



BS 5837:2012 Arboricultural Impact Assessment and Arboricultural Method Statement

Houghton Main TRRC
for:

Peel Environmental Limited

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1.0 Objectives

1.1 Introduction

1.1.1 Enzygo Limited [Enzygo] have been commissioned by Peel Environmental Management Ltd. to prepare an Arboricultural Impact Assessment and Arboricultural Method Statement for the site west of Houghton Main Colliery Roundabout in Barnsley in support of a planning application for the “erection of a Renewable Energy Park comprising of a Timber Resource Recovery Centre and associated infrastructure” (Barnsley Metropolitan Borough Council ref. 2015/0137).

1.1.2 The following section describes the existing site and is followed by a summary for the structure of this report.

1.2 Site Overview

1.2.1 The site is located approximately 7km east of Barnsley town centre in a rural location. Houghton Main Colliery Roundabout and Park Spring Road lie immediately to the east of the site, connecting Grimethorpe in the north and the A6195 in the south.

1.2.2 The application boundary for the site is approximately 3 hectares and comprises grassland and early mature native vegetation. Views into the site are limited due to vegetation cover surrounding the site, however, there the site is informally used by dogwalkers.

1.3 Arboricultural Survey

1.3.1 An Arboricultural Survey Report to BS 5837:2012 covering all trees both within the development site as well as within 12m of the site boundary was prepared by Bowland Tree Consultancy in February 2014.

1.3.2 The survey recorded *“seven individual trees, six groups of trees and one hedge”* which are *“young to early-mature in age”*. It further details that *“two trees were categorised as high quality (‘A’), three trees and three groups were categorised as moderate quality (‘B’), and two trees, three groups and the hedge were categorised as low quality (‘C’).”*

1.3.3 The report includes a full tree survey schedule which describes each tree in accordance with BS 5837:2012 clause 4.4.2.

1.3.4 Due to the original tree survey being more than three years old, the site was revisited by Enzygo in October 2017, noting no significant changes except for the slightly increased maturity of the trees on site.

1.4 **Structure of the Report**

- 1.4.1 **Chapter 2.0** describes the methodology adopted for the Arboricultural Impact Assessment and Arboricultural Method Statement.
- 1.4.2 **Chapter 3.0** outlines the impact the proposed development is expected to have on existing trees and what the likely effect would be on the wider landscape.
- 1.4.3 **Chapter 4.0** then provides full details of any methodologies to be adopted in order to adequately protect any retained trees during construction and safeguard the health and safety of the trees in the future.
- 1.4.4 **Chapter 5.0** provides a non-technical summary whilst the appendices include a fully detailed Tree Protection Plan and specifications for protective fencing and no-dig construction in accordance with BS 5837:2012.

2.0 Methodology

2.1 Introduction

- 2.1.5 This report and all methodologies adopted to carry out the Arboricultural Impact Assessment and Arboricultural Method Statement are based on recommendations outlined in *British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction-Recommendations*. This was published by BSI Standards Limited and came into effect on 30th April 2012. It supersedes BS 5837:2005 which is withdrawn.

2.2 Arboricultural Impact Assessment (AIA)

- 2.2.1 In order to establish the potential impact of the development on the existing tree stock the Tree Survey and Tree Constraints Plan and the site layout are superimposed.
- 2.2.2 The requirement for tree removal is ascertained where tree stems and Root Protection Areas are located within or very close to proposed building footprints and hard landscape and/or within areas with significant proposed level changes and other works requiring soil movement (incl. excavations).
- 2.2.3 In a second stage an assessment is carried out of the impact both the construction operations and the development proposals may have of retained trees, including hard landscape in RPA, vertical structures and tree canopies
- 2.2.4 In addition to assessing the impact of the development on existing trees, Enzygo also include an assessment of the impact of existing trees on the future use of the site, including shading, spatial constraints and the use of gardens, open spaces, paths and roads. Potential conflicts between trees and the safety of the site have also been analysed.

