Appendix 1

Survey Specification

6.1.1 Torfaen County Borough Council wishes to ensure that its tree resource is managed in a way that reflects good practice; minimises the risks of trees failing or growing in such a manner that threatens people’s health and property; and which ensures that the health of its tree resource is protected and the Council’s duty of care is met.

6.1.2 Torfaen County Borough Council is therefore seeking to appoint an appropriately skilled organisation to provide a tree condition survey of all the tree assets located on the public highway, parks and open spaces, and council buildings under the Council’s control.

6.1.3 The aim of the project is to provide a tree inventory and condition survey for all trees on Council owned land for the purposes of meeting its duty of care by:

- Creating a Tree Inventory
- Assessment of Tree Health and Condition
- Risk management
- Proactive management of existing trees and woodland

6.1.4 The survey is part of Torfaen County Borough Council’s risk assessment of all trees under its ownership. The survey will include all trees on amenity land, in parks and on open spaces, Schools, Local Nature Reserves and wooded areas throughout the borough. It will also include trees on the Highway, (this excludes trunk roads).

6.1.5 The borough covers an area of over 4,670 acres and must be surveyed in a systematic way. The planned route(s) should be described as part of the tender response in schedule 3 of this document and should include the start and completion dates (Programme).

6.1.6 The contractor will only deploy an operative to carry out the surveying that possesses the Arboricultural Level 3 minimum qualifications and has two years experience of similar work. (The Council may request evidence of the operative’s qualifications). The operative will have experience of using the Ezytreev software.

6.1.7 The contractor will be responsible for all personal protective equipment required for their operatives.

6.1.8 The contractor will carry out and forward to the Council prior to the start of the contract all relevant risk assessments associated with the tree survey activities.

6.2 Data Storage & Equipment

6.2.1 The survey details will be gathered and stored on the Council data collection and management system Ezytreev.

6.2.2 The Council expects any selected Tenderer to have a clear understanding of how the tree management survey will be undertaken and have full knowledge and competence of
the software (Ezytreev) and associated hardware provided to record all trees located on council land

6.2.3 The council will supply the hardware and software equipment necessary to carry out the surveys. The Council will provide up to four tablet/PDA/android devices, (more can be agreed if necessary). Supplied equipment must be maintained in an efficient order, and in good repair when returned to the Council. Final payment shall only be made once all equipment provided by the council has been returned in an acceptable working condition.

6.2.4 The data collected must be downloaded onto the Council system periodically, every 500 trees or at least once per week.

6.2.5 The Tenderer will need to familiarise themselves with the geography of the borough and transport links to work methodically and efficiently to ensure tree data is collected onsite and this is inputted onto the Ezytreev system.

6.2.6 The Tenderer must ensure they use this system to carry out the following:

- Detail the trees surveyed:
  - Location of tree
  - Species Tree type
  - Condition of tree
  - Tree value
  - Recommended works for the tree

6.3 Survey Details

6.3.1 The Tenderer is expected to supply their own PPE Equipment and Arboricultural Sundries Equipment for surveying i.e. diameter measuring tapes, clinometers, probes, binoculars etc.

6.3.2 The survey should highlight trees that are dead, dying and dangerous as well as trees likely to cause direct physical damage, specifically to buildings but also to minor structures such as garages, public highway including low hanging branches, footways and obstructed street lighting.

6.3.3 The period between surveys will be five years. This should be taken into consideration whilst surveying to ensure foreseeable works required within this period are recommended and highlighted.

6.3.4 The Council requires all trees within the designated area to be surveyed and plotted including those on which no work is deemed necessary.

6.3.5 Trees that may require more frequent monitoring should be highlighted within the survey stating 6 monthly, yearly or three yearly inspections (to be carried out by Torfaen County Borough Council). Trees not indicated will be surveyed during the next cyclical survey every five years.
6.3.6 Where further investigation of the internal integrity of a tree is required “Detailed survey” will be used. See item 6.9 below.

6.4 Tree Plotting

6.4.1 The survey is to include a $360^\circ$ inspection of the entire tree from ground level and is to include the following information:-

6.4.2 The surveyors name should appear in the survey start up. If it does not appear it may be in the drop down box. If it does not appear please inform the Supervising Officer and a dedicated survey will be created.

6.4.3 Only trees greater than 7cm diameter should be plotted unless they are staked or requiring stakes, i.e. planted trees. Individual self set tree of less than this diameter should not be plotted. However where a group of self sets or sucker growth requires work they should be plotted as a group and the approximate number of stems recorded.

