Arboricultural Method Statement - Rev C

Protected Status Of Trees

Trees may be legally protected, this may either be in the form of a Tree Preservation Order (TPO) or that the trees are located within a Conservation area. In addition some tree felling may require a felling licence from the Forestry Commission.

Potentially large penalties may be enforced for illegally carrying out works on protected trees. It is recommended that checks are made before any works are undertaken and no work should commence until permission has been granted. Please note that there are a number of exemptions from the requirement to obtain a felling licence including land on which full planning permission has been granted by the local authority, however this exemption does not cover land where only outline planning permission has been granted, or on land which has been allocated for residential development within local authority urban and local development plans.

AllAboutTrees has been able to ascertain with Barnsley Council (the Local Planning Authority), on Tuesday 30th August 2016 that there are no Tree Preservation Orders protecting the trees on the site. The study area abuts the Darfield Conservation Area which affords group 31 and tree 32 protection. Six weeks' notice must be supplied to the Local Planning Authority for any proposed tree work not otherwise approved by any existing relevant planning permission. It is an offence to carry out any tree work without giving the required notice.

Tree Works

The first arboricultural works on site will be the removal of all the conflicting trees 6-10, 18, 21-23, 25, 27, 29 and groups 26 & 27 which are identified on the Tree Protection Plan (TPP) by the broken black ring surrounding the tree centre and referred to in appendix 1 of this report.

The stumps may either be ground out using a stump grinding machine or removed as part of the ground excavation works.

Details of any prescribed pruning works are included within Appendix 1 of this report. The tree works should wherever possible be carried out in accordance with BS3998:2010 Recommendations for tree work.

Protective Barrier Erection

The protective barriers are to be erected prior to the commencement of site works including demolition, soil stripping or movement, bringing onto site of materials, supplies or machinery. Tree works can be undertaken prior to the erection of the barriers.

The barriers must be erected in the position indicated on the Tree Protection Plan (TPP) by the dark blue line and be constructed as per the following specifications.

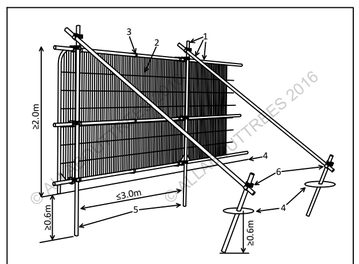
The barriers should be considered essential and should not be removed or altered without prior recommendation by an Arboriculturalist and approval of the local planning authority.

The barrier should consist of a vertical and horizontal framework of scaffold tubing which is adequately braced to resist impacts. The vertical scaffold tubes need to be placed at a distance not exceeding 3m apart. The weldmesh or Heras panels need to be 2.3m tall and are securely attached to the scaffold framework with wire or scaffold clamps. The wire or scaffold clamps should be secured on the inside of the barrier to avoid easy dismantling. Panels on rubber or concrete feet are not resistant to impact and should not be used.

No fixing shall be made to any tree and all possible care must be taken to prevent damage to tree roots when locating the posts.

All types of barriers must be firmly attached to prevent movement by site personnel or vehicles and all-weather signs with the wording "Construction exclusion zone- keep out" should be attached.

Part of the protective barrier around T15 will need to be temporarily removed to allow removal of the flagstones within the RPA. The eastern section must be removed to allow access and must be immediately reinstated following removal of the flagstones.



1 - Standard scaffold poles
2 - Heavy gauge 2.0m tall galvanized tube and welded mesh infill panels
3 - Panels secured to uprights and cross members with wire ties
4 - Existing (unaltered) ground level
5 - Uprights driven into the ground until secure (minimum depth 0.6m)
6 - Standard scaffold clamps



Location of Site Compound & Storage Areas

The contractor's site compound, storage & parking areas must be located outside of the root protection areas (RPAs) of the retained trees.

All site storage areas, especially cement mixing and washing points for plant and vehicles must also be situated outside of the root protection areas (RPA). Where there is a possible risk of polluted water runoff heavy duty plastic sheeting and sand bags must be used to contain spillages and contamination.

