mature tree line (fig. 3) adjacent the road consisting of ash, hazel, hawthorn, and wych elm, some of which are dead and collapsing. The western extent of the northern boundary is delineated by a formal cherry laurel hedge (fig. 4) which borders part of the neighbouring property. A semi-mature tree line of beech, pine, ash, and red oak borders the remainder of the neighbouring property, extending east and then northward. A high wall extends eastward for much of the remainer of the northern boundary, then extends southward along the eastern boundary. A sprawling, overgrown, unmanaged agricultural hedgerow of ash, elder, elm, and hawthorn

(fig. 5) delineates the southern boundary. The remainder of the site is broadly level and consists of ungrazed pasture.

Figure 3: *Roadside tree line Craddockstown Rd.*

Figure 4: *H001 cherry laurel hedge at boundary.*

Figure 5: *G006 sprawling hedgerow at southwestern extent.*

3.5 Trees are comprehensively detailed in the Tree Survey Schedule - appendix A.

4.0 Limitations of survey report

4.1 This survey does not constitute a tree safety inspection, nevertheless, where obvious features and defects were observed they have been noted in appendix A. Where fruiting bodies of tree decay fungi are present, they have been noted, however, annual fruiting bodies are not present year-round, and as such, the absence of them does not necessarily indicate the absence of active fungi within the tree crown, stem, or root system.

5.0 Summary of Findings

5.1 26 individual trees, a further 46 trees contained within 8 groups, and 2 hedgerows have been surveyed. A breakdown of the numbers of trees and groups in each retention category is shown in Table 2 below as per BS 5837:2012:

	Category A	Category B	Category C	Category U
Individual Trees	0	9	15	2
Trees in groups	0	2	41	3
Hedgerows	0	0	2	0
Total	0	11	58	5

***Table 2**: Tree Categorisation.*

5.2 Category A trees are of high quality and there should be a general presumption for retention of these trees.

5.3 Category B trees are of moderate quality. It is likely that most Category B trees should be retained and regarded as a constraint to development. Some Category B trees, particularly smaller individuals are of insufficient value to impose significant design constraints and removal of such trees can be justified to promote good design (usually on the basis that mitigation is provided elsewhere on the site in the form of high-quality new planting).

5.4 Category C trees are of low quality. They should not impose significant constraints to design layout and can defensibly be removed to facilitate good design. If Category C trees can be satisfactorily retained within the proposed layout, then consideration should be given for this.

5.5 Category U trees are unsuitable for retention, usually in such a condition that they cannot realistically be retained as living trees and should be removed for reasons of sound arboricultural practice.

5.6 A list of tree and hedgerow species surveyed (chart 1), percentages of their retention category (chart 2) and life stage (chart 3) are displayed below.

Common Name	No. trees
Apple	1
Common ash	15
Common beech	3
Common hawthorn	13
Common laburnum	1
Copper beech	1
Cotoneaster	1
Dogrose	2
Dogwood	1
Elder	11
Golden king holly	1
Grey willow	1
Hazel	4
Himalayan birch	2
Hornbeam	3
Horse chestnut	1
Laurel cherry	1
Norway maple	1
Pedunculate oak	1
Red oak	1
Rowan	2
Scots pine	1
Wild cherry	1
Wych elm	8
Total	77

***Chart 1**: Tree and hedgerow species surveyed.*

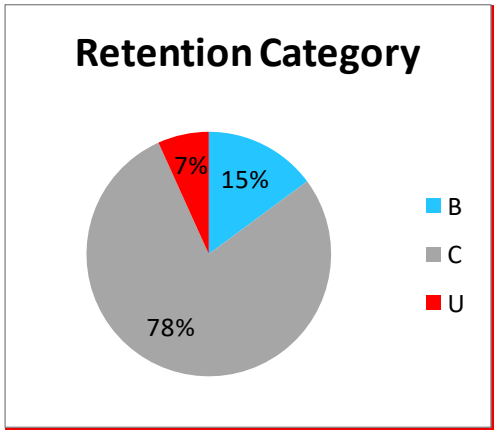

***Chart 2**: Retention category.*

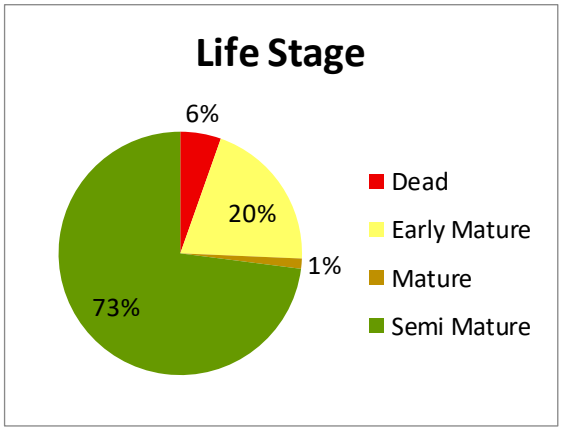

***Chart 3**: Life stage.*

6.0 Arboricultural Impact Assessment

6.1 Based on the proposed site layout drawings supplied, the arboricultural impact of the proposed development was assessed as follows. The semi mature ash, elm, and hazel trees T1019-T1024 (fig. 6 & 7) and the hedgerow H2 bordering Craddockstown Road are in direct conflict with the proposed plans, necessitating their removal.

Figure 6: *T1019 dead ash for removal.*

Figure 7: *T1022 ash for removal.*

6.2 The root protection area (RPA) of the mature ash T1025 (fig. 8 & 9) on the neighbouring property to the south extends into the proposed development. Root pruning will have to be performed during site works to limit damage to the tree.

Figure 8 & 9: *T1025 mature ash for retention and root pruning.*

6.3 The trees T1013-16 & T1018 (fig. 10 & 11) and the group G002 require removal at the request of the owner of the property. The RPAs of these trees extend into the proposed site, and their roots will be damaged during construction of the boundary wall.

