Arboricultural Assessment

(Tree survey)

To assess the trees

On the site at

Harbour Field
Maynooth
Co. Kildare

February 2020

J M McCONVILLE + ASSOCIATES
Arboricultural Consultants

Grange Dunboyne Co. Meath

Phone +353 1 825 1718
www.joemcconville.com

PART ONE – ARBORICULTURAL ASSESSMENT
Introduction

The purpose of this report is to set out the findings following the inspection of trees on site at, **The Harbour Field, Maynooth, Co. Kildare** and set out their condition. The survey work was undertaken 12th August 2019 by the undersigned a qualified arboricultural consultant. The term of reference for the report is a planning application on the site. The following categories have been used within the tree report tables and, where appropriate, the criterion used to define each category is defined.

- **Tree No**. : refers to the identification tag attached to a tree [also identified as such on the accompanying survey drawings]

- **Species** : refers to the common and scientific name given to the tree.

- **Stem diameter**: refers to the diameter of the tree stem in millimetres, as measured at 1.5 metres above ground level and above the root flare for multi-stemmed trees.

- **Height** : refers to the total height of the tree in metres. (Heights measured with a TruPluse© 200)

- **Crown spread** : refers to the width of the crown in metres, measured at each cardinal point on the compass. [Dimensions marked with # are estimates as per 4.4.2.6 c) – BS 5837:2012]

- **Condition** : refers to the physiological condition of the tree as a whole described as:
  Good – Full healthy canopy but possibly including some suppressed or damaged branches
  Fair – Slightly reduced leaf cover, minor dead wood or isolated major dead wood
  Poor – Overall sparse leafing or extensive dead wood

- **Age** An estimation of the age of the tree described as;
  V- Veteran, trees, which by recognized criteria, show features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to individuals surviving beyond the typical age range for the species concerned.
  OM – Over Mature, trees reaching the end of their life, in decline and senescent.
  M – Mature, fully grown, with only small annual increments.
  EM – Early Mature, one-third to two thirds of total life expired.
  Y – Young, recent planting, with up to one third of total life expired.

- **Remarks**: Descriptive comments about the health (physiological) or form (structural) of the tree, its environment or external influences and may include preliminary management recommendations.

Category grade
- **U** -Those trees in such a condition that any existing value would be lost within 10years and which should be in the correct context, be removed for reasons of sound arboricultural management.
- **A** –Those trees of a high quality and value in such a condition as to be able to make a substantial contribution.
- **B** - Those trees of a moderate quality and value in such a condition as to be able to make a significant contribution.
- **C**- Those trees of a low quality and value currently inadequate condition to remain until new planting could be established, or young trees with a stem diameter below 150mm

- **Estimated remaining contribution in years (ERC):** Expressed as less than 10, 10+, 20+, more than 40

Glossary of terms used:

Basal: The base of the tree close to the ground, (basal shoots are those emanating from the base).

Crown (canopy): The leaves and branches of a tree.

Co-dominant: Stems or branches of near equal diameter, often weakly attached.

Decay: Degradation of wood by fungi and/or bacteria.

Defect: Any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Dieback: The death of part of a plant, usually starting from a distal point and often progressing in stages.

Epicormic : Pertaining to shoots or roots, which are initiated on mature woody stems; shoots may form in this way from dormant buds or they may be adventitious.

Dysphotic zone : A zone within the canopy which does not have enough light to carry out photosynthesis.

Included Union*:* bark of adjacent parts of a tree (usually in forks, acutely angled branches or basal flutes), which is in face-to-face contact, so that there is weakness due to the lack of a woody union.

Lean*:* Departure of the trunk from the vertical.

Scaffold limbs: The branches, which form the main framework of the crown of a tree with a decurrent growth habit.

Shoot*:* A shoot derived from a dormant or adventitious bud on the main stem or branch.

Stub/peg: A short section of a branch, which may have, been left after previous pruning or storm damage.

Wound: Injuries on the surface of a trunk or branch.

Full: A canopy, which extends to the ground or nearly to the ground

Natural suppressed deadwood: Deadwood in conifers, which died as the crown height extended and the lower branch no longer have a function in the production of foliage.