Demolition

The demolition work near the trees must be undertaken with great care with every effort made to avoid damage to aerial and underground portions of the tree. Roots frequently grow adjacent to, and underneath structures and surfacing and damage can occur when the roots are physically disturbed or the soil around them is compacted from the weight of machinery or material.

When demolishing structures near to trees the machine should ideally break the walls and roof into the footprint of the building (top down pullback methodology) and avoid any debris falling into the root protection area.
If this is not possible the section of the building adjacent to the tree will need to be demolished by hand.

Existing surfacing should be carefully lifted using either a long reach machine positioned outside of the root protection area or manually using hand tools. Surfacing is broadly defined as any hard surfacing used for vehicular access, parking or pedestrian pathways. Including tarmac, crushed stone, solid stone, compacted aggregate, concrete and timber decking, but excluding compacted soil with no hard covering.

In summary,

- Machines with long reach may be positioned outside of the root protection area (RPA) and used to demolish the building or carefully remove debris providing this does not disturb the RPA or the aerial portion of the tree
- Appropriate hand tools for manual removing debris include pneumatic or powered breaker, sledgehammer, crow or prying bar, pick, mattock, spade, shovel, trowel, fork or wheelbarrow. Secateurs and hand saw should be available to cut any exposed roots. The debris must be moved across existing hard surfacing or temporary ground protection thereby avoiding compaction of the soil.
- If appropriate the below ground structures should be left in place if their removal was to cause excessive root disturbance

Proposed Landscaping

As part of the development a landscaping scheme will be implemented to complement the proposed design. This is likely to involve preparation of topsoil to allow for the subsequent turfing. Care will need to be taken when within the RPA of any retained tree to prevent damage to the underlying root system. The following methodology should be adhered to when working within the RPA of any retained tree.

- No machinery to enter the RPA of any retained tree. Access limited to pedestrian only.
- The turf layer can be carefully removed, if necessary, with the use of a turfing iron.
- Any stones over 50mm / debris to be removed by hand.
- Subsequent ground preparation limited to raking with springbok rake.

Fertiliser, turf, and sifted top soil can then be applied as required as required. This must be limited to <100mm total depth.

Tree 15

Infrastructure within the RPA of T15 will need to be removed as part of the development. The protective barrier, as indicated by the blue line on the TPP, will provide appropriate protection during demolition of the adjacent building and fence.

Removal of the paving slabs within the RPA will require a temporary opening to be made in the east flank of the protective barrier. Once works are complete, the barrier must be **immediately** reinstated.

- No machine access within the RPA of the tree.
- Paving slabs to be lifted and removed with use of hand tools only. A crowbar may be used to lever the slabs up from the ground level and into a position where they can be lifted and removed by hand.
- Upmost care must be taken not to disturb the substrate beneath the slabs which are likely to contain rooting material.
- Upmost care to be taken by operatives not to disturb the aerial portions of the tree.
- A layer of topsoil and turf can then be applied to this area to bring it in line with the remainder of the RPA. Depth of new material is estimated at <100mm depth.
- Protective barrier immediately reinstated following completion of work.

Tree 24

Access will also be required within the RPA of T24 to remove the existing infrastructure.

The protective barrier, as indicated by the blue line on the TPP, will provide appropriate protection for the tree until the relevant stage of the project where the infrastructure is to be removed. At this stage there is little scope for protective measures due to access requirements. Ground protection measures are not considered appropriate due to the slope of the grass verge. Operatives must take upmost care to prevent disturbance/damage to the tree during this stage of the project.

