murray & associates
landscape architecture

IE DUBZZ-STE1-E0-MAL-LA-L -91035

ARBORICULTURAL INVENTORY AND IMPACT ASSESSMENT

Incorporating a

TREE PROTECTION STRATEGY

At

INXN DUB15/16, PROFILE PARK, DUBLIN 22

FOR

DIGITAL NEATHERLANDS VII B.V

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ISSUE SHEET

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Introduction

The trees and hedgerows were surveyed on the 21st April by the undersigned. The findings of this survey and assessment have been summarised and recorded in the following report. A number of mature trees and hedgerows on the development site area were surveyed and assessed. None of the trees on the subject site will be removed to facilitate the proposed development, but a large majority of the trees are Ash and are showing signs of dieback. Over the next 12-24 months there is a high probability that these trees will die and need to be removed.

Scope

The subject site site is the subject of a planning permission. The trees and hedgerows lie along the western boundaries along the boundary with Grangecastle Golf Club. This area forms a buffer between the two sites.

The purpose of this assessment is to provide an analysis of any potential impact of the proposed development on the existing trees and hedgerows. The report will provide recommendations for preservation and or removal of trees and hedgerows. It will present a written report on the inspection of the trees. The report will provide a tree protection plan highlighting which trees are to be removed and/or retained

This report should be read with reference to the findings summarised and recorded in the Tree and Hedgerow Assessment report, conducted on 21st April 2021. The report should also be read in conjunction with the following drawings:

Landscape Plan (REF. IE DUBZZ-STE1-E0-MAL-LA-L -91001);
Tree survey Plan: (REF. IE DUBZZ-STE1-E0-MAL-SU-L -91030);
Arboricultural Impact Plan: (REF. IE DUBZZ-STE1-E0-MAL-LA-L -91036);

Proposed Development

The development will consist of:

10 year permission for the following development: Removal of an existing unused waste water treatment facility on site and the erection of two data centre buildings, gas powered energy generation compound, and all other associated ancillary buildings and works. The two data centre buildings, DUB 15 and DUB 16, will comprise a total floor area of c. 33,577m^2 over two storeys. The first 2 storey data centre building (DUB15), located to the south west of the site, will comprise 16,865m^2 data storage use, ancillary office use and associated electrical and mechanical plant rooms, loading bays, maintenance and storage space. A second 2 storey data centre building (DUB16), located to the south east of the site, will comprise 16,712m^2 data storage areas, ancillary office use and associated electrical and mechanical plant rooms, loading bays, maintenance and storage space. Both data centre buildings will reach a height of 20m. Emergency generators and associated emission flues and plant are proposed in compounds adjacent to each data centre building. Gas powered energy generation is proposed to the north east corner of the site to provide electricity for the proposed development. The application proposes to re-route and widen an existing watercourse constructed following an earlier planning permission. It is proposed to reroute this watercourse along the eastern and southern boundary of the site. Landscaping is proposed to the south of the site to screen the buildings. Fencing and security gates are proposed around the site. New access roads within the site are proposed along with 71 car parking spaces and 26 cycle spaces, bin stores, site lighting, and all associated works including underground foul and storm water drainage attenuation and utility cables and all other ancillary works. A Natura Impact Statement will be submitted to the planning authority with the application.

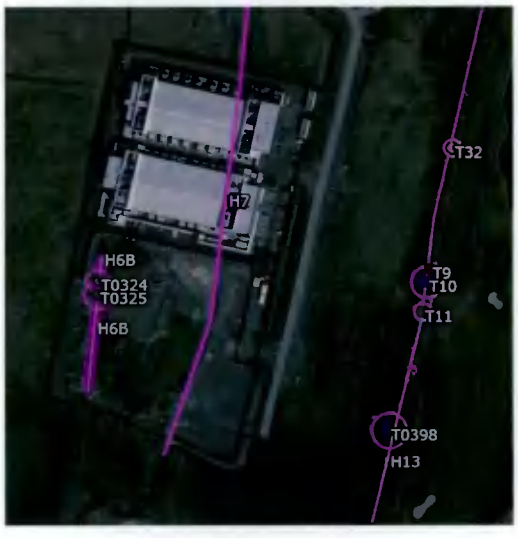

Figure 1 – Site location plan

Methodology Employed

An initial tree survey and visual condition assessment was on the 21st April 2021. For the purpose of this report the trees were assessed in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction. Only trees with diameters of 75mm or greater were surveyed, and those smaller than this were noted in the survey. In accordance with section 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups.

Section 4.4.2.3 of BS 5837: 2012 states:

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.

Tree Survey Methodology

Tree Species

Common and botanical names of the tree species were recorded.

Tree Crown Dimensions

Tree height (Ht), crown clearance (Cl) and crown-spread (NESW cardinal points) measurements are in metres and are estimated.

Stem Diameter (Dbh)

Measurements are in millimetres and taken at 1.5m from ground level, multiple stems (St) are recorded as a function of the BS:5837 RPA formulae described below.

