Arboricultural Method Statement for proposed works at:
Pear Tree Farm, Alburgh Road, Hempnall Green, Norfolk NR15 2NS.

1. Scope of the Works

1.1 This document provides a methodology for protection of trees during the construction and refurbishment/extension of an existing detached dwelling, and the realignment and reconfiguration of existing hard surfaces to suit new building layout/footprint and should be read in conjunction with the Tree Protection Plan Drawing 0030.

1.2 The main features in the protection of the retained trees on site are as follows:

- Careful demolition of existing buildings
- Provision of temporary protective barriers
- Provision of temporary ground protection
- Use of a No-Dig surfaces
- Use of pre-emptive root pruning

1.3 A meeting between the site manager/main contractor must take place prior to construction work commencing so that the above protection measures set out in this document can be discussed and agreed. At this point a list of contact details for all relevant parties will be produced and circulated including the Tree Officer of the Local Planning Authority.

1.4 Protective measures must be in place prior to any ground or construction works take place.

2. Timing of Works

2.1 Tree protection works will be completed as detailed below according to the attached timetable.

2.2 The exact commencement date is not known. However, the timetable provided gives the order that the works need to be implemented to ensure the trees are fully protected and states when/if specific arboricultural input will be required.

3. Tree Protection Barriers

3.1 Remaining trees will be protected by forming Construction Exclusion Zones (CEZ) as shown on Appendix 4 the Tree Protection Plan (TPP).

3.2 Temporary barriers will be erected as shown by the thick green lines on the TPP to form the Construction Exclusion Zone (CEZ). The barriers will consist of 2m tall welded mesh panels (Heras) supported on rubber or concrete feet.
The fence panels should be joined together using a minimum of two anti-tamper couplers installed so they can be removed from the inside of the fence. The distance between couplers should be at least 1.0m and be uniform throughout the fence.

3.3 Panels should be supported on the inner side by stabilizer struts which should normally be attached to a base plate and secured with ground pins. Where the fence will be erected on hard surfacing or it is otherwise unfeasible to use ground pins the struts should be mounted on a block tray.

3.4 At least ten all-weather notices should be erected on the barriers forming each CEZ stating “Construction Exclusion Zone – No Access “. These should face outwards towards the work area. Signs must be maintained in good condition and remain in place until completion of the works.

3.5 Barriers will be maintained throughout the duration of the works, ensuring that access is denied to the CEZ throughout the process.

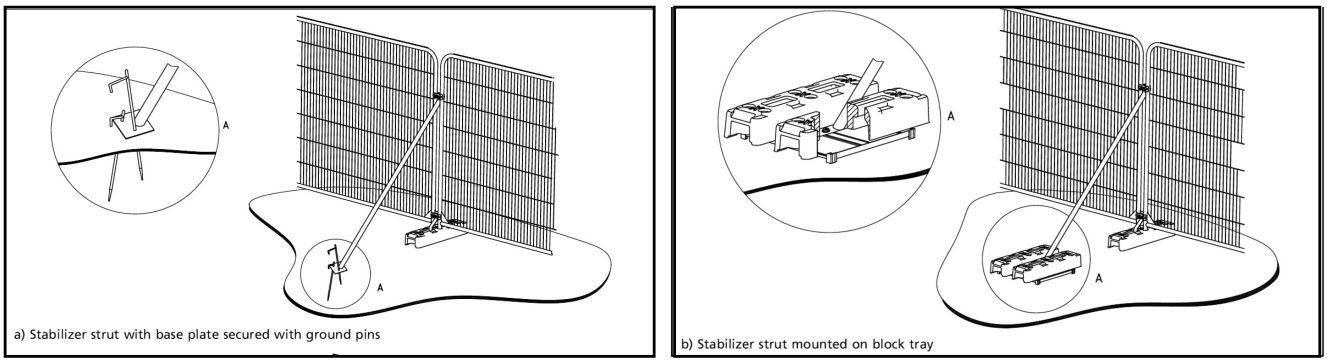

Fig 1: Temporary protective fencing as recommended by the British Standards (2012).

3.6 Figure 1 is an extract from BS5837:2012 showing the method of supporting the panels with ground pins and a block mounted tray for use on hard surfaces. Stabiliser struts should be fitted at each panel junction.

4. Demolition of Existing Buildings

4.1 Protective fencing, as set out in the AMS, will be put in place prior to the commencement of any demolition works to protect retained trees.