- Protective barrier removed to allow access.
- Access to grass verge must be limited to pedestrian access only.
- Panels of the existing fence to be unbolted/severed and removed.
- Machine with long reach arm parked upon existing surfacing and used to **gently** nudge the upright supports so as to loosen the foundation from the surrounding soil.
- Uprights attached to arm of machine and lifted vertically from the ground.
  - Using a machine to gently nudge and lift the uprights is found to cause less disturbance to the ground (and adjacent roots) than hand digging the posts out.
- Removal of the existing kerb stones to be undertaken with use of machine.
  - Machine must be parked upon the existing surfacing (not straddling the kerb). Majority of machines have beam swivel so this should not be a problem.
  - Kerb stone to be lifted lengthways, by placing the teeth of the bucket at the end of the kerb stone and using the bucket curl to gently lift.
  - Damage to any adjacent roots, which may grow parallel to the kerbs, will be minimal as the kerbs slide past them.
- Removal of the existing surfacing should take place from south to north, allowing the machine to sit on hard surfacing and work its way out of the RPA. The machine must **not** enter the RPA once the surfacing has been removed.
- Initial breaking of the surfacing within the RPA to be carried out by low impact pneumatic tools or by hand if possible.
- A machine can be used to lift the slabs of the broken material and remove them from the RPA. The upmost care must be taken by the operative to not penetrate the underlying substructure, with the bucket teeth, which may contain rooting material.
- Removal of the surface will occur in 2m strips working from undisturbed surface. This will enable any roots exposed to be covered with a good quality top soil to avoid desiccation and the ground to be 'made good' as the operation progresses, avoiding the need for excessive travel on exposed ground.
- No reduction in levels of the underlying substrate will occur.
- The underlying substrate may be levelled by the addition of up to 100mm of good quality top soil. Hand tools only will be used for any levelling works; this work will not disturb the underlying substrate.

The barrier must be restored to the position indicated on the TPP following completion of the works, or during any break in works. The barrier will only be removed during active work within the RPA, at all other times the barrier must be present.

Drainage Runs/ Underground Services

It is assumed that the existing service runs will be exploited where possible, but if new works are required it is important that they comply with the National Joint Utilities Group (NJUG) 'Guidelines for the planning, installation, and maintenance of utility services in proximity to trees' and BS 5837:2012. The excavation of open trenches by machine will be unacceptable within the protective zone of any of the retained trees.

Wherever possible, services should be routed outside of any retained trees RPA. When this is not possible apparatus should be routed together in a common duct and any inspection chambers sited outside the RPA.

Acceptable techniques for the laying of services in order of preference are:

- **Trenchless-** by use of thrust boring or similar techniques. The pit excavations for starting and receiving the machinery should be located outside of the root protection area. To avoid root damage, the mole should run at a depth of at least 600mm.
  Use of external lubricants on the mole other than water (eg oil or bentinite) should be avoided.

Trenchless Solutions For Installation Of Underground Services

Method	Accuracy (MM)	Bore (A) diameter (MM)	Maximum subterranean length (M)	Applications	Not suitable for
Microtunnelling	<20	100 to 300	40	Gravity-fall pipes, deep apparatus, watercourse/ roadway under crossings	Low-cost projects due to relative expense
Surface - launched directional drilling	≈100	25 to 1200	150	Pressure popes, cables including fibre optic	Gravity fall pipes, e.g. drains and sewers **(B)**
Pipe ramming	≈150	150 to 2000	70	Any large-bore pipes and ducts	Rocky and other heavily obstructed soils
Impact moling (C)	≈50 **(D)**	30 to 180 **(E)**	40	Gas, water and cable connections, e.g. from street to property	Any application that requires accuracy over distances in excess of 5m.

(A) Dependant upon strata encountered
(B) Pit-launched directional drilling can be used for gravity fall pipes up to 20m in subterranean length
(C) Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.
(D) Substantial inverse relationship between accuracy and distance
(E) Figures given relate to single pass: up to 300mm bore achievable with multiple passes

If trenchless insertion is not feasible the alternatives are detailed below in order of preference.

- **Broken trench-** by using hand dug trench sections together with trenchless techniques. It should be limited to practical access and installation around or below the roots. The trench must be dug by hand (see following comments re continuous trenching) and only be long enough to allow access for linking to the next section. The open sections should be kept as short as possible.
- **Continuous trench-** the trench is excavated by hand and retains as many roots as possible. The surface layer is removed carefully and hand digging of the trench takes place. No roots over 2.5cm diameter or clumps of smaller roots (including fibrous) should be severed. The bark surrounding the roots must be maintained. Cutting of roots over 2.5cm diameter should not be attempted without the advice of a qualified Arboriculturalist.

  If roots have to be cut, a sharp tool (defined as spade, narrow spade, fork, breaker bar, secateurs, handsaw, post hole shoveller, hand trowel) should be used.