***Figure 10**: T1016 beech for removal.*

***Figure 11**: T1018 pedunculate oak for removal.*

6.4 The trees T1009-T1012 (fig. 12 & 13) are in direct conflict with the alignment of the boundary wall, necessitating their removal.

Figure 12: *T1009 copper beech for removal.*

Figure 13: *T1011 horse chestnut for removal.*

6.6 The ash T1026 (fig. 14) is within the footprint of the development and while it could be retained in the garden of one of the proposed dwellings, it is not a suitable tree for a small garden.

6.7 The holly T1028 and the elders T1029 (fig. 15) & T1032 which are growing on the boundary with the adjacent property should be retained, as should other trees along the boundary, including the ash T1030 & T1031. The hawthorn group G007, and the wild cherry T1033 require removal.

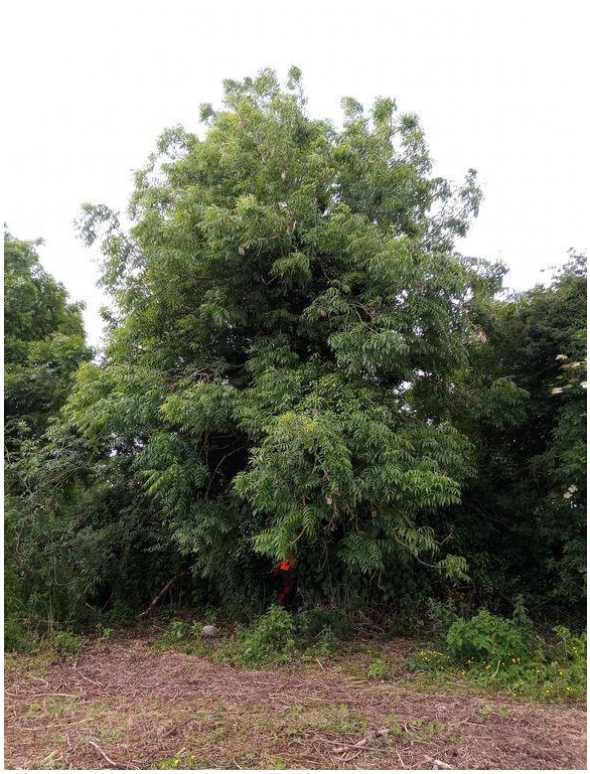

Figure 14: *T1026 ash for removal.*

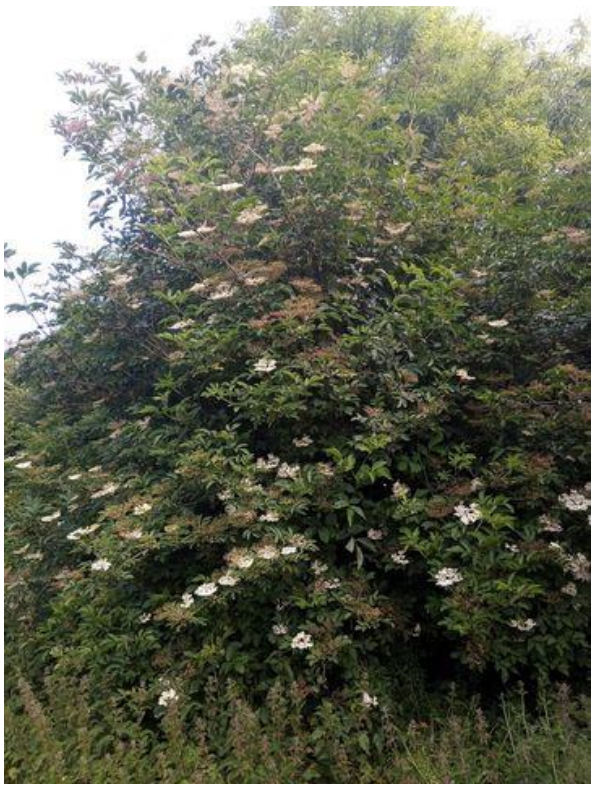

Figure 15: *T1029 elder for retention.*

6.8 The majority of the sprawling overgrown hedgerow G006 (fig. 16) is within the footprint of the proposed dwellings, necessitating its removal.

***Figure 16**: G006 mixed species hedgerow for partial removal.*

6.9 Tree Constraints Plan

The Tree Constraints Plan (TCP: appendix D) has been produced as a basis for the assessment of the constraints imposed by existing trees and hedgerows on the proposed design. Refer to TCP for location of trees, groups of trees and hedgerows surveyed.

6.10 Tree Protection Plan

The Tree Protection Plan (TPP: appendix E) shows the indicative position of the root protection area (RPA) for trees, groups of trees and hedgerows with a retention priority. The RPA (as described in BS5837: 2012 sec. 3.7) represents the minimum area around each tree in which the ground should remain largely undisturbed and is shown as a pink line on the TPP (refer to Tree Survey Data: appendix A for accurate RPA radiuses). Current and proposed tree and hedgerow protection is shown as an orange line on the TPP.

6.11 Summary of Impact of Proposed Development on Tree Population

Surveyed Trees	A	B	C	U	Total no.	%
Trees proposed for retention.	0	2	11	0	13	18.1
Trees proposed for removal to facilitate development.	0	9	45	5	59	81.9
Hedgerows proposed for retention.	0	0	1	0	1	50
Hedgerows proposed for removal to facilitate development.	0	0	1	0	1	50

***Table 3**: Summary of Impact on Tree Population.*

6.12 In conclusion, the current development proposals impact significantly upon the tree population. However, most of the trees requiring removal are small and/or low in quality and lack diversity. Ash and wych elm predominate within the native population, and both species may be affected by disease. The majority of the wych elm on the proposed site have been killed by Dutch elm disease, and while ash dieback symptoms are minimal at present on trees within the proposed site, many neighbouring ash trees are in serious decline.