6.4.4 Trees plotted on the hand held machine should be placed as close to the position of the tree on the ground as possible. If the tree has an asymmetrical crown, the widest part of the crown from the trunk should be taken as the radius i.e. half the diameter and the centre of the tree plotted in the position of the trunk.

6.4.5 If no reference point is available such as where trees are situated within an open space or featureless landscape, enter the open space name only.

6.5 Tree survey details to be entered onto tablet PC

6.5.1 Below is an example of the tree survey records created on the Ezytreev system.
6.5.2 **Location reference** e.g. Front, rear or adjacent to a reference point such as Street and House number, Woodland or open space name.

6.5.3 **Species** – Species field must be filled in and can be selected from a drop down box within the data capture system. Where species or cultivars are not known the genus will be sufficient.

6.5.4 **Size** (height, girth and crown spread) The council's arboricultural contractor’s schedule of rates are based on Diameter at Breast Height measurement so these need to be accurate to within 20mm and a circumference tape used. The diameter is to be measured at 1.5 m above ground level.

6.5.5 **Age class** – an estimate of the age of the tree (0-15, 15-25, 25-40, 40-60 and over 60 years) as well as a general age classification:

(a) **Juvenile** – young tree up to approximately 15 cm diameter

(b) **Semi mature** – trees which are maturing but have not yet reached the characteristic size and shape of the species

(c) **Mature** – trees having attained the characteristic size and shape of the species

(d) **Over mature** – trees showing signs of senility and probable continued deterioration
6.5.6 **Vigour** – a general observation of the trees health with regard to foliage size and colour and extension growth (Good, average, poor, very poor, dead).

6.5.7 **Work priority** – this field will require filling if recommendations for work have been made. In this instance recommendations should only be made if it is felt the work will become necessary within the three year re-inspection goal (completed by Torfaen County Borough Council). Otherwise the recommendations field should be left blank. If the surveyor feels that the tree should be highlighted for the next survey he may do this by noting his comments in the tree notes box.

(a) In this initial survey any trees which require works within the next three years should be marked as “essential”.

(b) “*Urgent public health*” is to be used where there is high risk of imminent injury or damage. **Should any trees inspected require immediate works the Streetscene Manager should be informed immediately**

6.5.8 **Tree owner** – this field needs to be filled as it defines the cost centre from which the works are paid. If it is not clear who the owner is, there is an “unknown” field.

6.5.9 **Site Features** – Highlighting targets and objects affected in the vicinity of the tree as well as the local ground conditions affecting the tree.

6.5.10 **Conditions** – Visual tree survey, recording the conditions observed. This includes any mitigating factors leading to the recommendations.

6.5.11 **Recommendations** – Recommendations for works to remove risks identified if the existence of any targets require it.

6.5.12 **Comments** – If any observations need to be expanded upon, additional comments are made in this field. Comments made in this box are reproduced on works orders and provide extra information for contractors.

6.5.13 **Surveyors Notes** - Notes made as extra information or reminders to subsequent inspectors should be made in this box.

### 6.6 Tree Groups

6.6.1 Appropriate areas can be plotted as tree groups. The area is defined on the O/S map by drawing a border around the area and an estimate of the number of the trees entered into the **no. field**.

6.6.2 Where trees in woodland blocks are not within falling distance of public highways, footways, rights of way, buildings or minor structures and are unlikely to cause direct physical damage there is no need to survey these trees.

6.6.3 It may not be possible to enter all the information required in 1 - 9. The surveyor should make any relevant notes in the comments box.

6.6.4 Recommendations made for these areas will be applied to all trees in the defined area. If individuals require works within an outlined group of trees these should be plotted and treated as individual trees.
6.7 Re-survey

6.7.1 Where trees have already been plotted on the data capture system and re-survey is required, click the inspect tree button. This will update the data base, adding the most recent survey date to the survey history. Any changes required to the tree data can be made after the inspect tree button has been pressed.

6.8 Ezytreev Classification of Individual Trees and Groups of Trees

6.8.1 Tree number: Each tree or tree group will be identified with a unique tree number to enable it to be accurately identified.

6.8.2 Location: All trees will be plotted digitally using the standard method for entering information onto the software maps. Consistent symbols shall be used for indicating trees and groups of trees to be agreed with the Streetscene Manager. Some judgement will be required to the plotting of trees in locations where there is little mapping information to provide clearer guidance or accuracy. In order to ensure greater accuracy, the Council would prefer to see locations identified using Differential GPS technology.

6.8.3 Species: The Latin and Common name for each tree is required to specie level.

6.8.3 Diameter: Stem diameter must be accurately recorded at 1.5m from ground level. Where trees are multi-stemmed this should be noted, all stems measured and an average recorded.

