Arborist Associates Ltd.

An Arboricultural Assessment of the Site Area at the Junction of 'Kingswood Drive and Kingswood Road', Citywest Business Campus, Dublin 24.

Prepared for: K2 Strategic Infrastructure Ireland Ltd.

Prepared by: Felim Sheridan F. Arbor. A, RFS Dip, Nat. Dip & NCH in Arboriculture

Date: 1st July 2022

94 Ballybawn Cottages, Enniskerry, Co. Wicklow.

Tel: 2742011
Mobile: 087 2629589
Email: arborist@eircom.net

1.0 Instructions

1.1 I have been instructed by K2 Strategic Infrastructure Ireland Ltd (planning applicant) to assess the site area at Kingswood Drive and Kingswood Road, within the Citywest Business Campus, Naas Road, Dublin 24. and to report on the following:

A- To assess the present condition of the tree vegetation within this site area. See 'Appendix 2' of this report for details of our assessment and drawing No.KWCW001 which has been prepared as a tree constraints plan to aid the design team in finalizing the design of the development for this site area.

B - To assess the impact of the proposed development layout on the tree vegetation located within the site area indicating those for removal and retention. See 'Section 5.0' of our report and drawing 'No.KWCW002' for detail.

C - To show on this drawing the position of the tree protection fencing and other tree protection measures that will need to be implemented and be maintained in place until all construction works are complete. See 'Section 6.0' or our report and drawing 'No.KWCW002' for detail.

2.0 Report Limitations

2.1 The inspection of the tree vegetation on and adjoining this site area has been carried out from ground level only and is a preliminary report. It does not include climbing inspections or below ground investigations. Should a more detailed inspection be thought necessary on any tree/s, then this will be highlighted within my recommendations.

2.2 The assessment is based on what was visible at the time and recommendations made are subject to the knowledge and expertise of the qualified Arboriculturist that carried out the above inspections.

2.3 Trees should be inspected on a regular basis as their health and condition can change rapidly due to biotic and abiotic agents. The recommendations within this report are valid for a 12-month period only and this may be reduced in the case of any change in conditions to or in the proximity of the trees.

2.4 Before undertaking any work to these trees, it would be advisable to check whether there is any planning or tree preservation controls in operation, if they are it will then be necessary to obtain consent before undertaking any works (pruning or felling). The wildlife and forestry acts also need to be taken into consideration when deciding to carry out any tree works in order to ensure compliance with these acts.

3.0 Aims and Report Brief

3.1 Arborist Associates Ltd. has been commissioned to provide a condition assessment of the existing tree vegetation on this site area.

3.2 The Arboricultural data which is presented within the attached tree schedule **(see Appendix 2)**, has been recorded in line with BS 5837:2012. The tree survey was conducted by collecting and assessing the following information on all significant trees located on site and plotted onto the land survey map provided.

- Tree Number (metal tags attached to each tree).
- Tree species both common and botanical.
- Dimensions (Trunk diameter, height, crown spread and crown clearance).
- Age Class
- Physiological Condition
- Structural Condition
- Preliminary Recommendations
- Estimated remaining contribution within their present environment
- Retention category

3.3 Their retention category has been assessed and categorized according to their quality and value within the existing context (BS-4.5), and not in conjunction with any proposed development plans. In making this assessment, particular consideration was given to;

- **Arboricultural Value** – including health, structural form, life expectancy, species and its physical contribution to or effects on other features located on site.
- **Landscape Value** – an assessment of a tree's locality including its contributions to other features as well as to the site as a whole.
- **Cultural Value** – additional contributions made such as conservation, historical, commemorative value.

3.4 The trees have been divided into one of the following categories, in accordance with the cascade chart illustrated in table 1 of BS 5837:2012. The classification process begins by determining whether the tree falls within the (U) category, if not then the process will continue by assuming that all trees are considered according to the criteria for inclusion in the high category (A). Trees that do not meet these strict criteria will then be considered in light of the criteria for inclusion in the moderate category (B) and failing this, they will be allocated a low category (C).

The following summaries each of the categories:

Category U – Those trees in such a condition that any existing value would be lost within 10 years. Most of these will be recommended for removal for reasons of sound Arboricultural Practice/ Management.

These would be seen as trees that have little or no potential either due to their physiological and/or structural condition and their removal would be seen necessary either now or in the short-term as the most appropriate management option.

Any category 'U' trees within this site area have been identified on our drawings (Nos.KWCW001& KWCW002) with a 'Red' donut around their trunk positions.

Category A - Trees of high quality/value with a minimum of 40 years life expectancy. These trees would be seen as having the potential to contribute to the tree cover of these grounds for the long-term.

From our assessment of the tree vegetation, none have been allocated to this category.

Category B – Trees of moderate quality/value with a minimum of 20 years life expectancy. These trees would be seen as having the potential to contribute to the tree cover of these grounds for the medium-term.

From our assessment of the tree vegetation, none have been allocated to this category.

Category C – Trees of low quality/value with a minimum of 10 years life expectancy. These trees would be seen as having the potential to provide tree cover for the short to medium term and they should not be seen as a considerable constraint on the development of these lands, but where viable, they should be retained.