6.13 Retained trees close to construction activities must be protected using barriers as specified in the method statement. Where construction is to take place within the RPAs of retained trees, methods which limit damage to roots such as piling must be utilised.

6.14 The loss of trees and hedgerows can in part be mitigated by the high-quality planting of a mixture of small, medium, and large canopy native trees selected for species diversity, pest & disease resistance, and for climate change resilience. The value (e.g., biodiversity; carbon sequestration) of newly planted trees is not equivalent to that of established trees, and therefore, more trees must be planted than the sum of those removed.

7.0 Arboricultural Method Statement

7.1 Method Statement Summary

The arboricultural method statement provides information about how to protect trees, their crowns, stems, and root systems during the construction process. The stages described below must be used as reference by the main contractor to prepare a site-specific method statement for the construction works. The method statement is to be used in conjunction with the Tree Survey Schedule (appendix A) and the Tree Protection Plan (TPP: appendix E) which detail the

indicative extent of root protection areas. The TPP must be made available to all contractors as a colour print only.

7.2 Stage 1: Pre-construction stage

The developer must appoint an arboriculturist who will oversee tree protection measures for the duration of the project. The arboriculturist will make regular site visits to ensure continued compliance, as well as to respond to project specific issues as they arise.

7.3 Tree work

The developer will appoint a qualified arborist to undertake pruning and felling works as specified in the tree survey recommendations (appendix A). All works carried out must conform to BS3998: 2010 Tree Work. Recommendations. Any damage caused to a tree during the construction phase must be reported immediately to the site manager so that inspection and/or remedial works can be undertaken.

7.4 Protective fencing

On completion of any tree works, protective fencing (fig. 17) must be erected at the edge of the RPA, at each phase of works, in accordance with BS5837:2012. Trees remote from construction works may be protected using a lower specification fencing such as euromesh (fig. 18), or no fencing at all if deemed appropriate by the project arboriculturist. Fencing is intended as a precaution to prevent accidental damage to the rooting area of retained trees. The positioning of any fencing at the edge of the RPA is shown in the TPP as an orange line.

- Erection of protective fencing must be completed before any materials or construction machinery are brought onto site and before any construction works commence.
- Signage (fig. 19) indicating 'tree protection area, no construction access' or similar must be affixed to the protective fencing.
- Fencing is not to be removed or repositioned without approval of the project arboriculturist.

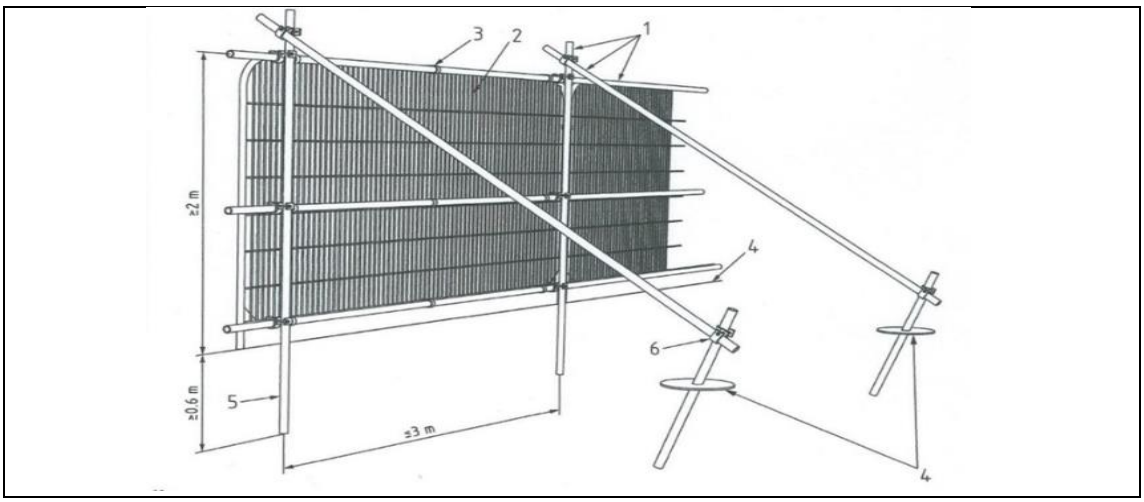

***Figure 17**: Protective barrier specifications.*

***Figure 18**: Euromesh.*

***Figure 19**: Signage to be affixed to barrier.*

7.5 Ground protection for construction access routes

Where construction or temporary construction access is considered necessary within the RPA, the alignment of the protective barrier may be set back, under supervision of the project arboriculturist.

Temporary ground protection within the RPA must be capable of supporting the load of any persons or traffic using the site without affecting or compacting the underlying soil.
The ground protection must comprise one of the following or similar, as described in BS5837:2012:

- For pedestrian movement, single thickness scaffold board shall be laid on top of 100mm of woodchip laid on top of a geotextile membrane.
- For plant up to gross weight of 2t, interlinked boards must be laid over a compression resistant layer such as woodchip to 150mm, over a geotextile membrane.
- For construction traffic over 2t gross weight a proprietary system or pre-cast concrete slabs must be installed, in conjunction with arboricultural advice.

In all instances, the objective is to prevent soil compaction where possible, which can occur from the passage of a single vehicle, especially in wet conditions.

7.6 Installation of hard surfacing in proximity to trees

Construction of hard surfaces can impact the surface roots of nearby trees and prevent soil gases exchanging if porousness and load spreading is not incorporated into the design. To prevent root damage, excavation, soil stripping or grading must not be conducted within the RPA of retained trees and hedgerows. Hard surfaces will need to be installed using a 'no dig' method of construction, using a cellular confinement system. Three cardinal principles apply when avoiding damage to trees during construction:

- Roots must not be severed.
- Soil must not be compacted.
- Oxygen and water must be able to diffuse into the soil beneath the engineered surface.