4.2 Where buildings are to be demolished are within the RPA of retained trees, all machinery will remain outside the RPA, and operate in a "top down, pull back" method.

4.3 Where surfaces are to be removed within the RPA, this work must be carried out very carefully and under arboricultural supervision. Hand held tools, or appropriate machinery (such as an excavator fitted with a non-toothed ditching bucket) will be used, with due care and attention paid to any roots that may be underneath the surface.
If roots are found they must be covered with good quality topsoil to a depth no greater than 150mm within 24 hours.

5. Temporary Ground Protection

5.1 Temporary ground protection will be required as shown on the TPP with orange crosshatching.
The ground protection should be constructed as follows depending on the type of traffic that will use it:

- Pedestrian traffic only – a single thickness of scaffold boards on top of a driven scaffold frame to form a suspended walkway, or on top of a compression resistant layer (100mm woodchip) laid on top of a geotextile membrane.
- Light plant up to a gross weight of 2t, proprietary ground protection boards linked to one another on top of a compression resistant layer (150mm woodchip) laid on a geotextile membrane.
- Plant exceeding gross weight of 2t, a specification devised by an engineer will be designed in conjunction with the arboricultural consultant to support the loading that the ground will be subjected to.

5.2 Compaction of the soil can occur from a single pass of a heavy vehicle, especially in wet conditions, and therefore the ground protection must be put in place before any access is allowed.

6. Hard Surfacing within the RPA of Retained Trees

6.1 The areas for hard surfacing shown cross hatched in purple on the Tree Protection Plan Appendix 4 require a No-Dig method of construction. Within the hatched zone no excavation is allowed.

6.2 A hard surface should be designed to avoid localized compaction by evenly distributing the load over the path or car parking space. The proper source of advice on a finished design are the structural engineers for the project to ensure it is fit for the intended loading and ground conditions. The design must also take full account of arboricultural advice. Appropriate methods include three dimensional cellular confinement systems or in some circumstances engineered solutions. The key element is that there will be no excavation.

6.3 In this situation it is likely that a three dimensional cellular confinement system constructed without excavation will be the best solution. Figure 2, below, shows a typical construction method of such a No-Dig surface using Cellweb produced By Geosynthetics. It should be noted that there are other manufacturers of cellular confinement systems.

6.4 It will be important to ensure that the surface design merges with the level of the other sections of the road. An Appropriate depth of confinement system should be chosen and if necessary ramps to smooth out level changes should be constructed.

6.5 Figure 2 shows a typical construction of a No-Dig surface using Cellweb. This example has block paving as the top Surface but gravel and a range of other permeable surfaces can be used.

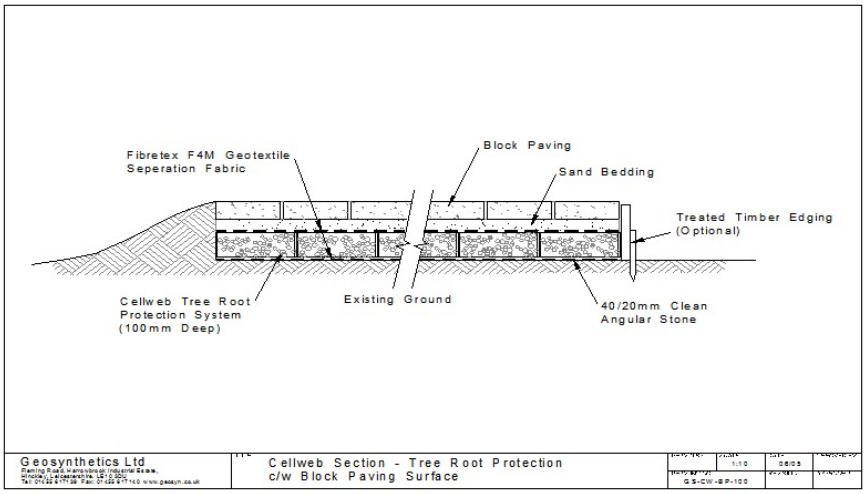

Fig 2: Example of No-Dig surfacing as illustrated by Geosynthetics Ltd.