Backfilling

Reinstatement of street works must comply with the code of practice New Roads and Streetworks Act 1991 (Specification for the reinstatement of openings in highways), but where tree roots are involved backfilling should be carefully carried out to avoid direct damage to retained roots and excessive compaction of the soil around them.

The backfill should incorporate an inert granular material mixed with top soil or sharp sand (not builders sand) around the retained roots. This will allow a measure of compaction for resurfacing whilst creating an aerated zone around the roots.

Roots and in particular fine roots, are vulnerable to desiccation on exposure to air. The roots are at greatest risk when there are rapid fluctuations in the air temperature around them (especially winter diurnal temperatures). It is vitally important that the roots are covered with sacking whilst the trench is open. The sacking should be removed once the trench is backfilled.

Arboricultural Supervision

The following programme of supervision is proposed to assist is the preservation and protection of the retained trees during all aspects of the proposed development.

The supervision arrangements must be sufficiently flexible to allow for the supervision of all sensitive works as they occur. The Arboricultural Consultant's initial role is to liaise with the developer and the council to ensure that the appropriate protective measures are in place before any works commence on site and once the site is active monitor compliance with the Arboricultural conditions and advise on any tree problems that may arise.

Action	Programming	Extent of supervision	Nature of supervision
Pre-commencement meeting with site manager & Council tree officer	Before any site activity commences	Meeting on site Review any updates to the proposal Confirm extent of tree works and protective barrier position.	Site meeting & letter or email confirming results of meeting distributed to relevant parties.
Tree works meeting with tree works contractor	Prior to commencement of tree works	Meeting on site to confirm tree works specification and method of working	Site meeting & letter or email confirming results of meeting distributed to relevant parties.
Tree works undertaken Finalising tree protection barrier installation	Before any plant enters site or demolition/construction work commences.	Confirm position of the protective barriers have been installed and comply with the Tree Protection Plan (TPP) Provide photographs indicating completed tree protection	Site meeting & letter or email confirming results of meeting distributed to relevant parties.
Supervision of demolition works adjacent to T15 and 24	At relevant stage of demolition works.	On site supervision by arboriculturist	Letter or email confirming results of supervision distributed to relevant parties.
Removal of protective barriers and other tree protection measures	Once construction activities have finished	Meeting with contractor for briefing before removal commences	Site meeting & letter or email confirming results of meeting distributed to relevant parties.

Site Management

It is the developer's responsibility to ensure that the details of the Arboricultural method statement and any agreed amendments are known and understood by all relevant site personnel. Copies of the agreed documents must be kept on site at all times and the site manager or other appropriate person must brief all personnel who could impact the trees on the specific tree protection requirements.

This should form part of the site induction procedure and be written into the appropriate site management documents.



NOTE - THIS DRAWING SHOULD BE IN FULL COLOUR

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The original of this drawing was produced in colour - a monochrome copy should not be relied upon

Key:

- Tree Number
- Tree Crown True Shape (Shaded Light Green)
- Predicted Future Growth Of Canopy (Shaded Dark Green & Surrounding Current Crown Shape)
- Trees To Be Removed Broken Black Ring Surrounding Centre
- Tree Quality Assessment Centre Colours As Below
- Green Centre = High Quality (Denoted By Letter A)
- Blue Centre = Moderate Quality (Denoted By Letter B)
- Yellow Centre = Low Quality (Denoted By Letter C)
- Red Centre = Unsuitable To Retain (Denoted By Letter U)
- BS Root Protection Area As Shown By The Red Circle Around The Tree
- Tree / Woodland Groups
- Hedgerows
- Position Of Protective Barrier For Construction Purposes (Continuous Blue Line)

Institute of Chartered Foresters
Registered Consultant

Arboricultural Method Statement
Tree Protection Plan (AMS TPP Rev C)
Revision C
Retained Trees Shown On Proposed Layout With Protective Measures Indicated

The Former Foulstone School,

Nanny Marr Road, Darfield,

Phase 2

For

Partner Construction

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Scale 1:500 at A1 | Date 05.04.19

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-Ecological Consultants

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