Pathogens*:* Fungal and /or bacterial infections, which degrade the wood and render trees liable to failure

Wound wood: Wood with atypical anatomical features, formed in the vicinity of a wound or the occluding tissue around a wound

Hazard Limb*:* An upwardly curved part in which strong internal stresses may occur, cause wood to crack

Burr*:* Woody protuberances, especially those derived from the mass proliferation of adventitious buds.

Root protection area (RPA) : layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

Survey Results

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
								The survey start at the south west part of the site by the slipway to the canal harbour and continues anti-clockwise around the site.	
0064	Lawson cypress *Chamaecyparis lawsonina*	10.2	250 250	N 3.0 S 4.0 E 3.0 W 3.0	Poor	EM	10+	A tree with co-dominant stems, its roots have bee exposed by soil erosion by a path between the wall and steel containers. It has a bark wound on one stem, with no decay. Beside it is a dead Birch.	C
0065	Birch *Betula pendula*	1.0	300	N 4.0 S 3.0 E 3.0 W 4.0	Fair	M	20+	This tree has a distorted lower stem, its canopy is suppressed by the adjoining Lawson cypress.	B
0066	Birch *Betula pendula*	7.7	250	N 3.0 S 4.0 E 3.0 W 3.0	Fair	M	20+	This tree's stem bifurcates, it has co-dominant leaders and has good form.	B
0067	Birch *Betula pendula*	9.5	300	N 5.0 S 5.0 E 5.0 W 5.0	Fair	M	20+	A tree with a single stem, with multiple scaffolds, it has good form and some minor tip die back.	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
0068	Birch *Betula pendula*	9.6	400	N 6.0 S 6.0 E 5.0 W 5.0	Fair	M	20+	This tree has a main stem and a sub dominant stem. It has abrasions on exposed roots. It has an open canopy with a pocket of decay on the lower stem with good wound wood.	B
0069	Beech *Fagus sylvatica*	12.0	450	N 6.0 S 4.5 E 5.0 W 5.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0070	Oak *Quercus x hybrid*	12.0	350	N 5.0 S 5.0 E 4.0 W 5.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The wide canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0071	Beech *Fagus sylvatica*	9.5	400	N 6.0 S 5.0 E 5.0 W 2.0	Fair	M	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches which is shared with tree 0070, forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
0072	Beech *Fagus sylvatica*	12.0	400	N 6.0 S 4.5 E 5.0 W 3.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0073	Field maple *Acer campestre*	12.0	350	N 5.0 S 4.0 E 3.0 W 3.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0074	Field maple *Acer campestre*	12.0	350	N 5.0 S 4.0 E 4.0 W 2.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches which are distorted. They form a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0075	Field maple *Acer campestre*	12.0	400	N 7.0 S 5.5 E 6.0 W 3.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches which are very distorted. They form a squat tree with no dominant leader. It has very minor	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
								scattered deadwood, it has good vigour.	
0076	Field maple *Acer campestre*	9.4	350	N 4.0 S 3.5 E 3.0 W 3.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The weak canopy is formed by multiple scaffold branches which are distorted. They form a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0077	Field maple *Acer campestre*	11.0	400	N 6.0 S 5.0 E 7.0 W21.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches which are distorted. They form a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0078	Beech *Fagus sylvatica*	11.0	400	N 5.0 S 4.5 E 4.0 W 1.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short leaning stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader, suppressed by tree 0077. It has very minor scattered deadwood, it has good vigour.	B