2.3 Arboricultural Method Statement (AMS)

- 2.3.1 The Arboricultural Method Statement (AMS) gives an overview on all methodologies to be adopted to minimise the effects the development, including construction operations, are expected to have on retained trees.
- 2.3.2 The AMS further includes a full specification for all methodologies which are necessary to protect retained trees.
- 2.3.3 Methodologies include protective barriers installed to create a Construction Exclusion Zone (CEZ) around retained trees and access facilitation pruning where there are conflicts between parts of the canopy and the development.

3.0 Arboricultural Impact Assessment (AIA)

3.1 Development proposals

- 3.1.1 This AIA is based on the development proposals as shown on GSDA Ltd.'s Proposed Site Layout ref. 1313_PL003 rev. B dated 29th November 2017. This shows access into the site from Houghton Main Colliery Roundabout in the east and a HGV circulation route around a reception hall, process building, turbine hall and car parking in the centre of the site. A condenser unit, a fire water tank, fuel storage and a generator will be located to the west and a substation near the east boundary.

3.2 Tree removal

Building construction and hard landscape installation

- 3.2.1 A large area of young and semi-mature category C trees will be removed in the centre of the site to facilitate the construction of the development, including the associated traffic routes and the external timber processing infrastructure. This includes all of tree group G2 and approx. 75% of G6. Groups G3 and G4 would also have to be reduced slightly in order to enable the construction of the fuel storage, generator, fire water tank and condensers.
- 3.2.1 The vegetation surrounding the site will be retained, therefore the tree removal is not expected to have a significant effect on the wider landscape, including on views from nearby public roads and footpaths. However, the reduction of tree and shrub cover has a high impact on the site itself, changing its current character from young native woodland to built-up industrial site.

3.3 Residual impact of development on retained trees

- 3.3.1 Construction operations near retained trees are likely to cause accidental damage of tree trunks and low hanging branches of trees retained along the fringe of the development.
- 3.3.2 Vehicle and plant movement during construction may further cause ground compaction which could lead to irreversible damage of tree roots and the rooting environment within the RPA of retained trees.

3.4 Recommendations

- 3.4.1 All methodologies specified in the Arboricultural Method Statement (AMS) in [Chapter 4.0](#) should be implemented to ensure any retained trees are adequately protected during site set-up and construction.

- 3.4.2 All site managers and site operatives should be aware of the potential impact of the works on retained trees and follow the protection methodologies specified in the AMS in [Chapter 4.0](#).
- 3.4.3 Where the effects of tree removal are significant, replacement tree planting should be specified by the Project Landscape Architect with a focus on native species and/or species already present on site and within the local area where appropriate. Extra heavy standard and semi-mature trees should be specified where trees are removed along site boundaries, public roads and footpaths.

4.0 Arboricultural Method Statement (AMS)

This AMS should be read in conjunction with [Appendix 1 – Tree Protection Plan](#).

4.1 Tree Removal

- 4.1.1 Prior to the site being set-up, a qualified arborist will remove only the areas of trees shown as “to be removed” in [Appendix 1 – Tree Protection Plan](#) and carry out any tree works included in the Preliminary Management Recommendations in the tree survey schedule of the Tree Survey Report. Any tree works should be carried out in accordance with *BS 3998:2010- Tree works recommendations*.
- 4.1.2 Any tree works should be preceded by a nesting bird and roosting bat check carried out by a suitably qualified ecologist.
- 4.1.3 To find a suitably qualified tree surgeon, please refer to the Arboricultural Association’s list of Registered Contractors.