Construction of hard surfaces will incorporate a cellular no-dig solution such as Cellweb tree root protection (fig. 20) which will ensure that loads placed upon it are laterally dissipated rather than being transferred to the soil and root systems below ground.

The walls of the cellular structure are perforated and must be combined with the infill of clean angular stone, preferably of a single size (20-40mm) which will enable the passage of water and oxygen to the tree roots, ensuring their continued functioning and health.

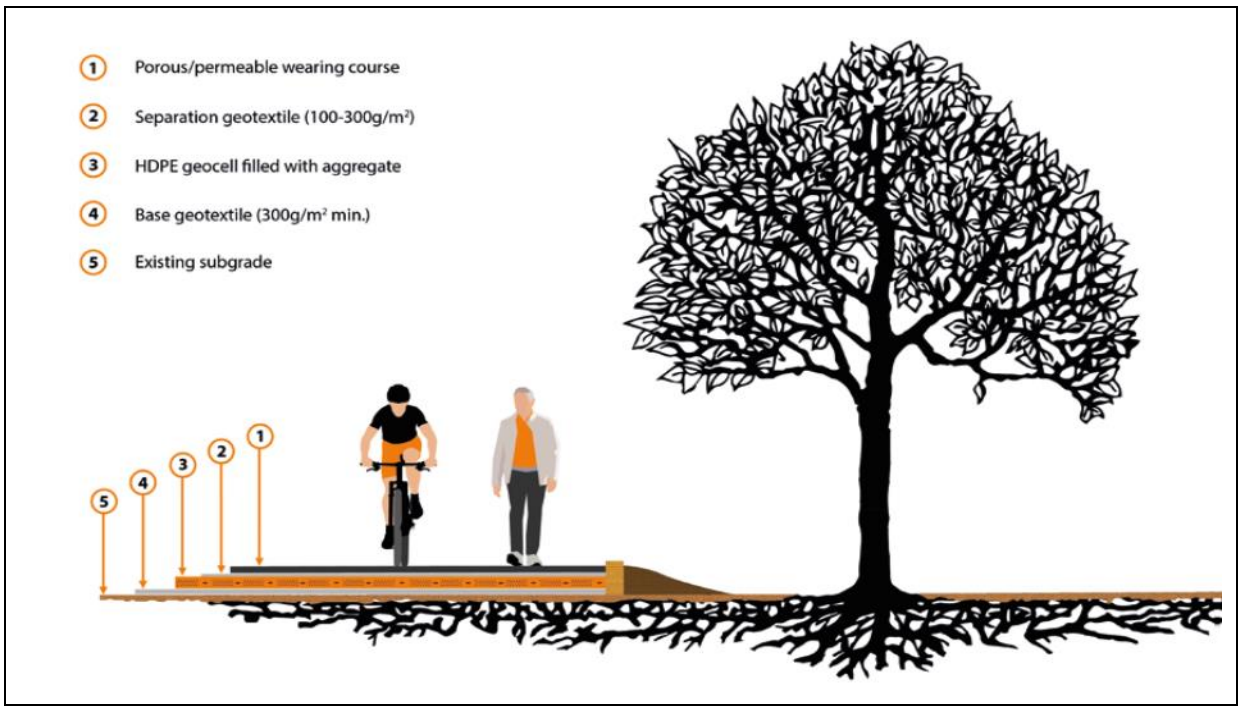

***Figure 20**: example of cellular no dig construction method.*

7.7 Installation of underground Services

Installation of underground cabling must comply with the National Joint Utilities Group (NJUG) 'Guidelines for the planning, installation, and maintenance of utility services in proximity to trees' and with BS 5837:2012. The excavation of open trenches by machine is unacceptable within the RPA of any of the retained trees, and wherever possible, services will be routed outside of any retained trees RPA. Where this is not possible cables must be routed together in a common duct and any inspection chambers sited outside the RPA.

Acceptable techniques for the laying of services are:

- Trenchless - by use of thrust boring or similar techniques. The pit excavations for starting and receiving the machinery must be located outside of the RPA. To avoid root damage, the mole must run at a depth of at least 600mm. Use of external lubricants on the mole other than water should be avoided.
- Broken trench - by using hand dug trench sections together with trenchless techniques. It must be limited to practical access and installation around or below the roots. The trench must be dug by hand and only be long enough to allow access for linking to the next section. The open sections must be kept as short as possible.

- Continuous trench - the trench is excavated by hand and retains as many roots as possible. The surface layer is removed carefully and hand digging of the trench takes place. No roots over 2.5cm diameter or clumps of smaller roots (including fibrous) shall be severed. The bark surrounding the roots must be maintained. Cutting of roots over 2.5cm diameter must be performed under supervision of the project arboriculturist. If roots must be cut, a sharp tool (defined as spade, narrow spade, fork, breaker bar, secateurs, handsaw, hand trowel) will be used.
- Roots, and in particular fine roots, are vulnerable to desiccation on exposure to air. The roots are at greatest risk when there are rapid fluctuations in the air temperature around them. It is vitally important that the roots are covered with sacking whilst the trench is open.

7.8 Pre-commencement site meeting

Prior to commencement of construction works, a pre-commencement site meeting and contractor briefing will occur. Tree protection barriers are to be inspected by the project arboriculturist, and any additional protection measures to be agreed. Scope of future inspections and monitoring to be agreed between the site manager and project arboriculturist.

7.9 Landscape works

Any new planting of trees and hedgerows shall be undertaken in accordance with BS5837:2012 and supervised by the project arboriculturist or landscape architect. The existing ground levels within the RPA must be retained and not subjected to compaction or alteration. Manual tools should be used where possible for planting within RPAs to minimise root disturbance and damage.

7.10 Stage 2: Construction Works stage

7.11 Protective fencing

During the construction phase, protective fencing must be kept in place, remain upright and rigid as intended, and checked daily for any damage. The fencing must remain in place, and not be removed until all site works are completed.

