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FAO: Krishna Mistry
Newett Homes

Date. 22/11/2024

Ref. 230623

Dear Krishna,

RE: SUMMARY OF ARBORICULTURAL IMPACTA AND ACCESS OPTIONS FOR THE PROPOSED NEWETT HOMES DEVELOPMENT AT DODWORTH, BARNSLEY.

Please see below a breakdown of information used to conclude the proposed works are justifiable from an Arboricultural perspective in terms of the impact on the trees at Dodworth, Barnsley.

- On the 1st August 2024 Barnes Associates Ltd undertook a BS5837:2012 Tree survey of the site using a supplied topographical survey and offset the Root Protection Areas (RPA's) of the trees where required to reflect the the on-site constraints.
- On the 23rd August 2024 Barnes Associates issued version A of the Arboricultural Impact Assessment and Tree Protection Plan suggesting a pile and beam style bridge to access the site to offer a low-impact solution to provide access to the site, in addition to positively dealing with other Arboricultural considerations.
- On the 31st Oct 2024, the Barnsley Tree Officer wrote an email of concern to the planning officer about the Arboricultural impact on the trees.
- On the 6th of September 2024 after design changes that retained trees and the bridge structure moved south to a position equal between retained trees, Barnes Associates issued version B Arboricultural Impact Assessment and Tree Protection Plan.
- On the 12th of November, Barnes Associates emailed the planner requesting an onsite meeting to discuss the key arboricultural issues which was declined on the 13th of November.
- On the 14th of November 2024, Green Grid Systems emailed you with attachments of their products and an acknowledgement of its use for the scheme.
- On the 14th of November Barnes Associates emailed you with our response to the Tree Officer's comments, countering his remarks by recommending shade surveys, pile plume infringement calculations and temporary ground protection measures. This would have provided further detail of potential impacts and enabled further details of protective measures.

At Barnes Associates, we have a wide range of experience and knowledge, working on projects that require specialist design and construction methods around trees.

At the initial stages of the project, the notion of using above-ground techniques to bridge the root protection areas of the retained trees was considered feasible based upon the relative ground-level differences between the the public domain and the site. This approach was considered feasible pending final design, and design approval from engineers and Newett Homes as the the current highway is significantly higher than the site providing an ideal jump-off point relative to the existing surface level within the site for any low-impact method.

The proposed up-to-date evidence that a specialist design and construction company 'Green Grid' specialises in is exactly what this design is proposing and adds weight to the notion that the scheme is defendable subject to an Arboricultural Method Statement and appropriate protection methods and onsite monitoring/supervision.

We have personal experience with the Green Grid system which we used successfully on a site, accessible only between a line of trees covered by both tight planning conditions and a Tree Preservation Order to the satisfaction of a very aware Local Planning Authority, an alert Tree Officer and a robust County Highway Department, who were managing a very contentious and emotive site.

The replacement of strip, raft or cut and mass-fill foundations with small-diameter pile foundations is an approach encouraged nationwide and internationally when developing close to trees and is considered Best Practice.

The approach of bridging is set out in the current British Standard BS5837, the draft of the European Tree Protection Standard in addition to international guidance. When installed correctly these systems prevent soil compaction and erosion of topsoils and enable the continued development of tree roots and the soil food web through continued water ingress and gaseous exchange between the soil and the atmosphere.

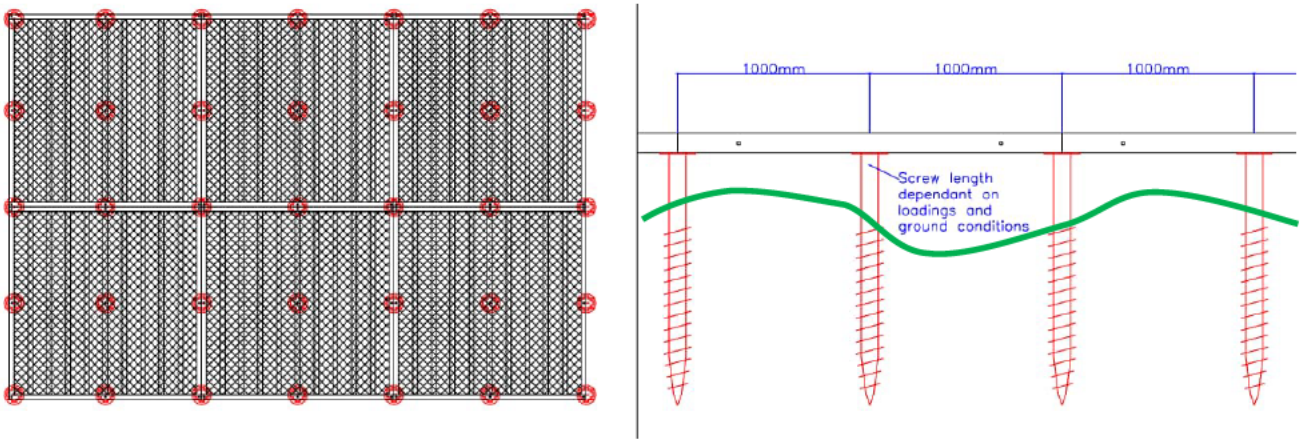
Once installed these systems can have secondary benefits and enable bridging support for services across the root protection areas avoiding the need for potentially damaging second trenching close to trees associated with service installation.