Any category 'C' trees within this site area have been identified on our drawings (Nos.KWCW001& KWCW002) with a 'Grey' donut around their trunk positions.

3.5 The bulk of the trees have been plotted onto the attached drawing (DWG. No. KWCW001) by a land survey company and where they haven't been plotted, they have been positioned by ourselves to the best of our ability and their positions may not be fully accurate. The tree reference numbers referred to in the condition tree report have been shown on this drawing along with their crown spreads and their retention category colour coded as detailed above and recommended by BS 5837 2012.

The constraints for each tree were worked out as per the formulas in BS5837 2012 and have been shown on this drawing using an 'Orange Circle' to aid the design team in their final development layout to ensure tree vegetation proposed for retention is retained successfully. The Root Protection Area (RPA) is the minimum area around individual trees to be protected from disturbance during construction works and is expressed as a radius in metres measured from the tree stem. Any deviation in the RPA from the original circular plot takes account of the following factors whilst still providing adequate protection for the root system:

a) The morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures, open drainage ditches and underground apparatus);
b) Topography and drainage;
c) The soil type and structure;
d) The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

4.0 Summary of Survey Findings

4.1 Arborist Associates Ltd. has been commissioned to provide a condition assessment of the existing tree vegetation within and adjoining this site area, to prepare an arboricultural implication study and to recommend tree protective measures for the tree vegetation for retention within the proposed development.

4.2 The site area is located at the junction of 'Kingswood Drive' and 'Kingswood Road' and is adjoined to it south by the grounds of an existing commercial unit and to its east by lands that are currently being developed for commercial units. The site area itself has been derelict for some time and has become overgrown with naturally occurring weed and scrub vegetation colonising large areas. The eastern half of the site is being dominated by regenerating scrub vegetation (Scrub Area No. 1) which contains seeding Alder, Birch and Goat Willow with Bramble starting to colonise on the edges.

Google Aerial Map: Shows the site area outlined in yellow.

4.3 The tree vegetation present on this site area is located along the southern and eastern boundaries with the northern and western boundaries being open with no vegetation.

4.4 Along the eastern boundary is the following vegetation:

In the north-eastern corner, is 'Tree Group No.1' which consists a small group of Birch and Oak of a semi- mature age class. These trees have been planted on a soil berm at close spacing as part of the landscaping of the adjoining area to the north/north east and these are establishing well.

Along the eastern boundary, is the remnants of an old field boundary hedgerow (Hedge No.1) made up of Hawthorn and Elder clumps with the undergrowth being dominated by Bramble and Dogrose. There are two mature Ash trees (Nos.1018 & 1019) located along the line which have grown up above the general hedge line. The majority of this hedge has recently been removed as part of development works on the adjacent lands to the east. These works have come close to the base of these two Ash trees and has caused root damage on their eastern side, in particular to Tree No.1019.

At the southern end of the eastern boundary, is 'Tree Belt No.1' which has been planted along a chain link fence. It consists of Field Maple and Alder and these trees are of a semi-mature age class growing up together at close spacing to form part of the one group canopy formation.

4.5 Along the southern boundary is 'Tree Belt No.2' which has trees located on both sides of the boundary line. It consists of a mix of broadleaf tree species which have been planted on a soil berm which is maintained in grass. These trees are establishing well and form a screen barrier along this boundary.

5.0 Impact Assessment

5.1.0 Introduction

5.1.1 K2 Strategic Infrastructure Ireland Ltd., intend to apply for full planning permission for development on a site at 'Kingswood Drive' and 'Kingswood Road', within the 'Citywest Business Campus', Naas Road, Dublin 24. The site is bound to the north by 'Kingswood Drive', to the west by 'Kingswood Road', to the east by greenfield lands, and to the south by the existing commercial development.

The proposed development comprises amendments to the development permitted under Reg. Ref.: SD18A/0301. The proposed amendments comprise the following:

- Alterations to the permitted two storey data centre building including internal reconfiguration, alterations to finished floor levels, alterations to the building footprint to provide for the relocation of an internal staircore to the south of the building, and the replacement of the enclosed first floor level with an open screened roof mounted plant space (resulting in a reduction of 3,851 sq.m in the gross floor area (GFA) of the building).
- Associated alterations to the façade of the data centre building, including alterations to fenestration, cladding, step-out in the southern façade to accommodate a staircore, and a reduction in the eastern building parapet height of c. 2 metres.
- The provision of a canopy over the loading docks on the east facade.
- Alterations to the permitted generator compound, generators, and flues, including a reduction in the number of generators (5 no. now proposed), and provision of MV rooms within the generator compound.
- Provision of an ESB substation compound in the northeastern portion of the site, comprising a single storey substation building (with a GFA of c. 125 sq.m), 2 no. transformers, client control building (with a GFA of c. 47 sq.m), and associated access arrangements within a 2.6 metre high security fence. The ESB substation compound will be accessed from Kingswood Drive.
- Omission of the permitted sprinkler tank, pump room and 10kV Substation, reconfiguration of the permitted car parking, and revisions to permitted boundary treatments.
- Associated alterations to landscaping, access and internal road arrangements, services, lighting, and layout, and all associated and ancillary works.