7.12 Excavations

Excavation works can commence once the protective fence line is in place. In advance of excavation, the project manager, site foreman and project arboriculturist will identify and determine the extent of the impact of the proposed works and identify any additional mitigation measures to protect retained trees and hedgerows.

The project arboriculturist will supervise the pruning of roots which are exposed and damaged during excavation works. The excavated face is to be covered with soil to prevent drying out and death of further root material.

7.13 Working within RPAs

If any works are to take place within the RPA, the project arboriculturist must be informed so that mitigation measures are agreed upon to limit impact on root, stem, and crown of tree.

7.14 Site considerations

Throughout the development stages the following must be observed:

- No materials, chemicals, machinery, or vehicles are to be stored within the RPA.
- No materials are to be rested against the trunk of trees.
- Burning of rubbish is not permitted within 10m of RPA or hedgerows. Wind direction must be factored when locating a fire, and it must not be unattended.
- Attaching items to any part of a tree is not permitted.
- Washing of machinery, concrete, diesel fuel or other contaminants are not to be discharged within 10m of RPA or hedgerows.
- Any damage caused to protective fencing, ground protection, or retained trees must be reported to the site manager without delay.
- The area around trees enclosed by protective fencing must be considered a construction exclusion zone.

7.15 Stage 3: Post Construction Works stage

On completion of construction works, retained trees are to be re-examined by the project arborist to identify any additional remedial works required to ensure tree health and site safety.

8.0 Statutory Obligations

I am currently unaware if any trees at the site are protected by a Tree Preservation Order (TPO) or by virtue of being located within a Special Area of Conservation. I have not been instructed to establish the TPO status of trees with the Local Planning Authority. If any trees are subject to TPOs then consent should be sought from the relevant Local Authority prior to commencement of any works.