Tree age classes were recorded as:

Y	Young	Recently planted (with 5 years or so)
SM	Semi-Mature	Well established young tree
EM	Early Mature	Established tree not yet fully grown
M	Mature	Full or near full grown tree
LM	Late Mature	Older specimen in full maturity
OM	Over Mature	Reached full maturity now declining through natural causes
Vet	Veteran	Notable due to large size, old age, ecological importance

Tree Physiological and Structural condition was graded as :

Good:	No obvious defects visible, vigour and form of tree good.
Fair:	Tree in average condition for its age and the environment.
Poor:	Tree shows signs of ill health/structural defect
Bad:	Tree in seriously bad health/major structural problem

Work Recommendations

Preliminary management recommendations are made where necessary and pertain to current site conditions unless otherwise stated.

Estimated Remaining Contribution (ERC)

The approximate number of years that a tree should continue to live and contribute amenity, conservation or landscape value to the site under current site condition.

The tree retention category system grades a tree's suitability for retention within a development:

A Indicates a tree of high quality and value. These are trees that are particularly good examples of their species, which also provide landscape value. These trees are in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)

B Indicates a tree of moderate quality and value. Trees that might be included in the high category, but are downgraded because of impaired condition. These trees are in such a condition as to make a significant contribution. (A minimum of 20 years is suggested)

C Indicates a tree of low quality and value - trees with an estimated remaining life expectancy of at least 10 years, or trees with a stem diameter of below 150mm and/or <10m in height.

U Trees that are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Sub Categories

Tree categories may be further categorised using the following sub-categories (e.g. C1, C2 or C3)

1 mainly Arboricultural qualities,

2 mainly landscape qualities,

3 mainly cultural values.

The Root Protection Area (RPA) is the minimum area around individual trees to be protected from disturbance during construction works; RPA is recorded as a radius in metres measured from the tree stem and is shown on the tree survey/constraints drawing as a circle with the tree stem in the centre. For single stem trees, the root protection area (RPA) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

For trees with more than one stem, one of the two calculation methods below should be used.The calculated RPA for each tree should be capped to 707 m2.

For trees with two to five stems, the combined stem diameter should be calculated as follows:

√ ((stem diameter 1)2 + (stem diameter 2)2 ... + (stem diameter 5)2)

For trees with more than five stems, the combined stem diameter should be calculated as follows:

√ ((mean stem diameter)2 × number of stems)

The survey concentrated primarily on the significant trees located within the development area. The objective of this survey was to gather information regarding the tree's location on the proposed development site and the impact the proposed development may have on the trees. Please refer to appendix 1 for the tree inventory. Significant trees can be equated as those trees whose visual importance to the surrounding area is enough 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.

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 digital clinometer. The trees were categorized in accordance with BS5837:2012.

Tree Survey Results

Category	Number of trees	Trees to be removed
A	0	0
B	2	0
C	4	2
U	1	0

Table 1. Category of the Trees surveyed (BS 5837:2012, Item 4.5 Tree categorisation method)

The trees within the site area are in fair to good condition. The majority of the trees on the site are Ash (Fraxinus excelsior). In relation to the Ash on the site, a number of these specimens are showing signs of Ash Dieback (Chlara). This is a serious disease which causes rapid decline and failure of Ash. The main recommendation of this report is that the Ash on site need to be monitored for this disease and removed if they succumb to it. While it is a notifiable disease, it has become so endemic in the wider landscape that it would be academic at this point to report an occurrence of it. On discussion with the client and ecologist it has been confirmed monitoring will take place and aproporiate strategy implemented as dieback progresses, for possible retention of stumps and deadwood in the biodiversity buffer zone, where deemed appropriate.

Conclusions

The proposed development will have minimal impact on the existing tree cover on the site. Additional replanting will works will mitigate any loss of trees as a result of the Ash Dieback, and will be a net positive to the tree cover in this particular location. The proposed landscape plan details the planting of a significant number of new native broadleaf trees.

BS5837:2012 Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012]* ***4.5.7****.*			
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm categories	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher landscape value;and/ or trees	Trees present in groups or woodlands, but without this conferring on them significantly greater collective offering low or only temporary/transient landscape benefit	Trees with no material conservation or other cultural value	

ID	Latin Name	Common Name	SD [mm]	H [m]	(N) BS [m]	(E) BS [m]	(S) BS [m]	(W) BS [m]	Life Stage	Structural Condition	Phisiogical Condition	Quality Cat.	RPA [m]	Comments	Recommendations
T9	Fraxinus sp.	Ash Species	300	13	2	5	2	0	Over-mature	Poor	Poor	U	3.6	Poor A large portion of its crown has broken out leaving a tall stump with one live piece of upper crown. It is being heavily suppressed by Ivy.	Cut Ivy at ground level at present. Retain for as long as possible.
T8	Fraxinus sp.	Ash Species	480	12	4	4	4	4	Over-mature	Fair	Poor	C1	5.76	Showing some signs of decline within its crown. Heavy Ivy cover on main trunk extending up into its crown increasing	At present, cut Ivy at ground level and remove the surrounding vegetation to allow a more detailed assessment of its base.