4.2 Protective Barrier

- 4.2.1 Where construction operations are likely to cause damage to above ground parts of retained trees or compaction of the Root Protection Areas (RPA), a protective barrier should be erected prior to commencement of any works on site to create a sacrosanct Construction Exclusion Zone (CEZ). The alignment of the fence should follow the canopy line of the trees or the edges of the RPA, whichever is greater.
- 4.2.2 Where possible, the CEZ should be extended to include any areas proposed for soft landscaping to minimise compaction in these areas and ensure new planting can establish successfully.
- 4.2.3 The alignment of the barrier, including indicative setting-out information, is shown on the drawing included in [Appendix 1 – Tree Protection Plan](#).
- 4.2.4 The protective barrier should be installed in accordance with BS 5837:2012 Figure 2 Default specification for protective barrier which consists of a horizontal and vertical scaffold framework that should be braced to resist impact from construction plant and vehicles. Please refer to [Appendix 2 – Protective barrier to BS5837:2012](#) for further information and a detailed specification.
- 4.2.5 All weather notices should be firmly attached to the barrier to inform any site operatives of the purpose of the fencing, e.g. “Construction Exclusion Zone- No access”.

4.2.6 Where the development is proposed in more than one phase or where temporary access of the CEZ is required for any permitted work which is required prior to the main construction works being completed, the barrier may be realigned as shown in [Appendix 1 – Tree Protection Plan](#).

4.2.7 The protective barrier must not be removed or realigned unless in accordance with this report or until all construction work has been completed and all construction vehicles and plant have departed from site.

4.3 **Level Changes**

4.3.1 The reduction of ground levels and the skimming of ground within the RPA of retained trees is not permitted.

4.3.2 Where it is required to raise levels within the RPA of retained trees, this should be achieved by use of an inert granular material which remains gas- and water-permeable throughout its design life.

4.4 **Installation of Boundary Treatments**

4.4.1 Where the installation of fence posts and street furniture is proposed within the RPA of retained trees, excavations should be kept to a minimum and be carried out carefully by hand.

4.4.2 If possible, fence posts should be supported by metal post support spikes. Alternatively, a semi-dry postcrete mix may be acceptable for both fence post foundations and foundations of proposed street furniture.

4.4.3 Fences should be aligned to ensure a minimum distance of 500mm between the fence and the stems of existing trees to allow for the future growth of the trees.

5.0 Non-technical summary

5.1 Arboricultural Survey

- 5.1.1 The site is an area of young pioneer vegetation located to the west of Houghton Main Colliery Roundabout, approx. 7km east of Barnsley.
- 5.1.2 A tree survey was prepared by Bowland Tree Consultancy in 2014, describing dense cover of the site by young to early mature tree and tree groups of low and moderate quality, but including two trees of high quality. The tree survey was verified in October 2017, only noting the increased maturity of the trees in site.

