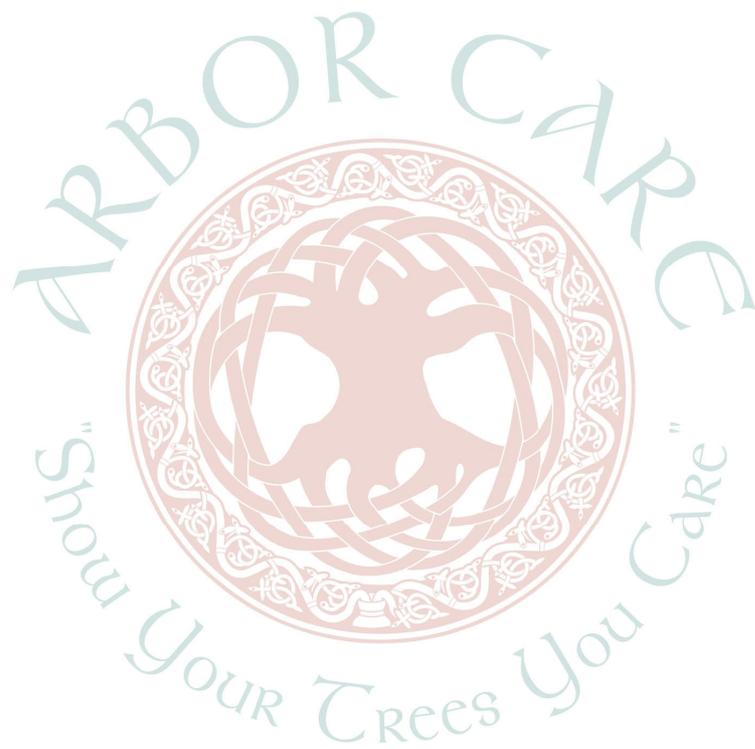




Professional
Consulting Tree Service



Unit 1A, Crossagalla Enterprise Centre,

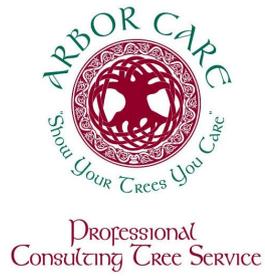
Ballysimon Rd., Limerick.

Telephone: (086) 3082808

Fax: (061) 400231

info@arborcare.ie

www.arborcare.ie



A Tree survey and Arboricultural Impact Assessment.

**For,
Montpeiler,,
Co. Limerick.**

**Prepared for,
Limerick City & County Council,
Merchants Quay,
Limerick.**

**Prepared by,
Arbor-Care (Ltd) Professional Consulting Tree Service,
Unit 1A, Crossagalla Enterprise Centre,
Ballysimon Rd., Limerick.
Telephone: (086) 3082808
Fax: (061) 400231
info@arborcare.ie
www.arborcare.ie**



1.0 Executive Summary.

Arbor-Care Professional Consulting Tree Service was retained by Limerick City & County Council to undertake, a tree survey, an arboricultural impact assessment and a plan of preservation for the trees contained within the grounds of a proposed development at the above location that may be impacted on as a result of the proposed development and associated works.

The surveyed trees contained within this report are located within the parameters of the proposed site. The site consists of a green field site with tree located in hedgerows along the perimeter and centrally located. There are few trees of quality on the site and it offer an opportunity to plant appropriate quality trees for the site

The preservation plan in this report is based on the British standard *BS 5837:2012 Trees in relation to design, demolition and construction*, this standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with structures. It sets out to assist those concerned with trees in relation to construction to form balanced judgements. The survey commenced on the 19th of April 2018.



2.0 Assignment.

1. To undertake a visual tree survey to, identify any potential impact the new development would have on the trees and visa versa.
2. To provide recommendations for their preservation and or removal.
3. Present a written report on the inspection of the trees
4. To provide a tree constraints plan highlighting which trees are to be removed and or retained.

2.1 Limits of the Assignment.

Unless otherwise stated tree inspections have been undertaken from ground level and using non-invasive techniques only. Comments on the condition and safety of any tree relate to the condition of that tree at the time of the survey. It should be recognised that tree condition is subject to change due to, for example the effects of disease, wind or nearby development works. Changes in land use are also significant in respect of risk assessment. Trees should therefore be inspected at intervals relative to identified site risks.

Constraints Table.