We are therefore struggling to understand Barnsley Council's apparent 'immediate dismissal' of the project without considering the key elements or reviewing the evidence that we would have supplied them at a meeting.

Summary of proposed access: The access point is located in a natural gap from where a tree once stood meaning minimal pruning of the trees to the north and south is required. Pruning is expected to be limited to crown lifting only to achieve the appropriate highway clearance similar to the current requirement on-site and throughout the borough.

The image taken from Google Earth shows the existing natural gap of proposed entrance.

Green Grid systems specialise in constructing surfaces within Root Protection Areas (RPA's). After analysing the drawings, they appear to support the project and have supplied technical drawings, method statements and case studies (See screen grab below of drawing GGS-2220126 B NC,). To help demonstrate the effectiveness of this system. I have noted an example of existing surface level as the green wavey line on the righthand sketch.



Correspondence from Green Grid suggests that the above structure would be suitable for a vehicle weight of 30 tonnes. Should the system be conditioned to an Arboricultural Method Statement we would work with Green Grid to ensure the structure was installed using ground protection with a low impact on the trees subject to a 'plume infringement investigation' to show both the direct impact of installed piles and their likely worst-case impact of current rooting volumes. However, these systems unlike traditional hard-surface construction ensure the soil below the installation minus the culmative volume of the piles remains accessible and viable for for tree root growth.

When the root bridge design is finalised including the diameter, number and location of piles needed, we can undertake a 'pile plume investigation' where the infringement of the structure can be estimated and issued as a percentage per tree, just as we would in any other infringement calculation for structures and surfaces.

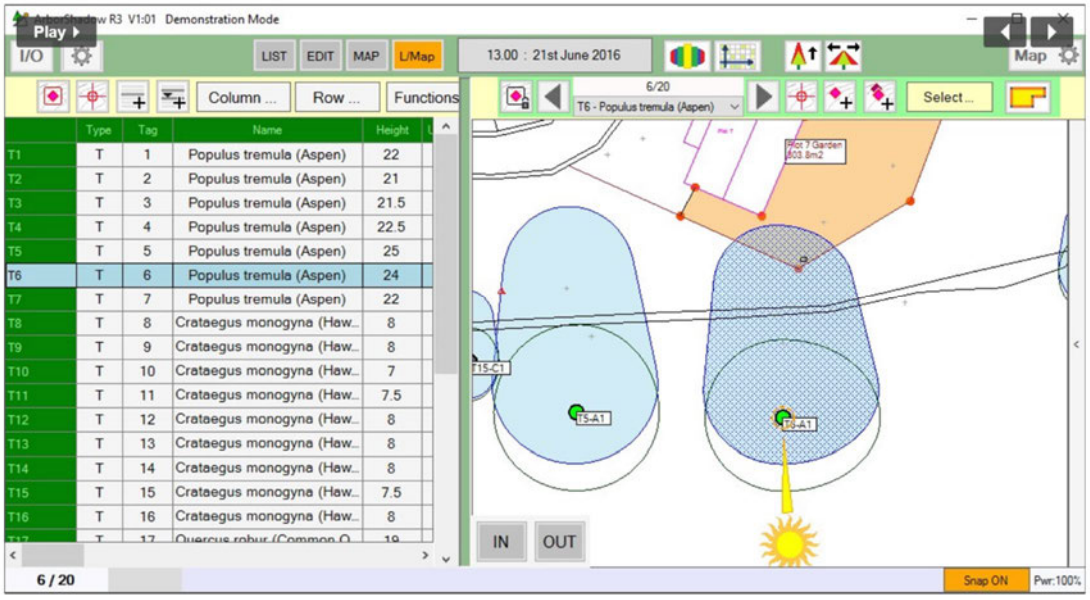
After the initial installation of the root bridge, we would also recommend that the area is de-compacted and vertically mulched using a combination of organic matter and Biochar by air excavation. Completing this post-installation aftercare, would in essence leave the trees in a better-growing condition than they are subject to currently. Far from damaging the trees, this method can enhance tree-growing conditions and can be an improvement on the current situation.