0079	Beech *Fagus sylvatica*	11.0	300	N 5.0 S 4.5 E 4.0 W 2.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
								good vigour.	
0080	Beech *Fagus sylvatica*	10.0	300	N 4.0 S 4.5 E 6.0 W 2.0	Fair	EM	20+	Growing beside a short retaining wall on the top of a slope/embankment. It has a short stem. The canopy is formed by multiple scaffold branches and forms a squat tree with no dominant leader. It has very minor scattered deadwood, it has good vigour.	B
0081	Beech *Fagus sylvatica*	8.7	300	N 3.0 S 3.0 E 3.0 W 3.0	Fair	EM	20+	A tree with a short bole and multiple scaffold branches, it has a dense branch structure and a slight lean.	B
0082	Beech *Fagus sylvatica*	6.0	100-150	N 3.0 S 3.0	Fair	EM	40+	A line of trees planted as a hedge, they have been allowed grow freely, they have been pruned in the past. They could be reshaped into a formal hedge. They have some suppressed deadwood.	B
0083	Ash *Fraxinus excelsior*	7.5	100-150 X 4	N 3.0 S 2.0 E 3.0 W 1.0	Poor	EM	<10	A self-seeded tree with four stems. They have high crown with scattered deadwood and it is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C
0084	Ash *Fraxinus excelsior*	7.0	150	N 3.0 S 2.0 E 0.0 W 3.0	Fair	EM	10+	A tree with a single stem, it has a high crown with a shared canopy with tree 0085 and is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
0085	Ash *Fraxinus excelsior*	7.0	100	N 2.0 S 2.0 E 0.0 W 0.0	Fair	EM	10+	A tree with a single site, it has a distorted high narrow upper crown, and is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C
0086	Ash *Fraxinus excelsior*	7.0	250	N 5.0 S 4.0 E 5.0 W 5.0	Fair	EM	10+	This tree has a main stem with four main scaffold branches, it has shed the top of one stem and has branch stubs and truncated branches. It is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C
0087	Ash *Fraxinus excelsior*	7.0	100	N 3.0 S 0.0 E 0.0 W 4.0	Poor	EM	10+	A tree with a distortred stem, it has a one sided crown being suppressed by tree 0086. It is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C
0088	Ash *Fraxinus excelsior*	7.0	150	N 3.0 S 0.0 E 3.0 W 1.0	Fair	EM	10+	This tree has a main stem and a sub-dominant stem forming a high crown, it has deadwood and truncated branches in its lower stem. It is infected with the fungus Ash die back (*Hymenoscyphus fraxineus*).	C
0089	Birch *Betula pendula*	10.8	300	N 2.5 S 4.5 E 1.0 W 3.0	Good	M	20+	Growing along the edge of a path at the old bridge over the canal. It has good form. It has a dense branch structure. It has small broken branch which is hung up in the crown. It has good vigour and vitality.	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
0090	Beech *Fagus sylvatica* Hazel *Corylus avellane*	10.0 7.0	120	-	Good	EM	40+	A stand of trees and bushes located between the access path and the canal tow path, it is enclosed by a stone wall. The trees have good vigour and vitality. The Hazel are multi-stemmed. The Beech have multiple scaffolds. The stand provides a dense screen along the paths. The beech have some minor deadwood.	B
0091	Beech *Fagus sylvatica*	6.7	200	N 4.0 S 3.0 E 4.0 W 2.0	Good	EM	40+	Growing at the edge of the path to the old canal bridge. It has a single stem which bifurcates to form multiple scaffolds. It has a dense branch structure. It has good form and vitality.	B
0092 - 0096	*Goat Willow Salix caprea* White willow *Salix alba*	11.5	200-300	N S E W	Poor	M	10+	A dense stand of self-seeded trees. They have multiple stems with weak canopies with crown die back and tip die back. They have dense ivy cover and have low vitality. Within the group is a White willow, tag 0095, it has a leaning stem with large deadwood and die back and a weak canopy. If the stand is to be retained it should be managed as a coppice.	C