5.1.2 This section of our report is designed to assess the impact of the proposed development layout on the tree vegetation within this site areas Red Line Boundary' and to look at the necessary measures that will need to be undertaken to help retain the tree vegetation shown for retention free from adverse impacts for the duration of the construction period.

5.1.3 On drawing No.KWCW002, I have shown the trees for removal due to the proposed development layout with 'Red Hatched' crown spreads and those to be retained with a 'Green Hatched' crown spread.

I have also shown on this drawing the position of any necessary tree protection measures in order to protect the root zone of the tree vegetation being retained within the vicinity of where the construction works will occur. These work exclusion zones are shown on this drawing using 'Orange Hatching' and these areas will need to be cordoned off by the erection of fencing or other means at the start of the works and this will need to be maintained in place until all works are completed. This fencing is to protect the root zone of the trees and to ensure their successful integration into the development of this site area.

5.1.4 The comments made within this impact assessment study are based on my understanding of the proposed development and what is required to allow for its construction.

5.2.0 Impact on the Tree Vegetation

5.2.1 To facilitate the proposed development, it will be necessary to remove the following vegetation from the site area:

Tree Group No.1 in the north-eastern corner to facilitate the construction works.

C.9 trees from Tree Belt No.2 (c.34m length on the northern side of this tree belt) at the western end to facilitate a grass Crete fire tender access road around the proposed building and the re-grading of the soil berm in this area to facilitate this.

5.2.2 **Hedge No.1** has had most of its length removed by the adjoining development site to the east and it is proposed to replace this hedge on the site side with a new hedge using native plants. The remaining section of this hedge at the northern end is to be tidied up as part of these works.

The two trees (Nos.1018 & 1019) along this boundary will not be directly impacted upon by the proposed development layout, but are being recommended for removal as part of management due to physiological and structural issues and also due to root damaged that has been caused by the removal of the surrounding hedge, and particularly Tree No.1019. The stumps of these two trees could be retained and incorporated into the new boundary hedge line.

5.2.3 The remaining tree and hedge vegetation is being retained and incorporated into this completed landscaped development.

'Tree Belt No.1' along the eastern boundary will be tidied up and trimmed in to accommodate the boundary treatment which will be of a fence type structure.

Along the southern boundary, 'Tree Belt No.2' will require the trimming of the lower branches on some trees to facilitate the boundary treatment which will be of a fence structure.

5.2.4 The existing boundary vegetation retained will be strengthened with new tree, shrub and hedge planting, either added to the front of them or planted into them

where gaps exist to help strengthen these boundaries and the screening that this vegetation provides to this site area. See landscape architects drawings and schedule for detail.

5.2.5 The incorporation of this vegetation into the completed landscaped development will need to retain the existing ground levels within their root zones and these existing levels will need to be graded/incorporated into the surrounding levels.

All soft and hard landscaping within the RPA *(Root Protection Area)* of the vegetation being retained will need to be carried out manually and the soil levels are not to be lowered, or raised resulting in root damage to the trees. All surfaces are to be porous to allow the free movement of air and moisture to the roots below. Recommendations of 'Section 8' of BS5837 2012 are to be adhered to during the landscaping within the RPA's of these trees.

5.3.0 Vegetation Retention and Protection

5.3.1 Main areas for consideration during the proposed construction process:

Item	Comments
Tree Pruning	As part of the initiating works, the crowns of some of the trees being retained are to be pruned to remove dead/unstable growth, the pruning of individual limbs/branches or entire crowns to reduce size due to structural weaknesses or to improve their juxtaposition within the built environment. A preliminary list of these works is given within the condition tree assessment in 'Appendix 2' of this report and these are to be reviewed on site prior to being carried out. All tree felling and pruning work will need to be carried out by qualified and experienced tree surgeons *before* any construction work commences; all tree work should be in accordance with *BS3998 (2010) Tree Work – Recommendations.* All trees for removal will need to be felled to stumps taking care not to cause damage during the process to the trees being retained and all stumps, in particular those which are located within the root zone of trees being retained that need to be removed are to be ground out using a mechanical stump grinder taking care not to cause root damage to the trees being retained.
Tree Protection	Tree vegetation being retained will need to be protected from unnecessary damage during the construction process by effective construction-proof barriers that will define the limits for machinery drivers and other construction staff. Ground protected by the fencing will be known as the 'Work Exclusion Zone' and sturdy protective fencing will need to be erected along the points identified in the Tree Protection Plan (DWG No.KWCW002) **prior** to any soil disturbance and excavation work starting on site. This is essential to prevent any root or branch damage to the retained trees. The British Standard BS5837: *Trees in relation to design, demolition and construction (2012)* specifies appropriate fencing, see 'Appendix 1' for details. The fencing will need to be 2.3m high and constructed in accordance with figure 2 of BS 5837 2012 (see 'Appendix 1' for detail) using vertical and horizontal scaffold bars well braced together with the verticals spaced out at a maximum of 3m centres and onto this, weld mesh panels are to be securely fixed with wire or scaffold clamps. All weather notices will need to be erected on the fences with words such as: "Tree Protection Fence — Keep Out".