ITEM	RETAINED TREE PROTECTION DESCRIPTION
Tree works operations	<i>Tree work is a hazardous occupation. All tree work contractors should be required to provide evidence that they are competent to undertake the required works and are adequately insured. The contractor should also be asked to provide a site specific risk assessment prior to commencement of any tree works. All tree works should be in accordance with BS: 3998 :2010 'Recommendations for Treeworks'</i>
The type and location of tree protective fencing	<i>Shall be accordance with the specification in Appendix 1 and signed accordingly. It shall be located on the outer edge of the RPA as described in Table 1. In certain cases and subject to approval by a qualified arboriculturist, it is possible to undertake works within RPAs without compromising successful tree retention</i>
Earthworks and site levelling (storage of topsoil)	<i>Differing site levels across the site often require some levelling earthworks. These could affect retained trees and hedgerows situated around the edges of the site. Excavation within the retained tree and hedgerow RPA should be avoided to prevent tree root damage. Storage of removed topsoil should be located outside of the RPA of retained trees and away from those parts of the site allocated for soft landscaping</i>
Services location and excavations	<i>Where services are necessary within the RPAs of retained trees, trench less excavations techniques or trenches excavated by hand/compressed air lance should be used</i>
Protection/prevention of damage to retained tree canopies during construction	<i>The tree protective fencing will be securely positioned to resist intrusion into the RPA at ground level, but damage can still occur to the aerial parts of the tree. Crane position, usage and the installation of above ground services should not necessitate the need for detrimental or repetitive pruning to enable construction activities to occur. These will be located far enough away from retained trees so as not to cause damage.</i>
Generic constraint information; Site hut location/temporary toilets/siting of bonfires/location of contaminant storage and washout areas	<i>BS5837:2012 stipulates certain general requirements to be adhered to regarding the protection of retained trees. These are;</i> <ol style="list-style-type: none"> <i>1- The need for protective fencing</i> <i>2- No builders debris to be stored within the RPA</i> <i>3- No changes in surface level to occur beneath the crown spread (RPA</i> <i>4- Replanting should be undertaken to mitigate the loss of removed trees</i> <i>5- Site hut location and temporary toilets can be used to help define the outer edge of the RPA of retained trees</i>

3.0 Methodology.

An initial tree survey and visual condition assessment was on the 19th of April 2018. For the purpose of this report and in accordance with BS 5837 only trees with diameters of 75mm or greater were surveyed. Also in accordance with point 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups.

4.4.2.3

Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).

*NOTE The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. **avenues** or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories .*

The survey concentrated primarily on the significant trees located within the development (red line area, Fig 1) area. The objective of this survey was to gather information regarding the trees location on the proposed development site (Please refer to table 1) and determine the impact the proposed development may have on the trees. The survey commenced on the northern boundary and worked in a southerly direction.

Significant trees can be equated as those trees whose visual importance to the surrounding area are sufficient to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the trees age, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature.

All above parts of the trees were visually examined. Tree diameters (DBH) were estimated at 1.5 meter above grade as per standard arboricultural practice. Tree height was measured with the use of a clinometer (Where practical). A generalised system was employed to describe the overall health of the trees. The system uses a five tier rating scale with the following descriptors,

Note:

Specimen condition is based on a 5-tier rating system:

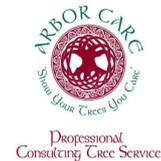
- Very poor-1-20%
- Poor- 21-40%
- Fair- 41-60%
- Good- 61-80%
- Very good 81-100%

Where 100% would be a perfect species phenotype.

Figure 1. Proposed site within the redline



Photo: Barrow Coakley Photography Tel: 087-2856527, 14th July 2017



4.0 Tree Preservation

Prior to any construction or demolition works on this site all trees destined for retention need to be protected by the use of protective barriers and or ground protection, fit for the purpose of ensuring the successful long-term preservation of the trees. In order for the retained trees to be adequately protected on the site a construction exclusion zone needs to be identified. This zone is calculated based on the root protection area (RPA), which is the minimum area in m² which should be left undisturbed around each retained tree. The RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter for a single stem tree and 10 times basal diameter measured immediately above the root flare for trees with more than one stem arising below 1.5m above ground level.