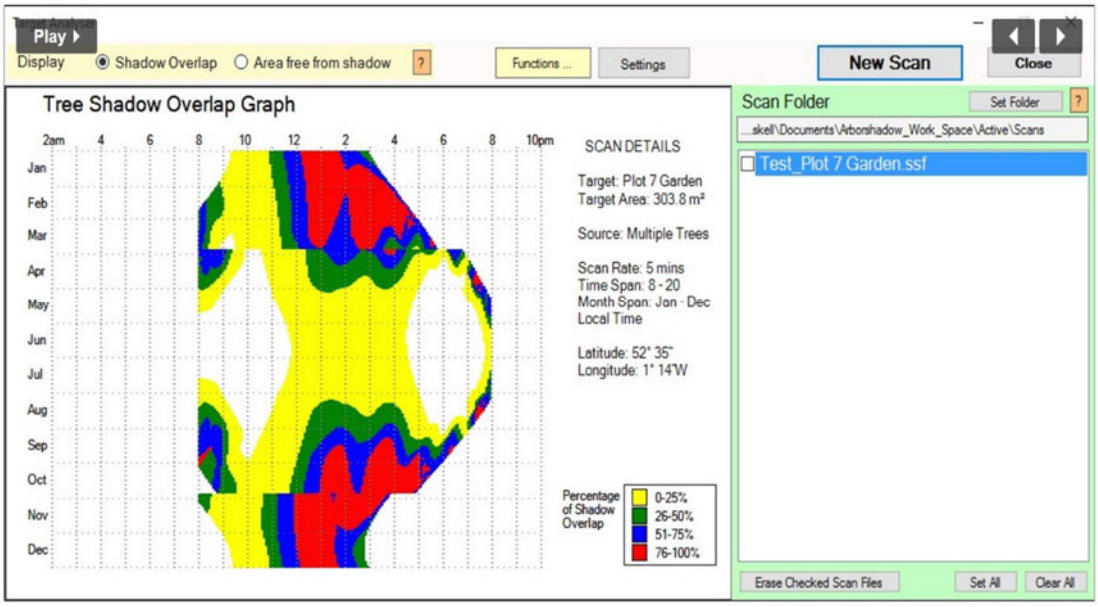
Within the root bridge, or attached to it above ground, we recommend that a rainwater runoff system is installed to ensure moisture reaches the roots beneath the bridge, and also recommend that the surface is permeable using a surface type such as porous tarmac, or porous Keyblocks, Which is both beneficial to the tree and reduces surface water runoff associate with the site.

Pending final designs to undertake calculations to ensure the root infringement is acceptable it is thought that the access then aligns with the nationally recognised British Standards 'BS5837' which discusses piles in ' *7.5., copied below:*

> *"Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major treeroots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for temporary ground protection given in 6.2.3. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile."*

The redline area hosts the protected trees to the west of the site suggesting any shade may only be an issue as the sun sets (west). As part of the Arboricultural Impact Assessment, in line with BS5837:2012 'arc shadows' have been provided on drawings to illustrate shade per tree. It is noted that two of the units to the southwest are likely to have more shade than the majority of the plots. To demonstrate the likely extent of shade we can undertake a 'shade study' which can give a lot of detail in terms of the shade (see below) this can be undertaken across and entire year at an accuracy of 5-minute intervals and detail the shade on a particular window, seating area or part of a garden.





The findings of such a shade study may suggest the re-orientation of some of the buildings or the introduction of light wells. It is also worth considering that within BS5837:2012 at 5.3.4 copied below, for a minority of the plots on site, shade may be a positive attribute.

"Shading can be desirable to reduce glare or excessive solar heating or to provide for comfort during hot weather. The combination of shading, wind speed/turbulence reduction and evapo-transpiration effects of trees can beutilized in conjunction with the design of buildings and spaces to provide local microclimatic benefits'.

To conclude, the proposed construction materials and methods discussed above suggest that far from causing harm to the trees, the scheme aims to include and put in place measures to safeguard them for the future, including them as a unique selling point/feature for the plots. The trees provide a screen which segregates the site from the built-up area adding to the desire to maintain and retain them.

From an ongoing pressure to prune perspective, as the trees are already protected by Tree Preservation Order, any unreasonable tree work applications from future residents may simply be refused by the council. As the design and scheme appear to comply with BS5837:2012 I would expect permission to be conditioned to an Arboricultural Method statement which would detail:

- Design, materials and cross sections of the Root bridge to be above-ground construction methods.
- Site compounds and mixing areas outside of Root Protection Areas.
- Drainage and utility runs outside of the Root Protection Areas or are installed in a way that minimises impact on retained trees.
- Phasing plans that include parts of the build that require project Arborist supervision.

Further advice can be provided upon request. Should you require any further assistance with this matter, please do not hesitate to contact me.

Yours Sincerely

[redacted]

Matt Metcalfe
FdSc Arboriculture
Arboricultural Association Professional Member
VALID Tree Risk Validator
GVC UAS Pilot