6.6 The following methodology should be used for the installation of a No-Dig Surface.

a) The construction must be undertaken in dry weather. There will be no machine movement within the RPA of the trees before the ground is protected by a load spreader and sub-base.

b) Any major protrusions such as flints will be removed prior to commencement. Any hollows will be filled with clean sharp sand prior to laying a fibretex F4M separating geotextile.

c) The Cellweb panels will be extended to the full length and pinned into place with staking pins to anchor the cells open. Adjacent panels will be stapled together to form a continuous mattress.
The surface must be located at least 0.5m from the base of the retained trees.

d) The mattress will be edged with treated softwood edging boards of sufficient width to accommodate the infill material and held in place with pegs at a minimum spacing of 500mm.

e) The cells will be filled with a minimum of 100mm of no fines angular granular fill (40 to 20mm). The infill material to be piled at the end of the extended web and pushed over the expanded cells working off the infill material. No machinery will encroach on the ground unless supported by the infill material.

f) It is recommended that the No-Dig surface is not used for construction traffic. If it is, a sacrificial layer of stone should be laid on another geotextile membrane and scraped off at the end of the construction to form the final surface.

g) To lay the final surface a second layer of Fibretex F4M Geotextile separation fabric will be laid over the in filled Cellweb sections. Then a layer of sharp sand will be laid and compacted with a vibro-compactor plate prior to laying block paver or concrete blocks dry jointed. A range of other surface finishes can be used. However, the final surface must be permeable to allow continued water and gaseous diffusion.

7. Pre-emptive Root Pruning

7.1 Pre-emptive root pruning must take place to minimise injurious damage to the root system of neighbouring trees whilst excavating.

7.2 This will be carried out by excavating a trench at most 500 mm outside the line of the foundations in the area shown on the TPP using hand tools or an airspade. Any roots found during this excavation will be severed using a sharp handsaw or secateurs. This will ensure that the roots are not ripped or torn, and will have a good point from which to re-grow, and will have a chance to occlude and prevent fungal pathogens from entering.

7.3 Once the root pruning has taken place, rootbarrier material will be put in place to prevent roots entering the foundation area, or any leachates from the wet concrete affecting the tree roots.

7.4 This work will be carried out by a suitably trained operative or under arboricultural supervision.

8. Site Huts and Temporary Buildings

8.1 All site huts and temporary buildings will be sited outside the CEZ.

9. Additional Precautions

9.1 The movement of plant in proximity to retained trees should be conducted under the supervision of a banksman to ensure adequate clearance from the branches of the trees. Hydraulic cranes, forklifts, excavators or piling rigs (other than small rigs used for mini piling) must be avoided in the immediate vicinity the crown of the trees.

9.2 Cement, oil, bitumen or any other products which spillage would be likely to be detrimental to tree growth should be stored well away from the outer edge of the RPA of retained trees. Precautions should include ensuring all toxic liquids are stored in fully bunded containers. Equipment such as barriers or sandbags must be available on site to deal with any accidental spillages that may occur.

9.3 Lighting of fires on site should be avoided. Where they are unavoidable they must be at such a distance from retained trees that there is no risk of the heat causing fire damage to the trunk or branches. Full account must be taken of wind direction. Fires must be attended at all times until they are completely extinguished.

10. Service Trenches

10.1 Details of new service runs should be provided prior to works commencing. They should be routed to avoid the RPAs of trees. If this is not possible, special techniques must be employed to place the services within the RPA of the trees. The British Standard suggests a range of trenchless methods suitable for various applications including microtunnelling, surface launched directional drilling, Pipe ramming and Impact Moleing/thrust boring. It is important common ducts should be used where it is not possible to avoid the RPA. Further guidance on installing underground services adjacent to trees can be found in the NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4 Issue 2). This document outlines a number of techniques that may be used for trenching near trees, including trenchless techniques, discontinuous trenching and hand digging.

10.2 It will be necessary to prepare detailed plans for these services that should be produced in conjunction with an arboriculturist, and include allowance for the space needed for access for the installations, and the levels across the proposed area.

10.3 Any overground services including CCTV must also be positioned to avoid the need for any regular or detrimental pruning to the trees.

Timetable for Tree Protection Works at Pear Tree Farm, Alburgh Road, Hempnall Green, Norfolk NR15 2NS.

Item Operation *

1.Carry out a pre-commencement site meeting to discuss any tree protection matters arising
2.Carry out tree work as detailed in Appendix 1, and any tree felling as set out in the AIA.
4.Erect warning signs on fencing around each CEZ stating “Construction Exclusion Zone - Keep Out”.
5.Maintain Protective fences and signs in good condition.
6.Carry out pre-emptive root pruning
7.Construct No-Dig surface
8. Remove protective fencing
9. Check condition of the protected trees and consider if remedial works are necessary.
10. Plant replacement trees.