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
G. A	Mixed	10.0-11.0	120		Good	EM	40+	Between the Straffan Road and the path is an embankment planted with a mix of trees. Species include Rowan , Beech, Lime, Oak, Pine, Hazel and Field maple. The majority of trees are still at the original planting spacings. Some have been suppressed and have died. The plantation has been reduced in width during the recent upgrade along Straffan Road.	C
G . B	Mixed	5.0-10.5	100-150		Fair	EM	40+	Between the path by the retaining wall, on an embankment to the Straffan Road is a planation of Ash, Oak, Norway maple, Beech, Lime and Hawthorn. They remain at the original planting spaces and have not been thinned. The beech have full canopies, the Norway maple are tall and drawn up, some are suppressed by adjoining stronger trees. As are some of the Oak. The Ash are infected with Ash die back (*Hymenoscyphus fraxineus*).	C

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
								Along the Northern boundary is a area of recently planted trees.	
G. C	Rowan *Sorbus aucuparia* Crab Apple *Malus sps*. Cherry *Prunus sps.*	-	90 70 60	-	Fair	Y	40+	This tree have been recently planted, along the back of the plantation are ten Rowan, the support stakes are attached. To the front are ten Crab apple the support stakes are attached. They are weak canopies with sparse foliage cover. After the access track to the scout hall are twelve recently planted Cherries, two of which have failed and are dead. The support stakes are attached. The area has vegetation around the base of the trees which appears to be restricting their establishment.	C
0097	Small-leafed Lime *Tilia cordata*	22.0	800	N 7.0 S 7.0 E 7.0 W 6.0	Good	M	40+	This tree has a dense canopy and a dense branch structure. Old basal suckers have been removed and are starting to regrow. It has minor tip die back. There is a building at its base.	B
0098	Small-leafed Lime *Tilia cordata*	20.0	700	N 6.0 S 6.0 E 7.0 W 5.0	Good	M	40+	A tree with a single stem, it has multiple scaffolds forming its dense canopy. It has minor scattered deadwood. It has basal suckers which have been cut back. It has a wound on its stem with good wound wood. Between 0097 and 0098 is a recently planted Lime which has established well.	B

Tree no.	Species	Height (m)	Stem dia. (mm)	Spread (m)	Condition	Age	ERC	Remarks	Grade
0099	Small-leafed Lime *Tilia cordata*	19.5	800	N 6.0 S 6.5 E 7.5 W 6.5	Fair	M	40+	A tree with a single stem, it has multiple scaffolds forming its dense canopy. It has minor scattered deadwood. It has basal suckers which have been cut back and have some regrowth. It has a wound on its stem with good wound wood. Between 0099 and 0100 is a recently planted Lime which has established well.	B
0100	Small-leafed Lime *Tilia cordata*	20.0	800	N 5.0 S 5.0 E 6.0 W 5.0	Fair	M	40+	A tree with a single stem, it has multiple scaffolds forming its dense canopy. It has minor scattered deadwood. It has scattered large truncated branches in its lower crown. It has a small wound on its stem, it has decay on buttress roots. There are some regrowth of basal suckers.	B

Assumptions and Limitations

This tree survey was carried out from the ground, no invasive or destructive evaluation techniques were used; all findings observations and recommendations are based on the knowledge and experience of the undersigned a qualified Arboriculturalist. Information contained in this report covers only those items that were examined and reflects the condition of those items at the time of the inspection.

Findings are based on a visual report from ground level only and it should be borne in mind it is subject only to faults visible at the time of inspection, certain pathogens only produce seasonal fruiting bodies and consequentially may not have been noted during this assessment.
All trees should be monitored on a regular basis for signs of defects and should be reported to a person qualified to diagnose them and to recommend treatment.

In the event of adverse weather conditions, there is the possibility of any tree, despite having a good report, falling over or suffering crown damage. In the event of a falling tree causing damage to residential or non residential buildings in their proximity, or to any person, any property public or private, or any mechanical vehicle or otherwise no liability will attach to this firm.

There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in question may not arise in the future. The author takes no responsibility for any actions taken by the landowner or their agents by reasons of this report unless subsequent contractual arrangements are made.

This report is intended solely for the benefit of the parties to whom it is addressed and no responsibility is extended to any third party for the whole or any part of its contents. All trees mentioned in this report should be subject to reassessment every two years to assess physiological and environmental changes.

PART TWO - ARBORICULTURAL IMPACT ASSESSMENT

General Description of Site and Surroundings

The site is comprised of large open field, to the north is a link path with a stand of recently planted trees. To the east is a boundary wall with a stand of Willow along the southern end. East of the wall is a path and an embankment to the Straffan Road, in this area are two stands of young trees. Along the southern boundary are a line of Beech, Field Maple, Birch and a single Oak and Cypress. In the south east corner by the access paths are some young trees, ash, Beech, and Hazel. The main part of the site is open grass land with two enclosed play areas. It the north east corner of the site are four mature limes which are at the south end of Leinster Street.

Description of Proposed Development

The proposal is to redevelop the existing park, with a new network of paths, increased play areas, provision of skate park facilities, formal lawns, terraced seating, and the removal of existing berm/division between the park and the canal to allow for a redeveloped boardwalk adjacent to the Royal Canal.

Designations Relating to Trees

There are no Tree Preservation Orders on the site.