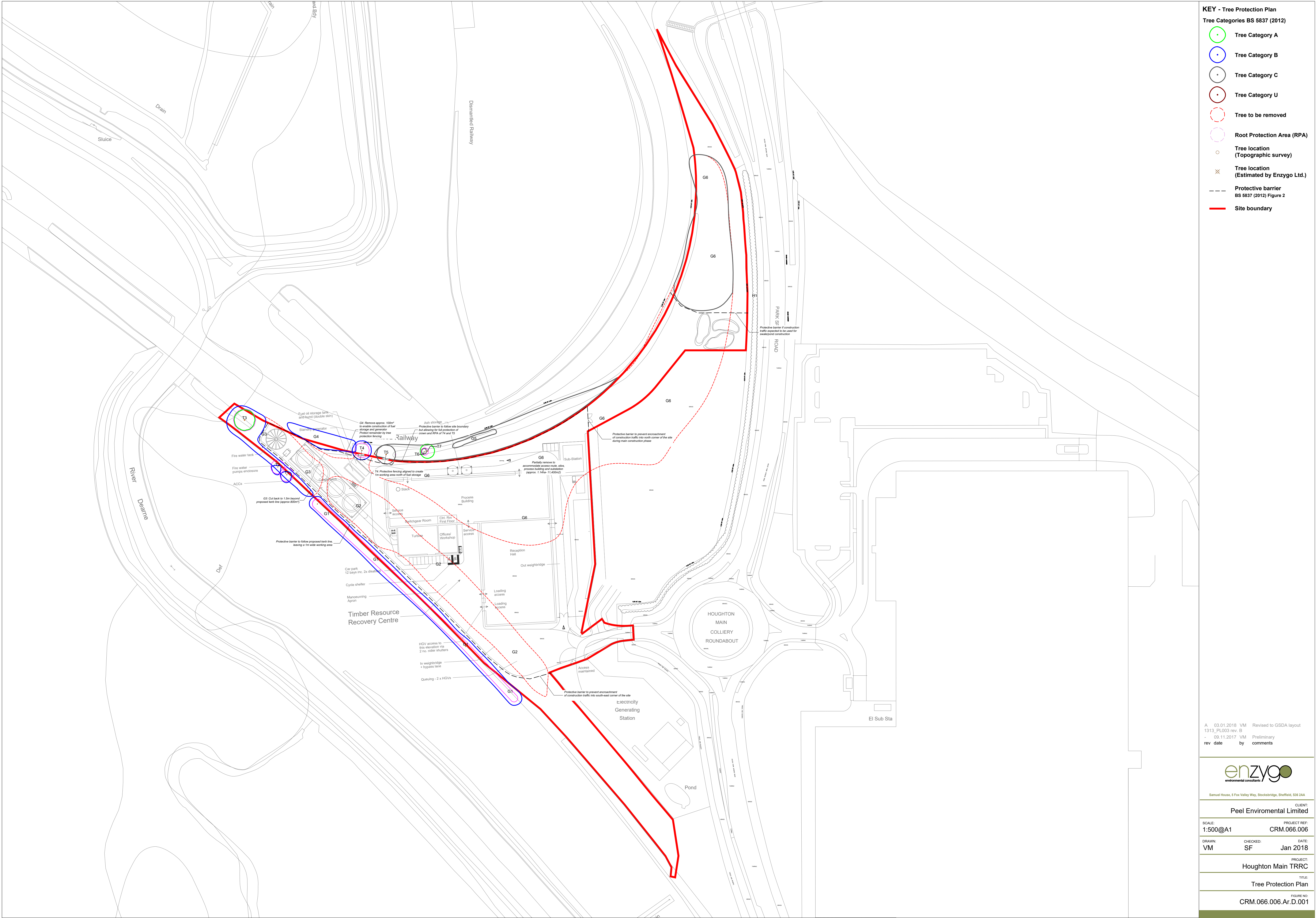
5.2 Arboricultural Impact Assessment

- 5.2.1 The development of a Renewable Energy Park including the site-set-up and all construction operations will require the removal of large areas of low quality, young and early mature trees within the centre of the site which is expected to have a high impact on the character of the site but a negligible impact on the wider landscape.
- 5.2.2 Operations linked to the development are further expected to have an adverse effect on any retained trees on site unless adequate protection measures are provided.

5.3 Arboricultural Method Statement

- 5.3.3 Protective measures include are limited to the erection of a Protective Barrier around the trees which can be retained around the perimeter of the site.
- 5.3.4 As the effects of tree removal are significant within the site, replacement tree planting should be specified by the Project Landscape Architect with a focus on native species and/or species already present on site and within the local area where appropriate. Extra heavy standard and semi-mature trees should be specified where trees are removed along site boundaries, public roads and footpaths.

6.0 Appendix 1 – Tree Protection Plan



KEY - Tree Protection Plan
Tree Categories BS 5837 (2012)

- Tree Category A
- Tree Category B
- Tree Category C
- Tree Category U
- Tree to be removed
- Root Protection Area (RPA)
- Tree location (Topographic survey)
- Tree location (Estimated by Enzygo Ltd.)
- Protective barrier BS 5837 (2012) Figure 2
- Site boundary

A	03.01.2018	VM	Revised to GSDA layout
1313_PL003	rev. B		
-	09.11.2017	VM	Preliminary
rev	date	by	comments