Item	Comments
	When the fencing has been erected, then construction work can commence. The fencing should be inspected on a regular basis during the duration of the construction process and shall remain in place until heavy building and landscaping work have finished and its removal is authorized by the project Arboriculturist.
Construction	It will be important that good housekeeping is in place at all times so that the site does not become congested. All construction works are to be well planned in advance so as not to put pressure on the protective zone around the trees. All works are to occur from outside the protective zones. Where work space between the building lines and the protective fence lines is limited/ restricted, alternative work methods will need to be looked at so as to keep the work areas to their minimum in order to reduce the extent of soil and root damage occurring to the trees proposed for retention. See section 6.2.3 of BS5837 2012 for detail on working within the RPA. For light weight work areas such as for the storage of work material and pedestrian paths, this protection could be provided by the use of boarding and for heavier loading, these areas will need protection with the use of Cell Web of similar product. Where this occurs, the tree protective fence lines are not to be moved to accommodate these works until such time as the required ground protection is signed off by the project engineers and arborist and put in place to the recommendations of section 6 of BS5837 2012. Care will need to be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Materials, which can contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, are not to be discharged within 10m of a tree stem. Fires are not to be lit in a position where their flames can extend to within 5 m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction. Notice boards, wires and such like are not to be attached to any trees. Site offices, material storage and contractor parking will need to be located outside the work exclusion zones of the tree vegetation being retained.
Services	See project engineer's drawings for detail for service routes. We have overlaid the surface water and foul pipe layouts onto our tree protection plan to assess impacts.

Item	Comments
	Prior to the installation of any services routed near trees being retained, they are to be marked out on site for review by the project Arboriculturist and a detailed method statement is to be prepared by the installation contractor in conjunction with the project Arboriculturist on how these services are to be installed while providing protection to the tree vegetation shown for retention.
Boundary Treatments	It is my understanding that all boundary treatments where required along by the tree vegetation being retained are to be of a fence type structure where there will only be a need to excavate small diameter holes for the fence uprights and these will need to be dug manually or with an augur with no machinery allowed to operate within the work exclusion zones fenced off by the tree protection fencing. The working ground area required during these works will need to be protected from impacts/damage by a suitable ground protection such as scaffold planks laid butt jointed on a bed of woodchip in accordance with Section 6.2.3 of BS5837 2012.
Landscaping	The existing ground levels within the RPA of the trees are to be retained and incorporated into the finished landscaped development. Where changes in levels occur, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. See landscape architects drawings and sections for detail. All soft and hard landscaping within the RPA of the trees to be retained are to be carried out manually and the soil levels are not to be lowered or raised resulting in root damage to the trees. All surfaces are to be porous to allow the free movement of air and moisture to the roots below. Recommendations of sections 8 of BS5837 2012 are to be adhered to during the landscaping within the RPA's of these trees. It will be important within these areas that all works are carried out manually with minimal intervention with machinery and where machinery is required; this will need to be of a small light weight type and all works will need to be supervised by the project arborist. Where this machinery needs to transverse the root protection areas of trees, the route for this will need to be protected by boarding or other means to meet the requirements of Section 6.2.3 of BS5837 2012.

5.4.0 Monitoring

5.4.1 Any construction works within close proximity to retained trees are advised to be undertaken in accordance with approved method statements prepared by the construction contractor under the direct supervision of a qualified consultant Arboriculturist. Therefore, during the construction works, a professionally qualified Arboriculturist is recommended to be retained by the principal contractor or site manager to monitor and advice on any works within the RPA of retained trees to ensure successful tree retention and planning compliance.

5.4.2 It is advised that tree protection fencing, any required special engineering and supervision works must be included in the main tender documents, including responsibility for the installation, cost and maintenance of tree protection measures throughout all construction phases.

5.4.3 Copies of the tree retention and protection plan (DWG No. KWCW002) a copy of BS 5837(2012) and NJUG 4 (2007) should all be kept available on site during the construction works and all works are to be in accordance with these documents.

5.4.4 On the completion of the construction works, all trees retained are to be reviewed by the project Arboriculturist and any necessary remedial tree surgery works required to promote the health of the trees and safety are to be implemented.

6.0 Arboricultural Method Statement/Tree Protection Strategy

6.1 The objective of this arboricultural method statement/tree protection strategy is to provide information for the main building contractor/site manager on how trees need to be protected during a construction project and so that they can prepare their own site specific detailed method statement for their works.

6.2 It is necessary for tree protective fencing to be erected and all other mitigation measures required to be put in place prior to the development works commencing on site and these are to enclose and protect the root zone of the tree vegetation proposed for retention. See drawing DWG No.KWCW002, for the position of the protective fencing and other mitigation measures.

6.3 The protection of the tree vegetation shown for retention within this proposed development is divided into three main sections starting with the preconstruction stage right through to post construction and the reassessment of the retained trees.