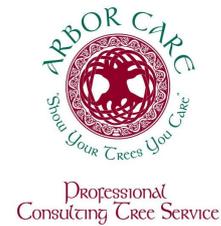
Number of Stems	Calculation
Single Stem Tree	$\text{RPA (m}^2\text{)} = \frac{\{\text{stem diameter (mm) @ 1.5m x 12}\}^2 \times 3.142}{1000}$
Tree with more than one Stem arising below 1.5m above Ground level	$\text{RPA (m}^2\text{)} = \frac{\{\text{Basal Dia. (mm) x 10}\}^2 \times 3.142}{1000}$

Note

The Calculated RPA should be capped to 707m², e.g. which is the equivalent to a circle with a radius of 15m or a square with approximately 26 m sides.

Maintenance

All trees that are destined for removal shall be removed prior to occupation in the interest of health and safety. Any tree remedial works that are required shall also be undertaken prior to any construction or demolition activity on the site. All the above shall be carried out by qualified and insured tree surgeons.



5.0 Protective Barriers and Ground Protection.

Trees that are destined to be retained must be protected by barriers and or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected. Barriers should be fit for the purpose of excluding construction activity. In most cases barriers should consist of a scaffold framework (Refer to Appendix 1) comprising a vertical and horizontal framework, well braced to resist impacts. To ensure the protective barriers are respected, clear concise signage must be affixed to the barrier in an unrestricted easily viewed location. The signage must state the following;

- No construction activity is to take place within the R.P.A. (unless pre-agreed the arborist)
- No materials of any kind are to be stored within the R.P.A.
- No "Spilling out" of materials shall take place within the R.P.A.
- No fires are to be lit within the R.P.A.

The protective barriers shall remain in an undisturbed condition and only removed on completion of all construction activity finished grading and sodding. Any breach of the protective fence shall be reported to the consulting arborist. "Tree protection fencing shall follow the line of the RPA in general. However, should there be a requirement to encroach on the RPA, this shall be done with the advice of the Arborist".

Ground Protection

For pedestrian movements within the R.P.A. the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading.



**5.1 Predicated Impact of The Proposed Development.
(Arboricultural Impact Assessment) (A.I.A.)**

There are few trees of significance and quality on this site. At the time of the survey the development plans were not know therefore the impact on the trees is not known.

6.1 Arboricultural Impact Assessment. (A.I.A) (Please refer to tree constraints plan)

A)

Trees and that are suitable for retention shall be clearly identified by the use of a numbered aluminium tag affixed to the main stem they will also be clearly marked on a plan with a continuous outline and colour coded as applicable.

B)

Trees selected for removal shall be clearly identified by the use of a numbered aluminium tag affixed to the main stem, they will also be marked on a plan with a dark red dashed outline.

The precise location for the erection of protective barriers and any other relevant physical protection measures including ground protection to protect the RPA shall be marked as a construction exclusion zone on the plan.



Comments/Terminology.

Tree Categorization. (Reference to Table 1-Cascade chart for tree quality assessment) of Bs. 5837 2012 should be reviewed for further information.

Category U

This category signifies those trees that are in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

Category A.

Those trees of a high quality and value, in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)

Category B

This category signifies those trees of a moderate value and in such a condition as to be able to make a substantial contribution (A minimum life expectancy of 20 yrs is suggested)

Category C

This category signifies those trees of a low quality and value that are currently in an adequate condition to remain until new planting could be established (A minimum life expectancy of 10yrs is suggested), or young trees with a stem diameter below 150mm. Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.



Sub-Categories

1. Mainly Arboricultural values

Trees which are particularly good examples of their species, especially if rare or unusual, or essential components of groups.

2. Mainly landscape values

Trees that might be included in the high category, but are down graded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)

3. Mainly cultural values, including conservation

Trees, group or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees)

Terminology.

Deadwood-Wood/tissue that has become dysfunctional,

Minor deadwood-dead wood with a diameter less than 100mm

Moderate deadwood-deadwood with a diameter between 100-200mm

Major Deadwood-deadwood with a diameter greater than 200mm

Age Class:

Young: A tree, which has been planted in the last 10 years.

Semi -mature A tree that is less than 1/3 the expected height of the species in question.

Early mature: A tree, which is approximately 2/3's the expected height of the species in question.

Mature: A tree that has reached the expected height of the species in question, but still increasing in size.

Over mature: A tree at the end of its life cycle and the crown is starting to break up and decrease in size.

Table 1. Tree Inventory, Montpelier.