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9.0 Bibliography

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Tree Survey Schedule

Kildare County Council - Craddockstown Road, Naas

Appendix A

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
G001	Dogwood *(Cornus sp.)* Hazel 'Purpurea' *(Corylus avellana)* Cotoneaster *(Cotoneaster sp.)*	Shrubs 3 trees	Height (m): 2 3 stems Spread (m): 2N, 2E, 2S, 2W Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Scrubby shrub overgrowth from neighbouring garden into proposed site.	C2	Area: 64 sq m.	Physiological Condition: Good Structural Condition: Good	Remove shrubs.
G002	Common laburnum *(Laburnum anagyroides)* Rowan x2 *(Sorbus aucuparia)* Apple *(Malus sp.)* Hazel x2 'Purpurea' *(Corylus avellana)*	Group 6 trees	Height (m): 6 6 stems, avg.(mm): 120 Spread (m): 2N, 2E, 3S, 1W Crown Clearance (m): 1 Lowest Branch (m): 1(S) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Lower branches overhanging into proposed site. Rosa rugasa spreading from garden into site.	C2	Area: 54 sq m.	Physiological Condition: Good Structural Condition: Good	Remove trees.
G003	Wych elm x3 *(Ulmus glabra)*	Group 3 trees	Height (m): 11 3 stems, avg.(mm): 300 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 4 Lowest Branch (m): 4(N) Life Stage: Dead	3 dead ivy covered elm trees.	U	No RPA due to Retention Category of U.	Physiological Condition: Dead Structural Condition: Decaying	Remove trees.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
G004	Hornbeam x3 *(Carpinus betulus)*	Group 3 trees	Height (m): 8 3 stems, avg.(mm): 170 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1 Lowest Branch (m): 1(NE) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing in garden of neighbouring. Compact growth habit typical of species.	C2	Area: 76 sq m.	Physiological Condition: Good Structural Condition: Good	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
G005	Himalayan birch x2 *(Betula utilis)*	Group 2 trees	Height (m): 11 2 stems, avg.(mm): 220 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 2 Lowest Branch (m): 1(SW) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Pair of birch with open spreading crown sharing canopy.	B2	Area: 112 sq m.	Physiological Condition: Good Structural Condition: Good	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
G006	Common hawthorn x10 *(Crataegus monogyna)* Common ash x2 *(Fraxinus excelsior)* Wych elm x3 *(Ulmus glabra)* Elder x8 *(Sambucus nigra)* Dogrose *(Rosa canina)*	Group 24 trees	Height (m): 10 24 stems, avg.(mm): 130 Spread (m): 6N, 3E, 6S, 3W Crown Clearance (m): 1 Lowest Branch (m): 1(NE) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Sprawling overgrown mixed species hedgerow forming southern boundary. Dead standing and fallen elm scattered throughout. Bramble and ivy proliferating.	C2	Area: 1599 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove hedgerow group as indicated on Tree Protection Plan.
G007	Common hawthorn x2 *(Crataegus monogyna)* Dogrose *(Rosa canina)*	Group 3 trees	Height (m): 8 3 stems, avg.(mm): 200# Spread (m): 2N, 3E, 3S, 3W Crown Clearance (m): 1 Lowest Branch (m): 1(W) Life Stage: Early Mature Rem. Contrib.: 10+ Years	Ivy covered stems, good leaf cover.	C2	Area: 39 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove trees.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
G008	Common ash x2 *(Fraxinus excelsior)*	Group 2 trees	Height (m): 10 2 stems, avg.(mm): 180 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Lowest Branch (m): 3(NE) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing on bank adjacent neighbouring land. Ivy covered stems.	C2	Area: 82 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove trees.
H001	Laurel cherry *(Prunus laurocerasus)*	Hedge	Height (m): 2 1 stems Spread (m): 1N, 1E, 1S, 1W Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Boundary hedge to neighbouring property. Brambles and dogwood proliferating at western extent.	C2	Area: 175 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: No action required. During construction: Protect hedge with protective barriers - as shown on plans. Post construction: No action required.
H002	Common hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Wych elm *(Ulmus glabra)* Common ash *(Fraxinus excelsior)*	Hedge	Height (m): 8 1 stems Spread (m): 2N, 2E, 2S, 2W Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Mixed species hedge on bank adjacent road.	C2	Area: 54 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove hedgerow.
T1008	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 8 Stem Diam(mm): 180 Spread (m): 3N, 3E, 3S, 2W Crown Clearance (m): 3 Lowest Branch (m): 3(E) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Extensive dieback in crown. Reiterative growth from 2m. Pests and Diseases: Ash Dieback Infection Level 3: 50% to 75%	C2	Radius: 2.2m. Area: 15 sq m.	Physiological Condition: Poor Structural Condition: Poor	Remove tree.
T1009	Copper beech *(Fagus sylvatica purpurea)*	Tree	Height (m): 11 Stem Diam(mm): 240# Spread (m): 5N, 4E, 3S, 3W Crown Clearance (m): 1 Lowest Branch (m): 1(SE) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Assymetric crown densely leaved	B2	Radius: 2.9m. Area: 26 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
T1010	Common beech *(Fagus sylvatica)*	Tree	Height (m): 9 Stem Diam(mm): 120 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 3 Lowest Branch (m): 4(SW) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Upright tree sharing canopy with neighbours.	C2	Radius: 1.4m. Area: 6 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1011	Horse chestnut *(Aesculus hippocastanum)*	Tree	Height (m): 10 Stem Diam(mm): 400# Spread (m): 3N, 4E, 3S, 4W Crown Clearance (m): 1 Lowest Branch (m): 1(S) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Growing in private garden adjacent site. Low branches overhanging into proposed site. Good vigour and leaf cover.	B2	Radius: 4.8m. Area: 72 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1012	Scots pine *(Pinus sylvestris)*	Tree	Height (m): 12 Stem Diam(mm): 450# Spread (m): 4N, 5E, 2S, 3W Crown Clearance (m): 4 Lowest Branch (m): 3(E) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Unbalanced crown to east, overhanging proposed site. Good vigour and leaf cover.	B2	Radius: 5.4m. Area: 92 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1013	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 11 Stem Diam(mm): 230# Spread (m): 2N, 5E, 3S, 4W Crown Clearance (m): 1 Lowest Branch (m): 2(SE) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Unbalanced crown, overhanging proposed site. Good vigour and leaf cover.	C2	Radius: 2.8m. Area: 25 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1014	Red oak *(Quercus rubra)*	Tree	Height (m): 11 Stem Diam(mm): 300# Spread (m): 5N, 6E, 4S, 5W Crown Clearance (m): 3 Lowest Branch (m): 2(E) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Broad spreading crown. Understory of dogwood. Good vigour and leaf cover.	B2	Radius: 3.6m. Area: 41 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1015	Common beech *(Fagus sylvatica)*	Tree	Height (m): 12 Stem Diam(mm): 300# Spread (m): 5N, 6E, 2S, 5W Crown Clearance (m): 1 Lowest Branch (m): 1(W) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Low branches overhanging into proposed site. Good crown architecture. Good leaf cover.	B2	Radius: 3.6m. Area: 41 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
T1016	Common beech *(Fagus sylvatica)*	Tree	Height (m): 11 Stem Diam(mm): 300# Spread (m): 2N, 5E, 4S, 4W Crown Clearance (m): 1 Lowest Branch (m): 1(E) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Overhanging branches into proposed site. Good crown architecture. Good leaf cover.	B2	Radius: 3.6m. Area: 41 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1017	Grey willow *(Salix cinerea)*	Tree 2 stems	Height (m): 5 2 stems (mm): 100,90 Spread (m): 2N, 3E, 2S, 1W Crown Clearance (m): 1 Lowest Branch (m): 1(E) Life Stage: Semi Mature Rem. Contrib.: <10 years	Bark necrosis at base of stem. Extensive dieback throughout crown.	U	No RPA due to Retention Category of U.	Physiological Condition: Poor Structural Condition: Decaying	Remove tree.
T1018	Pedunculate oak *(Quercus robur)*	Tree	Height (m): 12 Stem Diam(mm): 380# Spread (m): 4N, 4E, 5S, 6W Crown Clearance (m): 1 Lowest Branch (m): 2(S) Life Stage: Early Mature Rem. Contrib.: 30+ Years	Branches overhanging proposed site. Good crown architecture. Good vigour and leaf cover.	B2	Radius: 4.6m. Area: 66 sq m.	Physiological Condition: Good Structural Condition: Good	Remove tree.
T1019	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 12 Stem Diam(mm): 380 Spread (m): 5N, 5E, 3S, 3W Crown Clearance (m): 3 Lowest Branch (m): 4(N) Life Stage: Dead	Dead ash tree growing adjacent road and electricity pole. Ivy obscuring stem and main unions.	U	No RPA due to Retention Category of U.	Physiological Condition: Dead Structural Condition: Decaying	Remove tree.
T1020	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 9 Stem Diam(mm): 230 Spread (m): 2N, 3E, 3S, 3W Crown Clearance (m): 3 Lowest Branch (m): 4(W) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Ivy obscuring stem and main unions. Electricity cable through crown. Slightly sparse crown.	C2	Radius: 2.8m. Area: 25 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove tree.
T1021	Hazel *(Corylus avellana)*	Tree 5 stems	Height (m): 5 5 stems (mm): 100,100,100,100,100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Lowest Branch (m): 1(E) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Compact tree growing adjacent site entrance.	C2	Radius: 2.7m. Area: 23 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove tree.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
T1022	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 10 Stem Diam(mm): 240 Spread (m): 4N, 4E, 4S, 3W Crown Clearance (m): 2 Lowest Branch (m): 4(E) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Ivy obscuring stem and main unions. Deadwood in lower crown overhanging road. Good branch unions where visible.	C2	Radius: 2.9m. Area: 26 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove tree.
T1023	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 11 Stem Diam(mm): 240 Spread (m): 3N, 3E, 2S, 3W Crown Clearance (m): 4 Lowest Branch (m): 4(NW) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Ivy obscuring stem and main unions.	C2	Radius: 2.9m. Area: 26 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove tree.
T1024	Wych elm *(Ulmus glabra)*	Tree	Height (m): 10 Stem Diam(mm): 260 Spread (m): 5N, 3E, 3S, 4W Crown Clearance (m): 3 Lowest Branch (m): 4(W) Life Stage: Early Mature Rem. Contrib.: 10+ Years	Ivy obscuring stem and main unions. Dead twigs in top of crown indicating onset of Dutch elm disease.	C2	Radius: 3.1m. Area: 30 sq m.	Physiological Condition: Diseased Structural Condition: Fair	Remove tree.
T1025	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 18 Stem Diam(mm): 1000# Spread (m): 9N, 9E, 9S, 8W Crown Clearance (m): 2 Lowest Branch (m): 3(SW) Life Stage: Mature Rem. Contrib.: 20+ Years	Growing on bank adjacent road. Well formed buttresses. Unidentified FFB growing from cavity at 1m to east. 3 codominant stems at 1.5m spreading into broad open crown. Dead ivy obscuring main unions. Water shoots on inner crown. Good unions where visible. Good leaf cover.	B2	Radius: 12.0m. Area: 452 sq m.	Physiological Condition: Good Structural Condition: Fair	Pre construction: Root pruning on northeastern side where roots extend into proposed site. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
T1026	Common ash *(Fraxinus excelsior)*	Tree 2 stems	Height (m): 10 2 stems (mm): 240,230 Spread (m): 4N, 4E, 3S, 3W Crown Clearance (m): 1 Lowest Branch (m): 1(S) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Tree has fallen and righted itself. Natural bracing on codominant stems. Ivy obscuring stem and much of crown. Good vigour and leaf cover.	B2	Radius: 4.0m. Area: 50 sq m.	Physiological Condition: Good Structural Condition: Fair	Remove tree.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
T1027	Norway maple 'Variegata' *(Acer platanoides)*	Tree	Height (m): 8 Stem Diam(mm): 110 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Lowest Branch (m): 1(SW) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Partial reversion in much of crown.	C2	Radius: 1.3m. Area: 5 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: No action required. During construction: No action required. Post construction: No action required.
T1028	Golden king holly *(Ilex x altaclarensis)*	Tree	Height (m): 3 Stem Diam(mm): 100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Lowest Branch (m): 1(W) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing amongst scrubby elder.	C2	Radius: 1.2m. Area: 5 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
T1029	Elder *(Sambucus nigra)*	Tree	Height (m): 3 Stem Diam(mm): 100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing adjacent neighbouring garden, good leaf and flower cover.	C2	Radius: 1.2m. Area: 5 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
T1030	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 8 Stem Diam(mm): 200# Spread (m): 2N, 2E, 3S, 2W Crown Clearance (m): 1 Lowest Branch (m): 2(S) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing adjacent neighbouring property. Good leaf cover. Ivy obscuring stem.	C2	Radius: 2.4m. Area: 18 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: Sever ivy at base. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations
T1031	Common ash *(Fraxinus excelsior)*	Tree	Height (m): 7 Stem Diam(mm): 200# Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1 Lowest Branch (m): 2(S) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing adjacent neighbouring garden. Good vigour and leaf cover. Ivy obscuring stem.	C2	Radius: 2.4m. Area: 18 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: Sever ivy at base. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
T1032	Elder *(Sambucus nigra)*	Tree 4 stems	Height (m): 5 4 stems, avg.(mm): 100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Lowest Branch (m): 1(NE) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Growing at corner of adjacent garden . Good vigour.	C2	Radius: 2.4m. Area: 18 sq m.	Physiological Condition: Fair Structural Condition: Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans. Post construction: No action required.
T1033	Wild cherry *(Prunus avium)*	Tree	Height (m): 6 Stem Diam(mm): 200# Spread (m): 3N, 2E, 3S, 3W Crown Clearance (m): 2 Lowest Branch (m): 2(W) Life Stage: Early Mature Rem. Contrib.: 10+ Years	Ivy obscuring stem and main unions. Growing amongst elder and bramble.	C2	Radius: 2.4m. Area: 18 sq m.	Physiological Condition: Fair Structural Condition: Fair	Remove tree.