Diameter categories:

- 0 – 150mm
- 150 – 300mm
- 300 – 450mm
- 450 – 600mm
- 600 - 750mm

6.8.4 Height: Recorded in metres, measured from the base of the tree.

Height categories:

- 0-5m
- 5-10m
- 10-15m
- 15-20m
- 20-25m
- Over 25m

6.8.5 Crown Spread: Indicates the spread of the crown from the base of the tree. Spread will be recorded as an average reading from the cardinal points. >750mm.
Spread categories:

- 0-5m
- 5-10m
- 10-15m
- 15-20m
- 20m Plus

6.8.6 Age: Classifications are based upon the perceived maturity of the tree, not necessarily its chronological age. These classifications are estimated by reference to the appearance and diameter of each tree. The accepted life expectancy of various species is provided in. 2003, Guidance Note 4 Visual amenity valuation of trees and woodlands (the Helliwell system) 3rd edition.

Classifications:

- **NP** Newly Planted – a tree which has recently been planted and still retains either tree restraints or strapping to support the tree stem

- **Y** Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. up to 20-25 cms stem girth.

- **S/M** Semi-mature. An established tree but one which has not reached its potential ultimate height and has significant growth potential.

- **E/M** Early-mature. A tree reaching its ultimate potential height, whose growth rate is slowing down but will still increase in stem diameter and crown spread and has a safe useful life expectancy.

- **M** Mature. A mature specimen with limited potential for any significant increase in size but with a reasonable safe useful life expectancy.

- **O/M** Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.

- **V** Veteran. An over-mature specimen of high value due to either its age, size and/or ecological significance
• D Dead.

6.8.7 Features: Should be recorded for locality, surface, furniture, other some examples can be found below for each category:

- Locality – Bus route, nature conservation area, cross over
- Surface – grass, paving, tarmac, tree pit in hard surfacing
- Furniture – road sign, lamp column, bollard
- Other – Building within or touching canopy, footpath canopy,

6.8.8 Condition: Although subjective, this should provide an overall assessment of the health of the tree. The following descriptions provide an indication of each category:

- General Condition – fair, poor, good, dangerous, vandalised
- Canopy/Crown - Broken branch crown, decay, die back
- Trunk/Stem - Bark wounding, stem fruiting body, forked trunk
- Base/Roots – basal fruiting body, root damage
- Other Condition - fallen tree, hung up tree, wildlife value

6.8.9 Recommended Works required: Where remedial works are recommended they must be scheduled and take into consideration such factors as their age, species, location and nature of the problem these will be associated with the specified contract schedule abbreviations.

To include:

- Pruning Works PW1, PW2, PW3
- Reduction Works
- Pollarding Works
- Epicormic/basal works
- Fell
- Grind stump hard or soft
- Other recommendations can be added at the discretion of the surveyor.

6.8.10 Re-inspection: For all trees surveyed there must be the ability for Torfaen County Borough Council to carry out a re-inspection within the periods as follows:

- Within 6 months
- Within 1 year
- Within 3 years
- Tree recommended for monitoring with a set time period if different to the above
- Tree recommended for removal

6.8.11 *Tree size:* For all tree surveyed as categorised

6.8.12 *Tree Type:* For all trees surveyed as categorised

6.8.13 *Tree Condition:* For all tree surveyed as categorised

6.8.14 *Functional value:* For all tree surveyed as categorised using CAVAT system

6.8.15 *Save Use Life Expectancy:* For all tree surveyed as categorised using CAVAT system

6.8.16 *Priority:* For all tree surveyed as categorised

6.8.17 *Comments:* Where applicable the surveyor should make comments specific to the tree or its location that may aid in the management of the tree, expand upon any details or append additional notes as required. This should include prioritising the work and comments should be based on a number of factors including, but not limited to, the immediate risk to health and property, rate of typical growth, and the health of the tree. This section may identify further investigatory works that are required. This should be added to either the additional information or memo section on recommended works on the Ezytreev system.

6.9 **Specification for trees requiring further detailed surveys**

6.9.1 The purpose of these surveys is to determine whether the tree is to be felled or retained, if the decision is to retain the tree then to provide the comprehensive information to justify its retention.

6.9.2 Detailed survey follow on from the normal routine survey when there is a need to study in more detail the root plate, tree base and trunk.

6.9.3 The contractor should allow for use of a Resistorgraph, Sonic Tomograph or Climbing survey to record the internal integrity of the tree and the results clearly labelled and interpreted. The results of any drilling will enable a decision to be made about the tree’s future.

6.9.4 All basal cavities are to be investigated and reported on.