Stage 1:

6.4.0 Pre-Construction Works

6.4.1 Prior to the main construction works commencing on site the following needs to be planned:

1. The developer or main contractor needs to appoint an Arboriculturist for the duration of the project. The Arboriculturist is to make regular site visits to ensure that the tree protection measures are in place and adhered to.
2. The main contractors and all sub-contractors work force are to be briefed on the tree protection and ensure that these measures are to be kept in place throughout the construction period.
3. All personnel are to adhere to the recommendations of the appointed Arboriculturist.
4. Any issues in relation to the trees shown for retention must be discussed with the appointed project Arboriculturist and the necessary mitigation measures put in place without delay and prior to the works being carried out.

6.5.0 Site meeting

6.5.1 Prior to any works commencing on site, it is necessary that a meeting be arranged between the project manager, site foremen, the project Arboriculturist and local authority to identify and finalize the trees for removal and the line of the protective fencing.

6.6.0 Tree works

6.6.1 The developer or the main contractor is to appoint a tree surgery company competent of carrying out the remedial tree surgery works and tree felling that are required on this site. The tree surgery contractor is to produce a method statement detailing how they plan to undertake the works and informing the site foreman of the process so the necessary steps can be taken to ensure the works are carried out safely and efficiently. The works are to be carried out by appropriately trained personnel taking account of the recommendations of BS3998 2010.

6.6.2 **Tree removal -** Trees for removal are to be identified by the project Arboriculturist and the method of removing the stumps is to be carried out to the recommendations of the project Arboriculturist. The trees in the way of the development layout are to be removed in such a manner not to cause damage to those being retained. Where necessary to avoid damage to the trees to be retained, these are to be removed in sections by a tree surgeon (Arborist). Where necessary, the roots and stumps are to be dug out with a digger except where the stumps are located within the RPA (root protection area) of trees being retained. In this instance, the stumps are to be ground out with a mechanical stump grinder taking care not to cause damage to the roots of trees being retained.

6.6.3 **Remedial tree surgery works -** The necessary remedial tree surgery works required to promote health and safety of the trees to be retained is to be carried out. A schedule of these works is to be produced by the project Arboriculturist taking into consideration the trees within their new built environment and prior to these works being carried out; they are to be agreed with the local authority.

6.7.0 Erection of the protective fencing

6.7.1 Once the trees have been removed, the line of the protective fencing that is required around the trees being retained **must be** erected as per DWG No. KWCW002.

6.7.2 The fencing needs to be 2.3m high and constructed in accordance with figure 2 of BS 5837 2012 (see fencing detail on drawing No.KWCW002 & Appendix 1) using vertical and horizontal scaffold bars well braced together with the verticals spaced out at a maximum of 3m centres. Onto this, weld mesh panels are to be securely fixed with wire or scaffold clamps.

6.7.3 Signs need to be attached to these fences warning people to 'keep out'. See detail within drawing No.KWCW002 & Appendix 1.

6.7.4 Once the protective fence line is erected, then the main construction works can commence on site.

6.7.5 **Storage of Material, Work Yards and staff car parking -** These areas must be identified on the work drawings prior to the construction works starting. These must be positioned outside the root protection areas around the trees being retained.

Stage 2:

6.8.0 The Construction Works Stage

6.8.1 **Protective fencing -** During the course of the works, special attention must be paid to ensure that these fences and all other tree protection measures are kept in place, in good order and remain upright, rigid and complete at all times. They must be checked daily by the main contractor/foreman and any damage noted must be fixed immediately.

If works need to take place inside the protective fence lines, then the project Arboriculturist must be informed in advance of the works taking place and the mitigation measures required to reduce impact on the tree vegetation agreed. These mitigation measures will include the supervisions of these works by the project Arboriculturist.

The protective fencing and all other protection measures are to remain in place throughout the construction works phase and must only be removed when all the works are complete and at this stage incorporated into the finished landscape.

6.8.2 **Excavations -** The excavation works are only to commence once the protective fence line and all other protection measures are in place.

The excavations in the vicinity of the tree vegetation being retained will need to be viewed on site once marked out with the project manager, site foreman and the project Arboriculturist in advance of excavation to determine the extent of the impact and the work space required to allow for the construction works to proceed and to assess what additional mitigation measures will be required to protect those trees to be retained. In certain areas, it may be necessary to use an alternative method of excavating to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls or similar.

No roots greater that 25mm in diameter are to be severed by the construction works without prior approval by the project Arboriculturist. Where roots are encountered, the project Arboriculturist is to assess these prior to cutting and these are to be pruned back to appropriate pruning points beyond the excavation line. Where roots cannot be cut; alternative methods of construction will need to be considered. The excavated face is then to be covered with soil or with Hessian sacking to prevent further drying out and the death of root material. Where the Hessian sacking is used, it will be necessary to keep this moist especially during dry periods.

6.8.3 **Working within the RPA** *(Root Protection Area)* – If it becomes necessary to carry out works within the RPA of a tree/trees, these must be discussed and agreed with the project Arboriculturist. All works must be carried out manually. Root pruning is to be undertaken by an Arboriculturist using proprietary cutting tools such as a secateurs or hand pruning saw.

The ground within the RPA of the trees must be protected from damage as per the recommendations of **section 6.2.3** of BS5837 2012. See detail within appendix 1 on ground protection using boarding for pedestrian loading.