Implications of Proposed Development

The current proposal under consideration has the following impact on the existing trees.

Summary Table of survey trees

Grade	**Total No.**	**No. to be removed**	**% of all trees (40)**
U (worst – remove)	0	0	0

Grade	**Total No.**	**No. to be removed***	**% of grade**	**% of all trees (40)**
'V' Veteran	0	0		
'A' (best quality)	0	0		
'B' (moderate quality)	25	18	72%	45%
'C' (low quality)	15	12	80%	30%
Total	**40**	**30**		**75%**

Loss of Trees

The following trees will have to be removed due to a direct impact;

(2) Indirect Impacts

Changes in Ground Level / Changes in Ground Surface within Root protection area (RPA).

Trees 0067 to 0081 are growimg on a bank, they have stunted growth and are squat poorly formed canopies, they are being removed to facilitate the change in grounds levels and integrate the park and the canal bank.

Services

No trees are being impacted for new underground services.

Condition

Trees 0083 to 0088 are being removed as there are infected with Ash die back, (*Hymenoscyphus fraxineus*). Trees 0092 to 00096 which comprise a stand of willow are in poor condition and are not suitable for their location.

Change in Site Use and Tree Management Implications

Above ground constraints

The retained trees are in locations where they will not be affected by the proposed redevelopment.

Potential Root Damage to Infrastructure

Modern construction techniques, soil types together with the species and age of the retained trees and their location make damage to infrastructure unlikely.

Potential Nuisance

The proposed redevelopment is being constructed within and existing public park, there will no risk of potential nuisance from retained trees that might cause concerns and a requirement to remove them. All retained trees will have appropriate remedial tree surgery works, to remove all deadwood and potential hazard branches from their canopies prior to the development being occupied and will have normal ongoing arboricultural management.

Construction Implications

General precautions in storage or mixing of materials that may be injurious to trees will need to be taken. All toxic materials, (cement, mortar, bitumen, diesel, bonding agents, etc) will be stored 10m from root protection areas. No wash out facilities will be provided for ready mix concrete/mortar deliveries. All fuels stored on site will be bunded to prevent spillage or leakage.

Proposals for tree management

All retained trees will have necessary remedial tree surgery to ensure there are no hazard branches, deadwood and weak limbs. All retained trees will be subject to regular inspections. Trees on the embankment along the Straffan Road are to be thinned and any infected Ash removed. Recently planted trees to the northern boundary are to be replanted as is necessary.

PART THREE -ARBORICULTURAL METHOD STATEMENT

Introduction

This document sets out the methodology for all proposed works that affect trees on and adjacent to the site. Compliance with this method statement will be a requirement of all relevant contractors associated with the development proposals.
Copies of this document will be available for inspection on site. The developer will inform the local planning authority within twenty-four hours if the arboricultural consultant is replaced.

The contractor shall take all precautions to ensure that any trees, which are to be retained, shall remain undisturbed and undamaged.

All works to trees and all operations adjacent to trees should be undertaken in accordance with the Method Statement. The contractor shall undertake no works to trees unless instructed by the Contract Administrator. All works within or close to the protected tree zones are to be supervised by the appointed Consultant Arboriculturalist. Two working days notice of intention to undertake such works to be given prior to any works commencing.

Root Protection Area

In accordance with the Method statement and as per the issued drawings protective fences shall be erected were necessary before the commencement of any works on site (other than remedial tree works and erection of the boundary fence). The area within the tree fencing should be clearly identified with signage as the 'Protected Tree Zone'. The local planning authority will be notified in writing once the fencing is in place. Strictly no access should be permitted to this zone unless instructed by the CA. The appointed Consultant Arboriculturalist should be notified of any works or access to this zone. The fencing will remain in place until completion of the main construction phase and then only removed with the consent of the local planning authority to permit completion of the scheme.

Other than works detailed within this method statement or approved in writing by the local planning authority, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing. No fires should be lit close to or within 20 metres of the trunk of any tree that is to be retained. No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained.

Code of Practice for the preservation of trees

The following code of practice is intended for the preservation of existing trees. These guidelines will help sustain vigour and minimise adverse growing conditions, for trees set out for retention.

