Arboricultural Survey & Report

Client: Delmec Engineering

Site: Public Grass Verge, Ballyroan Rd, Butterfield, Dublin 16.

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1.3 PLANNING CONTEXT

At the time of writing, it is presumed that none of the trees on site are subject to a tree preservation order (TPO) or similar retention orders. A TPO can apply to a tree, trees, group of trees or woodland and can be implemented by the planning authority if it deems them to be desirable and appropriate in the interest of amenity or the environment. TPOs can be made under Part XIII of the Planning and Development Act 2000.

Before any recommended works are undertaken the trees should be inspected for any signs or activity of protected species within the trees. Under the Wildlife (Amendment) Act 2000 it is an offence to destroy or disturb nesting birds. Also, under the Wildlife Act and the EU Habitats Directive it is an offence to recklessly kill, injure or capture bats, to disturb them or destroy, obstruct or damage any bat roosts found. As some of the trees within the report have large cavities it may be prudent to conduct a bat survey prior to any works.

- Category C – trees of low quality with an estimated remaining life expectancy 0f between 10 and 20 years

The above categories can be further subdivided regarding the nature of their values or qualities–

- Sub-category 1 - Arboricultural qualities : the trees influence as a good example of its species, it's health and structure
- Sub-category 2 - Landscape qualities : the trees importance within and as landscape features
- Sub-category 3 - Cultural qualities : trees of an age that have a significant conservation and historical value

2.1 ROOT PROTECTION AREA (RPA)

The Root Protection Area (RPA) first appeared in the 2005 version of BS: 5837 and then within the updated version BS: 5837 - 2012. The BS describes the RPA as –

> *"layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability and where the protection of the roots and soil structure is treated as priority"*

The Root Protection Area (RPA) is the area around an individual tree to be protected from disturbance during construction works. The RPA is shown as a radius in metres measured from the centre of the tree's stem. Protection of the roots and soil structure in the RPA should be treated as a priority.

For single stem trees the root protection area is calculated as a circle with a radius 12 times the stems diameter. A separate calculation should be used for trees with more than one stem. The calculated RPA for each tree should be capped at 707 m2 or a circle with a radius of 15m. These calculations are based on the formulas set out in Section 4.6 and Annex D of BS 5837.

The RPA is generally regarded as a compromise between carrying out development and retaining a tree. Trees with a large stem diameter at 1.5 m can produce an RPA that if protected would not allow for developments to progress.

The RPA for each tree is plotted on the Tree Survey Drawings.