Key to Tree Survey Schedule

Ref.	Species	Full Structure	Measurements	Survey Notes	Retention Category	RPA	Tree Condition	Recommendations

Ref.	Reference number identifies the tree, tree group or hedge & corresponds with the plans e.g. T0301, H2.
Species	The common and botanical names are given for each tree.
Full Structure	Structure recorded e.g., tree, tree group, hedge, coppice, pollard, woodland and quantity within a group.
Measurements: Height	Estimated in metres.
Stem Diameter	Measured at approximately 1.5 meters above ground level, recorded in millimetres.
Number of Stems	Recorded from ground level or base of tree.
Crown Spread	Estimated in metres and given at cardinal compass points.
Life Stage	Refers to the age of the tree or tree structure & recorded as e.g.:
	Y = Young; SM = Semi-mature; EM = Early Mature; M = Mature; V = Veteran; D = Dead.
Estimated Remaining Contribution	<10 years; 10+; 20+; 30+; 40+
Survey Notes	Observations regarding tree condition, location, history, structure & vigour.
Retention Category	Each tree or tree structure is categorised as either **A**; **B**; **C**; **U** & sub-categories:
	1 = Arboricultural qualities; 2 = Landscape qualities; 3 = Cultural values (see Appendix C for further information).
RPA	Root protection radius (r) measured in metres from centre of tree (r= 12 x stem diameter at 1.5m).
Tree Condition	Categorises physiological and structural condition e.g. Good, Fair, Poor, Diseased, Decaying, Dead.
Recommendations	Management recommendations for trees within the development.