Tree	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Category	R.P.A. Meters Radius	Recommendations
2846	<i>Cupressus x Leylandii</i> Leyland cypress	M	250	10	N=1 S=1 E=3 W=3	1	Fair	A row of 5 mature cypress, displaying fair condition, a non native evergreen of low ecological value	C2	3.5m	Retain
2847	<i>Crataegus monogyna</i> Hawthorn	SM	200	5	N=2 S=2 E=2 W=2	1	Fair	A semi-mature hawthorn in fair condition	C2	3m	Retain
2848	Hawthorn hedge	SM	180	2	N=1 S=1 E=1 W=1	1	Fair	A low lying hedgerow consisting of scrub hawthorn and gorse	C2	2m	Retain
2849	<i>Acer pseudoplatanus</i> Sycamore	Y	120	3	N=1 S=1 E=1 W=1	1	Good	A young self-seeded sycamore in good condition	C2	2m	Retain
2850	Sycamore	SM	200	4	N=1 S=1 E=1 W=1	1	Good	A semi-mature self-seeded sycamore in good condition	C2	2m	Retain
2851	Hawthorn hedge	SM	180	2	N=1 S=1 E=1 W=1	1	Fair	A low lying hedgerow consisting of scrub hawthorn and gorse	C2	2m	Retain

Table 1. Tree Inventory, Montpelier.

Tree	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Category	R.P.A. Meters Radius	Recommendations
2852	Sycamore	M	250	8	N=2 S=2 E=2 W=2	1	Good	An early mature sycamore in good overall condition	C2	3.5m	Retain
2853	<i>Fraxinus excelsior</i> Ash	M	250	8	N=2 S=2 E=2 W=2	1	Good		C2	3.5m	Retain
2854	Sycamore	M	250	8	N=2 S=2 E=2 W=2	1	Good	An early mature sycamore in good overall condition	C2	3.5m	Retain
2855	Sycamore	M	250	8	N=2 S=2 E=2 W=2		Good	An early mature sycamore in good overall condition	C2	3.5m	Retain
2856	<i>Fagus sylvatica</i> Beech	M	850	18	N=6 S=6 E=6 W=6	1	Good	A large mature Beech tree displaying a good overall condition, it is the most dominant tree on the site	B2	9.5m	Retain
2857	Sycamore	M	400	12	N=2 S=2 E=3 W=2	1	Good	A large mature Sycamore tree displaying a good overall condition.	B2	5m	Retain

Table 1. Tree Inventory, Montpelier.