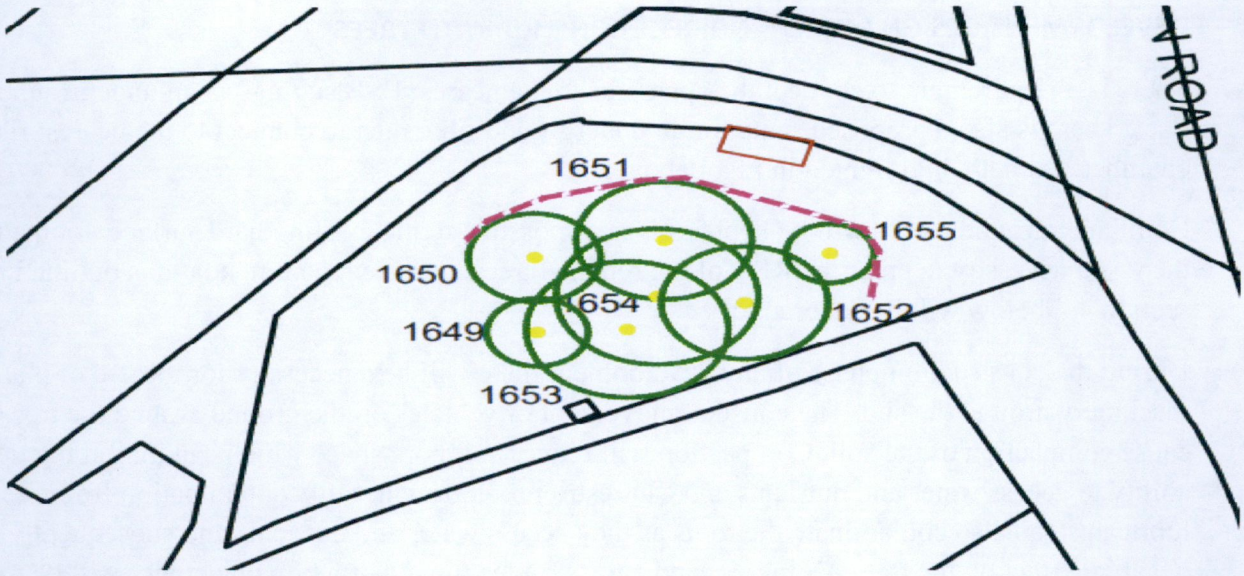

FIG 2 – Trees plotted using google maps

As highlighted in Fig 3 below the overall length of the site is 3.8m. Based on the information shown in Fig 2 above the proposed site will have no impact on the RPA of trees.

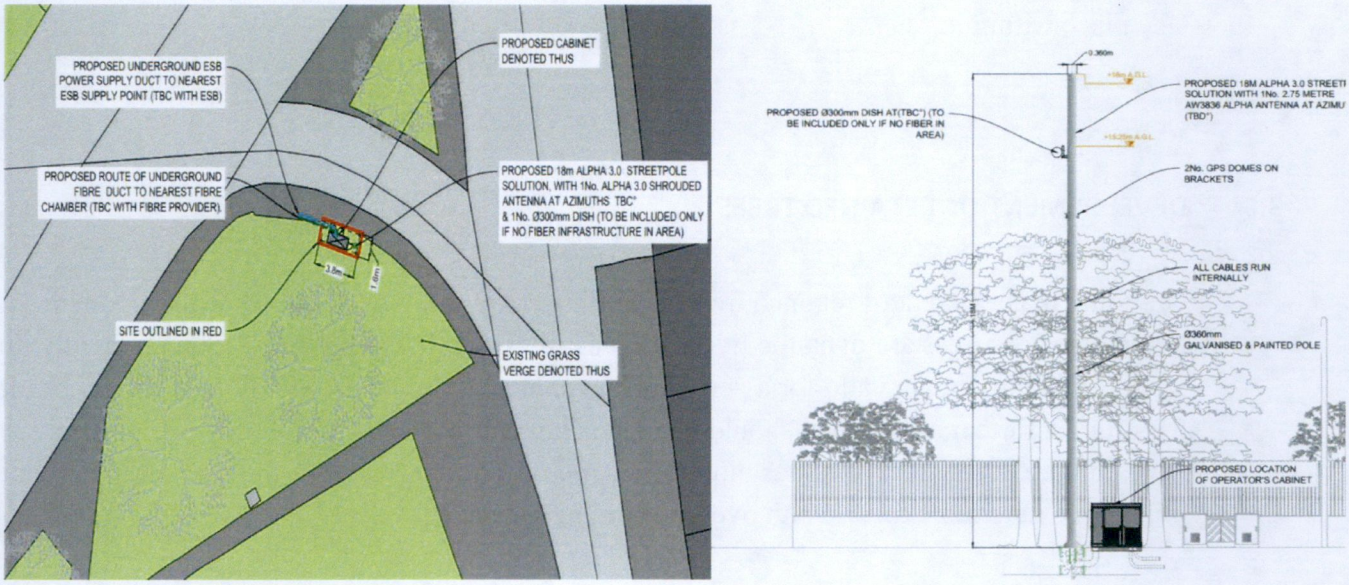

FIG 3 – Design Layout

Above ground constraints are indicated by the crown spread of trees to be retained. The proposed pole is 360mm wide and 18m tall as indicated in Fig 4. The location of the dish, if required, is to be at 15.25m. and is above the canopies of all trees. The pole and dish will have no impacts on the canopies of the trees.

4.0 ARBORICULTURAL METHOD STATEMENT

4.1 TREE PROTECTION AREA AND SEQUENCE OF OPERATION

Prior to any construction works commencing on the proposed development site, including any ground works, demolition, delivery of materials or the use of vehicular machinery, a sequence of operations will be implemented. All operations will follow this sequence in a systematic way in order to ensure that all trees to be retained are protected.

4.2 TREE WORKS

Any remedial tree work recommended within Appendix 2 will be done so according to best practice as recommended in BS 3998:2010 Tree Work Recommendations. All tree work operations recommended as part of this survey should be undertaken by suitably qualified tree surgeons with the appropriate insurance.