6.8.4 **Finished ground levels/Landscaping -** The existing ground levels within the RPA of trees must be retained and incorporated into the finished landscaped development. Where changes in levels occur, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels.

All soft and hard landscaping within the RPA of the trees to be retained must be carried out manually and the soil levels must not be lowered or raised resulting in root damage to the trees. All surfaces are to be porous to allow the free movement of air and moisture to the roots below. Recommendations of sections 8 of BS5837 2012 must be adhered to during the landscaping within the RPA of the trees being retained.

6.9.0 Other items

6.9.1 The following is a list of additional activities ***that are not allowed*** within the RPA or within the vicinity of the trees being retained.

1 - Storage of equipment, fuel, construction material, or the stockpiling of soil or rubble.
2 - Burning rubbish
3 -The washing of machinery
4 - Attaching notice boards, cables or other services to any part of the tree.
5 - Using neighbouring trees as anchor points.
6 - Care is required when using machinery such as Tele-porters, cranes or other equipment close to trees so as not to damage the crown or any other parts.

Stage 3:

6.10.0 Post Construction Works

6.10.1 This project is not to be considered complete until all retained trees have been re-examined by the project Arboriculturist and the remedial works necessary to ensure the health of the trees and the immediate safety of the end user of this development are implemented.

This report has been produced as part of a planning application for these lands and is for the sole use of the above named client and refers to only those trees identified within. Its use by any other person(s) in attempting to apply its contents for any other purpose renders the report invalid for that purpose.

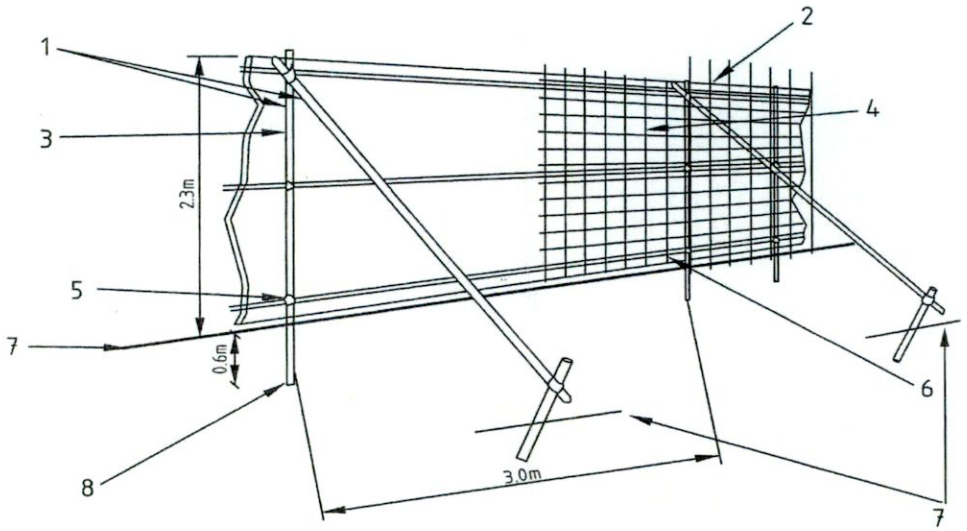
Signed Felim Sheridan Date 1st July 2022

Felim Sheridan
F. Arbor. A, RFS Dip, Nat. Dip & NCH in Arboriculture

Felim Sheridan's qualifications:
Fellow of the Arboricultural Association (F. Arbor. A), Professional diploma Arboriculture (RFS), National diploma Arboriculture (ND) and National certificate Horticulture (NCH).

Appendix 1

Sample of Temporary Tree Protection Fencing Detail and Ground Protection.



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 clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6m driven into the ground

Figure 2. – Protective fencing for RPA

Sample of signage to be placed on fence pannels.