This code will be brought to the attention of all site personnel including Main Contractor, sub-contractors and engineering specialists associated with the project. As appropriate this method statement should be translated. All operations are to be in accordance with BS 5837: 2012, *Trees in relation to design, demolition and construction*. The main contractor should purchase and make available on site a copy of the above.

Prior Notice and Tree removal

All necessary tree works are to be undertaken prior to the commencement of any other works on site. Trees must only be removed with the necessary licenses (*Forestry Act 2014*)[1] or permits. All necessary licenses and permits should be inspected by the appointed Consultant Arboriculturalist prior to commencement of works.

The Arboricultural Consultant will:

- Liase with the relevant authorities during the project.
- Constantly monitor the project with regard to tree health to ensure that no damage is caused to the subject trees during the operational works.
- Report any negligent damage to trees, which will prejudice their health.
- Monitor works carried out by the Arboricultural Contractor and Main Contractor within the 'Root Protection Area'.

[1] Note that under the Forestry Act 2014, no felling licence will be required on receipt of planning permission.

Hard Landscaping within the protection zone

Where permanent hard landscaping is to be provided within root protection zones, special measure shall be implemented. All existing hollows/ drains shall be filled with 50mm crushed stone, with no fines, and then over laid with geo fabric and a cellular confinement system. The path will be worked around the stems of existing retained trees, so as to preserve existing ground levels. Paving within root protection areas shall be in accordance with APN 12 (2007). See appendix 2 for details.

Soft Landscaping within Exclusion Zones
Preparation of ground in these areas will be carried out under the supervision of the arboricultural consultant.

Guidelines for Root Pruning:

- Roots smaller than 25mm diameter may be pruned back, roots with a diameter greater should only be cut following consultation with an arboriculturist.
- Roots should be cut cleanly after excavation to promote callus formation and wound closure.
- Exposed roots to be protected where an area of work is to be left open, particularly along the face of the excavation for the underground car parking. In winter, exposed roots are to be wrapped with dry sacking overnight.
- In summer, exposed roots are to be covered with damp sacking at all times. A suitable irrigation / drip feed system should be installed to keep sacking wet at all times.
- Back filling materials used around roots are to be of a fine granular material with no toxins and not susceptible to frost heave.

Offences and Penalties
Any damage whatsoever, caused to the protected trees shall be notified to JM McConville + Associates, so that the damage can be assessed and rectified and the main contractor subject to financial penalty as per the Conditions of Contract. Value of damaged tree will be assessed using the 'Helliwell System'.

Supervision and Monitoring
The arboricultural consultant will be responsible for monitoring of all arboricultural works and issuing a certificate of practical completion.

In addition, the arboricultural consultant will inspect the protective fencing and monitor any works within exclusion zones.

A record of site visits will be maintained for inspection on site and copies forwarded to the developer / agent and to the local planning authority. The Contractor shall not fell any trees under any circumstances. All works within the protected tree zones are to be supervised by the arboricultural consultant.

Tree Protection Barrier Fencing

Tree protection barriers are to be in accordance with BS 5837:2012, clause 6.2. Barrier fencing to be 2.0 m high, comprising of 'Herras' style fence, each panel to be secured to the adjoining panel fixed to scaffold poles in with a minimum of 2 anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels are to be supported by stabilizers struts on the inside. Barrier fencing is to be installed to an agreed alignment. The Alignment is to be marked out on site and approved by the arboricultural consultant prior to erection of the barrier fencing. 'Construction Exclusion Zone' signage to be securely attached to the fence. Barrier fencing is to be maintained by the main contractor for the duration of the contract. All damage to be reported immediately to the Arboricultural consultant. Damaged fencing is to be repaired within 2 hours of the damage occurring to the satisfaction of the Arboricultural consultant.

All site operations in the vicinity of the damaged fencing are to be suspended until the fencing is repaired. During site inspections the Arboricultural consultant reserves the right to authorise the cessation of all works in proximity to the protected zones with immediate affect. A breach of such an instruction will be deemed to be a dismissible offence for the employee. As contract work progresses the protective barrier fence can only be adjusted under the supervision of the arboricultural consultant.

Joseph McConville **B.Agr.Sc., F.Arbor.A. CEnv**
JM McCONVILLE + ASSOCIATES **February 2020**