If tree works are to be undertaken within the bird nesting season, March – September, the trees in question will be assessed for the presence of any nests by a competent person before any works commence. If bird nests are present works will cease and an ecologist consulted before works can commence.

4.3 INSTALLATION OF PROTECTIVE BARRIERS

The conflict between the trees recommended for retention and the proposed design layout are highlighted in sections 3.2 and 3.3 above.

In all cases the objective should be to avoid compaction of the soil so that the tree root functions remain unimpaired.

All protective barriers will be installed prior to the commencement of any construction work. The location of all tree protection barriers will be visible on the Tree Protection Plan (TPP). The installation of the protective barriers will be done as outlined in Section 6.2 Barriers and Ground Protection of BS 5837.

The tree protection barriers will remain in place for the duration of the construction works and should only be removed once the on-site arborist has signed off on its removal.

The appropriate tree protection signage should be attached to the protective fencing, either a visual representation of tree protection or for example – T.P.A. Tree Protection Area Restricted Access Keep Out – should be used.

Below are illustrations as recommended in BS 5837. These illustrations provide a visual representation of possible options for the construction of the protective fencing –

techniques, it is recommended that the depth of run should be below 600mm. Where it is not feasible to re-route the services, the excavations should be done with hand tools in conjunction with an air-spade. The methodology for trenchless installation can be found in NJUG Vol.4: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees located in Appendix 3.

Where it is not feasible to re-route the services or use trenchless techniques, the excavations should be done with hand tools in conjunction with an air-spade. The use of this method must be considered only as a last resort if works are to be undertaken by agreement within the root protection areas.

4.5 DURING CONSTRUCTION WORKS

The tree protection barriers will be maintained at all times for the duration of the construction works. Any interference with or damage to the tree protection barriers should be recorded and the on-site arborist informed.

The location of the tree protection barriers will be visible on the Tree Protection Plan (TPP) and a copy should be retained on-site for reference at all times.

No machinery will enter the RPA exclusion zones for the duration of the on-site works. No excavations will take place within the RPAs as outlined on the TPP. The ground levels within the RPAs will not be altered at any stage of the construction works

All diesel, petrol, concrete and other materials hazardous to the health of the trees will be kept within the confines of the designated storage area for the duration of the construction works

No trees will be used to support cables, wires or signage.

All on-site personnel will be briefed on the RPAs of the retained trees and their measures and requirements during their initial site induction.

4.7 REMOVAL OF TREE PROTECTION BARRIERS

The tree protection barriers will be assessed and signed off by the on-site arborist prior to their removal. During the removal of the barriers care will be taken to avoid any unnecessary damage to the trees. If machinery is being used, they should remain on the hard surfaces and outside the RPAs during the dismantling operations.

4.8 CONCLUSION

The tree protection barriers will be assessed and signed off by the on-site arborist prior to their removal. During the removal of the barriers care will be taken to avoid any unnecessary damage to the trees. If machinery is being used, they should remain on the hard surfaces and outside the RPAs during the dismantling operations.

APPENDIX 1

SURVEY KEY

Tree No.....	Refers to numbered metal tag on each tree
Species	Refers to common and botanical name
Age.....	Referred to in generalised categories including -
Young.....	A tree planted within the last 10 years
Semi Mature...	A tree that has grown less than 1/3 its expected height
Early Mature...	A tree between 50% & 80% its expected height
Mature.....	A tree that has reached its expected height but still has potential to grow
Over Mature...	A tree at the end of its time and the crown is starting to break up and decrease in size
Ht.....	Tree height in meters
Spread(S).....	Tree canopy from north, east, south and west in meters
DBH.....	Tree diameter at breast height in cm
RPA.....	Root protection area as a radius from trees stem centre that is to be protected from disturbance during construction works. For a single stem the root protection area is calculated as an area that is 12 times the stem diameter. The RPA is plotted on the tree constraints plan in meters
Condition.....	Condition of the tree both physical and structural
G – Good.....	A specimen of generally good form and health
F – Fair.....	A specimen with defects but can be managed and retained
P – Poor.....	A specimen through defect, decay or reduced vigour has a limited life
D – Dead.....	A dead tree
Comments.....	Additional description/commentary on each individual tree