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Jan 2018

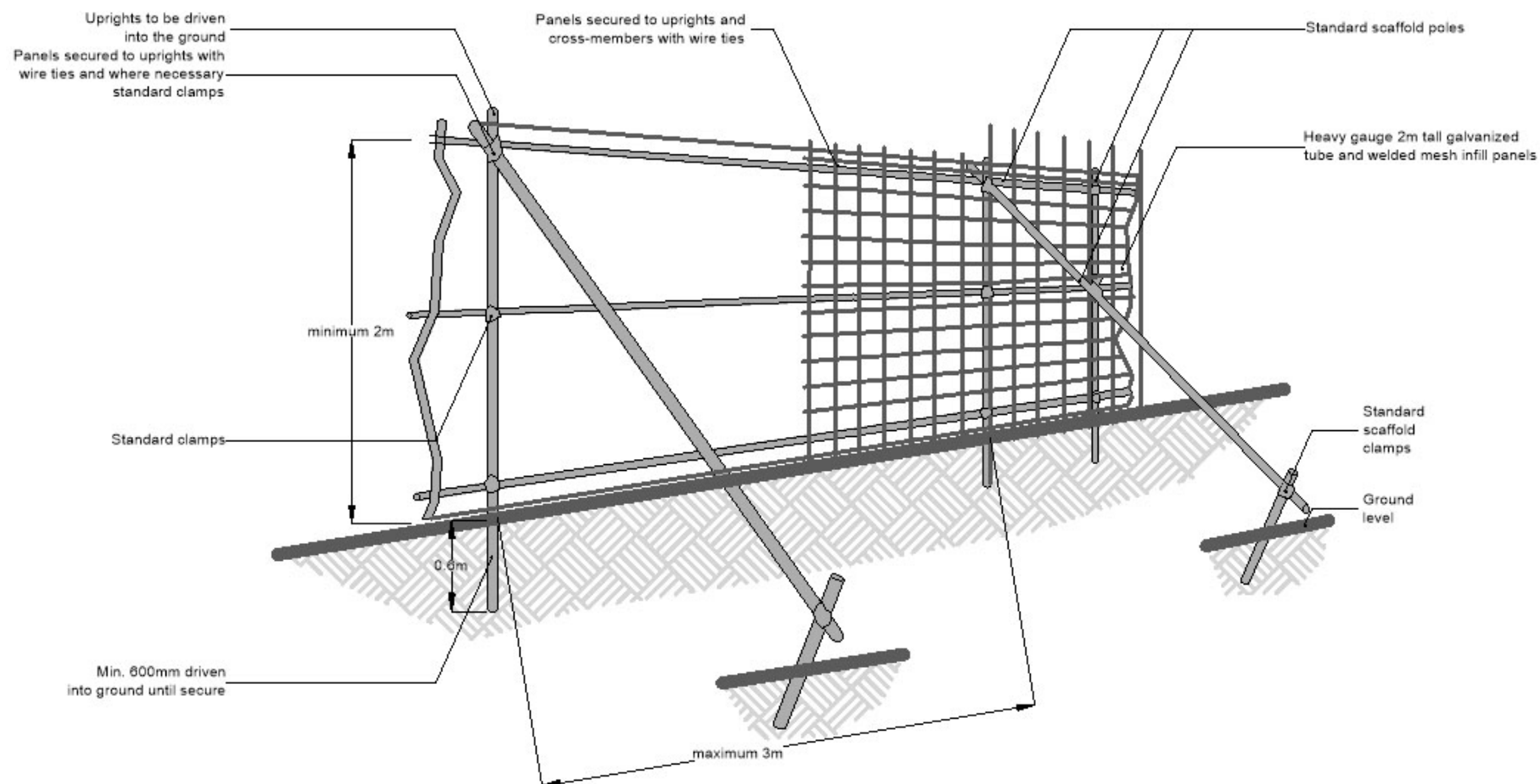
PROJECT:
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TITLE:
Tree Protection Plan

FIGURE NO:
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7.0 Appendix 2 – Protective barrier to BS5837:2012

7.1 Default specification for protective barrier





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