													the windsail and leaving it more prone to storm damage. Contains deadwood in crown.	
T11	Fraxinus sp.	Ash Species	480	16	5	5	5	5	Mature	Good	Fair	C1	5.76	Heavy Ivy cover on main trunk is extending up into its crown. Showing signs of stress/decline throughout its crown. The visual assessment has been limited due to its position.	Remove surrounding vegetation to allow a more detailed assessment of its base. Cut Ivy at ground level
T10	Fraxinus sp.	Ash Species	900	17	7	7	7	7	Mature	Good	Fair	B1	10.8	Reasonably well	Remove large deadwood and cut

													structured with a slightly open crown due to branch failure in the past. Ivy cover on main trunk is beginning to extend up into its crown	Ivy at ground level. A large heavy scaffold limb extending out over the site may need to be pruned (end weight reduction), depending on the development within this area.
T0398	Fraxinus sp.	Ash Species	1000	21	7	7	7	7	Mature	Fair	Fair	B1	12	It is a large specimen with heavy Ivy cover on main trunk extending up into its crown. It contains a broad crown with heavy scaffold limbs /deadwood	Remove large dead and unstable growth. Cut Ivy at ground level

													throughout . The visual assessment of its base has been limited to the site side only.	
T03 25	Fraxinus sp.	Ash Species	800	7	4	4	4	4	Semi-mature	Poor	Fair	C1	9.6	Multiple stemmed from base and is growing from an old stump with some decay present. It forms part of the bulking within this hedge at present.	Retain as bulking within the hedge at present.
T03 24	Fraxinus sp.	Ash Species	650	8	4	4	4	4	Semi-mature	Poor	Fair	C1	7.8	Multiple stemmed from base having been cut in line with the hedge	Retain as bulking within the hedge at present.

																		in the past. These stems are of a small size at present with an acute union formations, this may become problematic as they grow in size.	

ID	Common Name	Life Stage	Condition	Comments	Recommendations
H7	Ash species, Blackthorn, Common hawthorn, Dog rose, Elder, Strawberry tree	Mature	Poor	It runs parallel to hedge No.6 and forms the boundary between two fields within the site area. It is a mature hedge in fair/poor condition with the bulk of it located on the west side of an open wet ditch. The ditch has fallen into disrepair and is derelict in some areas. The hedge was initially cut /maintained at a height of c.1m. The hedge species consists of pockets of Hawthorn, Blackthorn, Elder, Bramble and Dogrose and the trees consist of Ash ranging in age from seedlings to mature trees. Many of the Ash have been cut in line with the hedge during past management, but have since been allowed to grow up forming multiple scaffold crowns with weak union formations and decay pockets at old cutting points; this may become problematic as they grow in size. Some trees are beginning to establish above the hedge line. Some areas are becoming sparse with hedge species being dominated by Bramble and encroaching out onto the adjoining lands. There is evidence along this hedge line to suggest that excavations / ploughing have come close to the hedgerow bank in the past causing root damage to most of the trees with many at various stages of decline.	Remove large deadwood and unstable growth. Trim Bramble and other encroaching hedge species back in line with the hedge. Plant up openings.
H6B	Ash species, Blackthorn, Common hawthorn, Elder	Mature	Fair	It is a mature hedge in fair/poor condition and is located on the side of an open dry ditch. It consists of pockets of Hawthorn, Ash and Elder with large infill areas of Bramble. Bramble is also encroaching out onto the land. The Ash has been cut in line with the hedge over the years and consists of multiple stemmed trees forming part of the bulking. Update: Hedgerow is patchy and broken, what is left is growing well, was there removal permission in old planning app.?	Trim Bramble back in line with the hedgerow. It would benefit from some planting to improve density and continuity of this hedge.

H13	Ash species, Blackthorn, Common hawthorn, Crab apple, Elder, Elm species, Goat willow,Holly species	Mature	Good	Also Contains: Bramble, and Dogrose,. It runs at ninety degrees to hedgerow No.12 and forms the boundary of this site with the adjoining property (golf course). Located on the adjoining landside of deep wet boundary ditch. It is a mature hedge in fair/good condition. It is predominately Hawthorn with some Elm regeneration along with pockets of Blackthorn, Elder, Pussy Willow, Crab Apple and Holly. It is a reasonably good continuous hedge and provides good screening between properties	No works at present. It will require management in the future to lessen the risk of tree failure B2

Disclaimers

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. The conclusions and recommendations in this report are only valid for a period of one year. This period of validity may be reduced in the case of any change in conditions to or in proximity to the tree. In the event of adverse weather conditions, there is the possibility of any tree despite good report surveys, falling over.

In the event of a falling tree causing damage to residential or non-residential buildings in their proximity, no liability will attach to this firm, in the event of damage by such trees, to any person, any building public or private, or any mechanical vehicle or otherwise. Recommendations made in this report are subject to the knowledge and expertise of the qualified Arborist that carried out the above inspections.

Signed John Ward

Dated: 19st July 2021

John Ward

ISA Certified Arborist