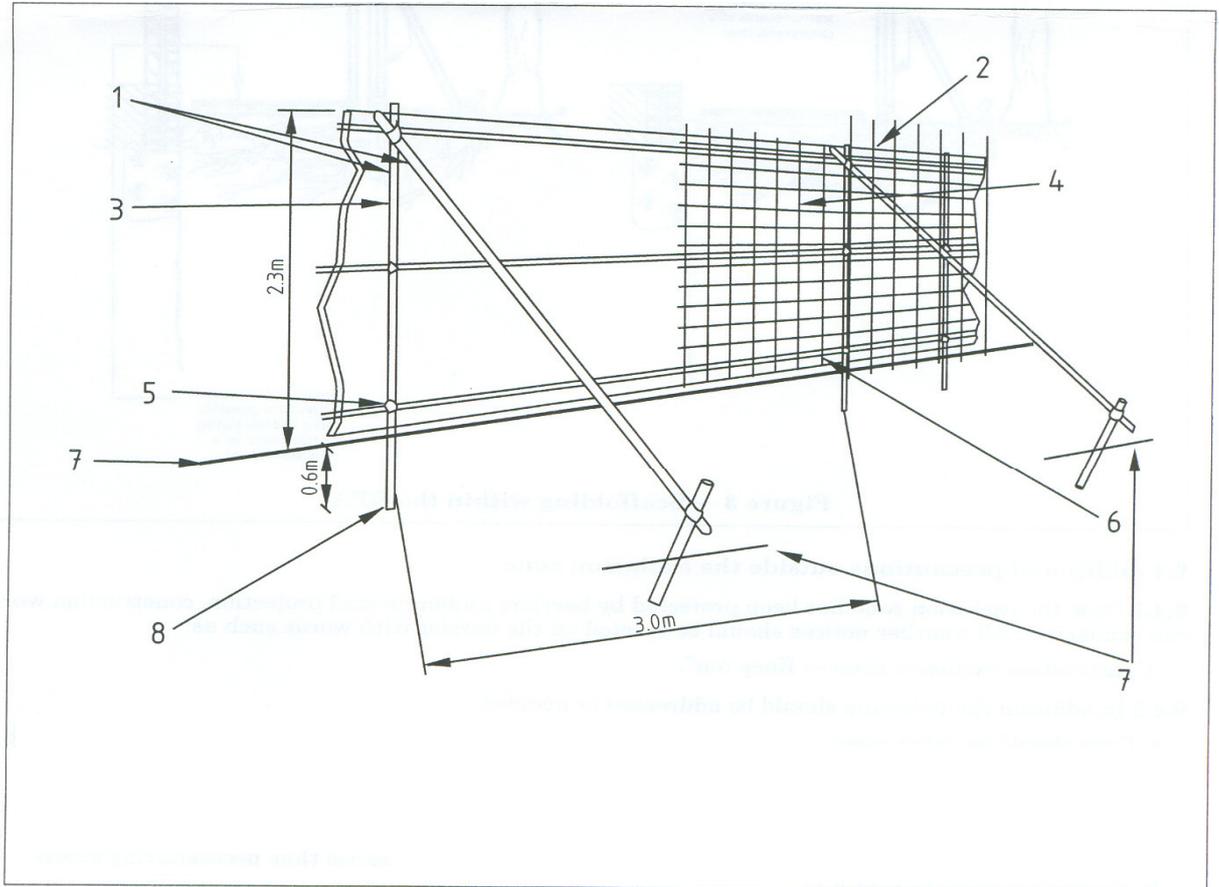
Tree	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Category	R.P.A. Meters Radius	Recommendations
2858	Sycamore	M	400	12	N=3 S=3 E=3 W=3	2	Good	An mature sycamore in good overall condition	B2	5m	Retain
2859-2860	Hedgerow	M	250	8	N=2 S=2 E=2 W=2	1	Good	A low lying scrub hedgerow consisting of hawthorn and sycamore. A fragmented hedgerow that is heavily clad in ivy and has suffered basal damage from livestock	U		
2861-2862	Hedgerow	M	250	8	N=2 S=2 E=2 W=2	1	Good	A low lying scrub hedgerow consisting of hawthorn and sycamore. A fragmented hedgerow that is heavily clad in ivy and has suffered basal damage from livestock	U		
2863	<i>Ilex aquifolium</i> Holly	SM	200	3	N=1 S=1 E=1 W=1	1	Fair	A holly tree that is heavily clad in ivy	C2	3m	Retain
2864	<i>Sycamore x 3</i>	SM	200	3	N=1 S=1 E=1 W=1	1	Fair	Represent 3 sycamore in fair condition they are heavily clad in ivy	C2	3m	Retain
2865	<i>Salix caprea</i> Goat willow cluster	M	400	8	N=3 S=3 E=3 W=3	1	Fair	A cluster of mature Goat willow .	C2	5m	Retain

Table 1.

Tree Inventory, Montpeiler.

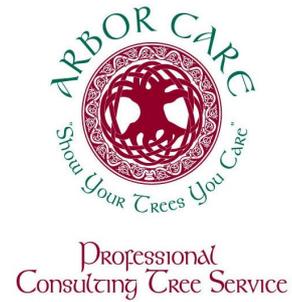
Tree	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition		Category	R.P.A. Meters Radius	Recommendations
2866	<i>Platanus x hispanica</i> London Plane	M	670	16	N=4 S=4 E=5 W=5	2	Good	A large mature London plane displaying a good over all condition. Due to its prominent location it has a high amenity value	A2	5m	Retain
2867	Sycamore x 3	M	400	8	N=2 S=2 E=2 W=2	1	Fair	Represents three mature sycamores that have been heavily pruned in the past which limits their amenity value	B2	5m	Retain

Appendix 1. - Protective Barrier



The above displays an example of a suitable protective barrier as recommended by *BS. 5837 2012 Trees in Relation to Construction*

1. Standard scaffold poles
2. Uprights to be driven into the ground
3. Panels secured to uprights with wire ties and where necessary standard scaffold poles
4. Weld mesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on the inside of fencing to avoid easy dismantling
7. Ground level
8. Approx. 0.6m driven into the ground



This report was prepared by,

Michael Garry,

Arbor Care (LTD), Professional Consulting Tree Service

BS.c Arboriculture & Amenity Forestry

P.grad. Ecological Assessment

Dip. Arboriculture

International Society of Arboriculture (I.S.A.) Certified Arborist.

Yours in Conservation,

Michael Garry.

www.arborcare.ie

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