APPENDIX 2

TREE SURVEY DATA

TREE NO	SPECIES	AGE	HT	SPREAD	DBH	RPA	CONDITION PHYSIO / STRUCTURAL	COMMENTS
							TREE DATA FOR BALLYROAN RD.	
1654	*Acer platanoides* Norway Maple	M	12	N 3 S 2 E 2 W 2	38.5	4.6	GOOD / GOOD	Central tree with all others growing It – canopy narrow extending slight North – twin stem from 2m union v Slight bark inclusion on west side – North with further twin stem, gooc 3 co-dominant stems – dense cano Small bleed from main stem @.2m
1655 No tag	*Sorbus aucuparia* Rowan	M	4	N 1 S 2 E 3 W 0	54	2.0	FAIR / GOOD	Small canopy tree overgrown by la *Acers* to west – older decay cavity a Well occluded – no canopy to west

4.1.3 Realignment

Whenever possible apparatus should always be diverted or re-aligned outside the Prohibited or Precautionary Zones. Under no circumstances can machinery be used to excavate open trenches within the Prohibited Zone.

The appropriate method of working within the Precautionary Zone should be determined in consultation with the local authority (or for privately owned trees the owner or their agent) and may depend on the following circumstances;

• the scope of the works (e.g. one-off repair or part of an extensive operation)

• degree of urgency (e.g. for restoration of supplies)

• knowledge of location of other apparatus

• soil conditions

• age, condition, quality and life expectancy of the tree

Where works are required for the laying or maintenance of any apparatus within the Prohibited or Precautionary Zones there are various techniques available to minimise damage.

Acceptable techniques in order of preference are;

a) Trenchless

Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Prohibited or Precautionary Zones. In order to avoid damage to roots by percussive boring techniques it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g. oil, bentonite, etc.) must not be used when working within the Prohibited Zone. Lubricating materials other than water may be used within the Precautionary Zone following consultation and by agreement.

b) Broken Trench - Hand-dug

This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching as in (c) below. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Prohibited Zone.

See TABLE 1 – 'Prevention of Damage to Trees Below Ground' below for summary details regarding causes and types of damage to trees and the implications of the damage and the necessary precautions to be taken to avoid damage.

TABLE 1 - Prevention of Damage to Trees Below Ground

Causes of Damage	Type of Damage	Implications to Tree	Precautions
Trenching, mechanical digging etc.	Root severance	• The tree may fall over • Death of the root beyond the point of damage • Potential risk of infection of the tree The larger the root the greater the impact on the tree.	Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the local authority tree officer. For roots less than 25mm in diameter use a sharp tool and make a clean cut leaving as small a wound as possible.
Trenching, mechanical digging, top soil surface removal etc.	Root bark damage	• The tree may fall over • If the damage circles the root it will cause the death of the root beyond that point • Potential risk of infection of the tree The larger the root the greater the impact on the tree.	Do not use mechanical machinery to strip the top soil within the Precautionary Zone. Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the local authority tree officer. For roots less than 25mm use a sharp tool and make a clean cut leaving as small a wound as possible.
Vehicle movement and plant use. Material storage within the precautionary area.	Soil compaction & water saturation	Restricts or prevents passage of gaseous diffusion through soil, the roots are asphyxiated and killed affecting the whole tree.	Prevent all vehicle movement, plant use or material storage within the Precautionary Zone.
Top-soil scouring, excavation or banking up.	Alterations in soil level causing compaction or exposure of roots.	Lowering levels strips out the mass of roots over a wide area. Raising soil levels asphyxiates roots and has the same effect as soil compaction.	Avoid altering or disturbing soil levels within the Precautionary Zone.
Use of herbicides.	Poisoning of the tree via root absorption	• Death of the whole tree • Death of individual branches Damage to leaves and shoots.	The selection and application of herbicides must be undertaken by a competent person in accordance with COSHH regulations.
Spillage of oils or other materials.	Contamination of soil	Toxic and asphyxiation effects of chemicals, oils, building materials (cement, plaster, additives etc.) on the root system can kill the tree.	Never store oils, chemicals or building materials within the Precautionary Zone or within the branch spread of a tree, which ever is the greater.
Placement or replacement of underground apparatus.	Various	Death of all or part of the tree.	Effective planning and liaison with local authority tree officer, taking into consideration the position of trees, and their future growth potential and management