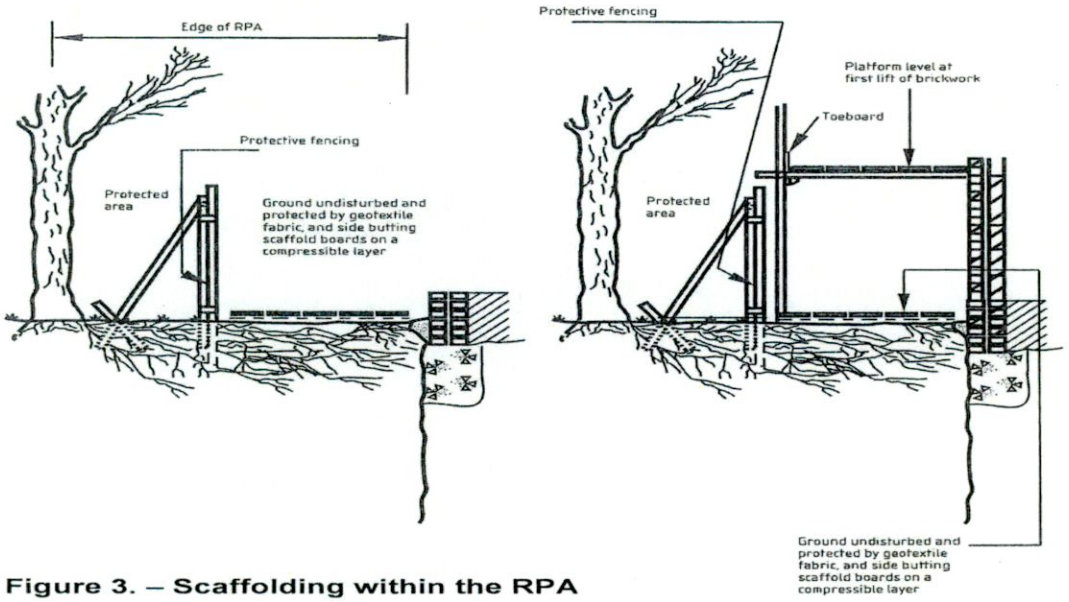


Figure 3. – Scaffolding within the RPA

Appendix 2

Condition Tree Assessment on Site Area at Junction of 'Kingswood Drive and Kingswood Road', Citywest Business Campus, Dublin 24.

Date: 1st July 2022

Survey Notes

All codes referred to in this report are approximate and serve as a general guide only.

Reference to Numbers: The trees have metal tags attached and these correspond with the numbers in this report.

Reference to age class is as follows:

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 between a 1/3 and 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.

Reference to Physiological, Structural Condition and other comments:

Physiological Condition

Good: A tree with no major defects, but possibly including some small defects.
Fair: A tree with some minor defects such as bark wounds, isolated decay pockets or structure affected due to overcrowding.
Poor: A tree with more serious defects such as extensive deadwood, decay or defective to the point of being dangerous.

Structural condition and other comments
This records noted visual defects and other information about the trees health and structure.

Retention Categories

The purpose of the tree categorization method is to identify the quality and value of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained should development occur.

It is carried out in accordance with section 4.5 (Tree Categorization Method) of BS 5837 2012.

Summary

Main categories
Category U - Those trees in such a condition that any existing value would be lost within 10 years. Most of these will be recommended for removal for reasons of sound Arboricultural practice.
Category A - Trees of high quality/value with a minimum of 40 years life expectancy.

Category B - Trees of moderate quality/value with a minimum of 20 year life expectancy.
Category C - Trees of low quality/value with a minimum of 10 years life expectancy.

Sub categories

1 - Mainly Arboricultural Values
2 - Mainly Landscape values
3 - Mainly Cultural and conservation value

Note: 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.

If a layout design places Category 'U' trees in an inaccessible location such that concerns over public safety are reduced to an acceptable level, it may be preferable or possible to defer the recommendation to fell.

The terms 'Group, woodland or tree line' 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 to each of the three subcategories.

Reference to Crown spread, Height and Trunk Diameter:
This gives **a guide** to the area taken up by the tree.
Trunk diameter is the diameter of the main trunk taken at a height of 1.5m and is recorded in millimetres (mm).
Height records the overall height of the tree and is given in meters (m).
Crown Spread records the extent of the branches normally in a north, south, east and west direction from the base of the tree and is given in meters (m).
Clear crown height records the distance between the ground and the first branch form the base of the tree and is given in meters (m)

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
		A Condition Assessment of the tree vegetation within the site area at the junction of 'Kingswood Drive' and 'Kingswood Road', Citywest Business Campus, Naas Road, Dublin 24. **The assessment starts in the north-eastern corner and works clockwise around the site area.** The tree vegetation is located around the perimeter of the site area along the southern and eastern boundaries.									
Tree Group No.1	**Birch** *Betula pendula* **Oak** *Quercus robur*	**It is a small tree group located within the north-eastern corner of the site with the adjoining property to the north.** It consists of some tree planting growing on a soil berm/mound and these are of a semi -mature age class in fair condition both physiologically and structurally. The trees were planted most likely as whips and at close spacing and they have grown up together competing for light and space which is affecting the development and structure of some trees. Those growing up around the public light standard have been topped/cut back previously to prevent shading and these are developing multi-stemmed crowns from these pruning points. They are of some value for screening within this area. A7.5 | A180 | A3N/ A3S/ A3E/ A3W | A1 							This belt of trees would benefit from some light selective thinning to reduce density and allow the better quality trees more space to grow and develop.	20+	C2

<table>
<tr><th>Tree No.</th><th>Tree Species</th><th>Ht. (m)</th><th>Stem Dia. (mm)</th><th>Branch Spread (m)</th><th>C-Ht. (m)</th><th>Age Class</th><th>Phys. Con.</th><th>Structural Condition
Other Comments</th><th>Preliminary Recommendation</th><th>Remain Contribute in years</th><th>Cat. Grade</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>N-north S-south E-east W- west
Phys.-physiological.</td><td>A- average,</td><td></td><td></td></tr>
<tr><td>Hedge No.1</td><td>Hawthorn
Crataegus monogyna
Elder
Sambucus nigra
Bramble
Rubus fruticosus
Dog-rose
Rosa canina</td><td colspan="7">It is located along the eastern boundary and consists of the remnants of a previous hedge. It extends in a north-south direction and is growing on the hedgerow bank.