Cascade Chart for Tree Quality Assessment

Appendix C

TREES UNSUITABLE FOR RETENTION		
Category and 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 (eg, 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; see 4.5.7.*	

TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	**Criteria**			**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 (eg, the dominant and/or principal trees within an avenue.	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e, veteran trees or wood-pasture).	
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 (eg, 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 growing as groups or woodlands, such that they attract a higher collective rating than 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.	
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 in groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	

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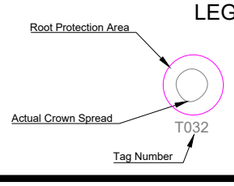
LEGEND

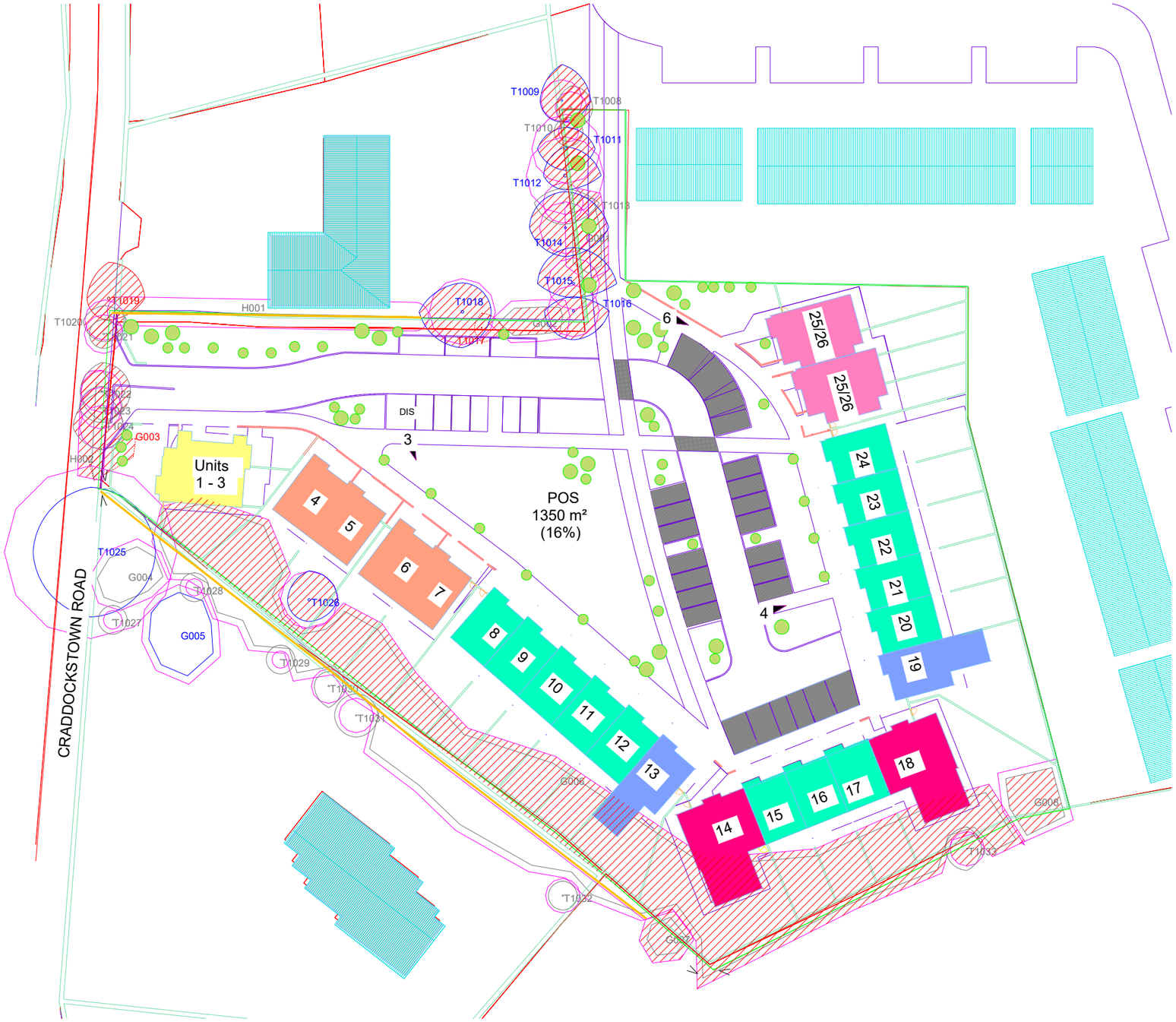


CATEGORY GRADE

- CATEGORY U
- CATEGORY A
- CATEGORY B
- CATEGORY C

DRAWING No	RP-2024-007 -TPP	STATUS
REV SUFFIX	REVISION DETAILS	DATE
Retained by	HAYES HIGGINS PARTNERSHIP / KCC	

DRAWN BY	DATE	SCALE	ENG CHECK	DATE
WD	20/06/24	NTS	RP	20/06/24
PROJECT	CRADDOCKSTOWN			SHEET SIZE
DRAWING TITLE	TREE CONSTRAINTS PLAN			A3



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TREE REMOVAL

LEGEND

Root Protection Area

Actual Crown Spread

T032

Tag Number

CATEGORY GRADE

CATEGORY U

CATEGORY A

CATEGORY B

CATEGORY C

TREE PROTECTION

DRAWING No	RP-2024-007-REV A -TPP	STATUS
REV SUFFIX	REVISION DETAILS	DATE
Retained by	HAYES HIGGINS PARTNERSHIP / KCC	

DRAWN BY	DATE	SCALE	ENG CHECK	DATE
WD	16/12/24	NTS	RP	16/12/24
PROJECT	CRADDOCKSTOWN			SHEET SIZE
DRAWING TITLE	TREE PROTECTION PLAN			A3