It is of a mature age class in fair/ poor condition both physiologically and structurally. It consists of clumps of Hawthorn and Elder with infill areas of Bramble and Dog-rose. It has been allowed to grow unmanaged for some time with scrub species encroaching out onto the site area. Thee majority of this hedge has been removed as part of the site clearance / development works on the adjacent lands to the east and a short section remains at the northern end around Tree No. 1018. The development works have also come close to the base of the two Ash trees and have most likely impacted their root zones on the east side.

<table><tr><td>A4</td><td>--</td><td>A3E/ 1W</td><td>--</td></tr></table>
 
 

The following two trees are located within this hedge.</td><td>Tidy up remaining sections of hedge and trim in encroaching hedge species.

Carry out replacement planting to recreate the hedge with native hedge species.</td><td></td><td>C2</td></tr>
</table>

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
1018	**Ash** *Fraxinus excelsior*	10	510	4N 5S 5E 4W	3	Mature	Fair/ Poor	Poor It is growing up out of Hedge No.1 at the northern end. Heavy Ivy cover on the main trunk is extending up into its crown causing suppression and increasing its crown windsail. It has suffered a large decay wound on the lower trunk near to ground level creating a structural weakness at this point. Construction works on the site to the east have come close to the base, impacting its rootzone. Part of the lower crown also appears to have suffered recent damage on the east side. The crown is showing signs of infection by 'Ash Dieback' (*Hymenoscyphus fraxineus*).	Retain at present, but due to its condition physiologically and structurally and in particular the infection by 'Ash Dieback', this tree will need to be removed in the short-term.	<10	U
1019	**Ash** *Fraxinus excelsior*	9	320/ 220/ 200	3N 4S 4E 4W	1.5	Mature	Fair/ Poor	Poor It forms part of the hedge bulking and is being suppressed by Ivy. It is multi-stemmed from base and has suffered limb failure from its base. Construction works on the site to the east have come close to the base, causing root damage that will impact upon its stability. The crown is showing signs of infection with 'Ash Dieback' (*Hymenoscyphus fraxineus*).	I would recommend its **removal** as part of management due to root damage caused by construction works.	<10	U

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
											
Tree Belt No.1	**Field Maple** *Acer campestre* **Alder** *Alnus glutinosa* **Ash** *Fraxinus excelsior*	**It is located at the southern end of Hedge No.1.** It is of a young age class in fair/ good condition physiologically and in fair condition structurally. It consists of Field Maple and Alder and is c.2.5m wide with trees planted in a staggered line at close spacings. There are also a number of self-seeded Ash trees developing along the line. The trees were planted most likely as whips, at close spacing and they have grown up together competing for light and space which is affecting the development and structure of some trees. They form a good screen barrier along the boundary fence. Soil alterations have occurred on the site side. Construction works have also been carried out on the eastern side on the adjacent site which have come close to the base of this tree belt. The Ash trees are showing signs of infection with 'Ash Dieback' (*Hymenoscyphus fraxineus*).							This tree belt would benefit from some selective thinning to reduce density and to allow the better quality trees the space to grow and develop.	20+	C2

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
Tree Belt No.2	**Field Maple** *Acer campestre* **Oak** *Quercus robur*							**It runs in an east-west direction along the southern boundary of the site area.** It is of a semi-mature age class in fair/ good condition physiologically and in fair condition structurally. They have been planted on top and mainly on the southern side of a soil mound/ berm. They are planted	They would benefit from some selective thinning as they grow in size in order to reduce competition and to allow the better quality tree	20+	C2

A8	A200	A3N/ A3S/ A3E/ A3W	A0.5

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
	Poplar *Populus sp.* **Birch** *Betula pendula* **Beech** *Fagus sylvatica* **Ash** *Fraxinus excelsior* **Crab Apple** *Mauls sylvestris*	at c.5m centres in staggered lines with 1m in between each line. It consists of Field Maple, Oak, Poplar, Birch, Beech, Ash and Crab Apple and the area underneath them is maintained in grass. They are establishing well and are forming a good screen barrier.							species more space to grow and develop.		
Scrub Area No. 1	**Birch** *Betula pendula* **Alder** *Alnus sp*	**It covers most of the eastern half of the site area.** It is of a young age and has established here naturally as a result of the site area being derelict. They are self-sown into this area and are developing across the site with occasional open areas. Bramble and other							This area would benefit from general tidying works.	-	C2

A8	A200	A3N/ A3S/ A3E/ A3W	A1

Tree No.	Tree Species	Ht. (m)	Stem Dia. (mm)	Branch Spread (m)	C-Ht. (m)	Age Class	Phys. Con.	Structural Condition Other Comments	Preliminary Recommendation	Remain Contribute in years	Cat. Grade
								N-north S-south E-east W- west Phys.-physiological.	A- average,		
	Goat Willow *Salix caprea* **Oak** *Quercus robur* **Mountain Ash** *Sorbus aucuparia.*	coarse weeds are beginning to colonise the edge areas. They are beginning to grow strongly but their structure is being impacted due to the density of plants.									
		A3	A.50	A0.5N/ S/ E/ W			A0				
											
Notes:											