



19th February 2024

Peter Norman
Towers Associates
Towers Associates,
Harefield Oil Terminal,
Harvil Road,
Harefield,
UB9 6JL

Your ref 3257
Our ref S1131-J4-C1

Dear Mr Norman,

Re: 1-3 Lulworth Waye, Hayes, UB4 0HN

This document is intended to invite discharge of the planning conditions attached to a grant of consent, ref: APP/R5510/W/21/3284688 in respect of the above site. I made an inspection on 17th July 2019.

- 4) No development shall take place, including any works of demolition, until a scheme for the protection of trees on land adjacent to the site that could influence or be affected by the development and the appropriate working methods have been submitted to and approved in writing by the Local Planning Authority. The scheme for the protection of trees shall be carried out as approved.

Discussion

1) I have to hand Towers Associates drg. no.: 2865-02-04 Proposed Site Layout.

2) The plan S1131-J4-P2 v1 appended is colour-coded to indicate life expectancy/value as per section 4 (table 1) of BS 5837:2012. British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' recommends a way of classifying trees when assessing their potential value in relation to proposed development. Table 1 suggests categories 'U', 'C', 'B' and 'A', in ascending merit. Assessment of value in this case is based on the two criteria: visual value to the general public, and safe useful life expectancy.

The plan is also colour-coded to indicate, when read with this report, where tree-friendly methods of construction are to be used.

3) The standard also provides a way of determining an area (the root protection area or RPA) around the trunk of the tree in which protective measures should be used in order to prevent significant damage to trees. In this case all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated. Methods are proposed below to reduce impacts on root systems of retained trees.



Tree protection methods

Please read with tree protection plan (TPP) reference S1131-J4-P2 v1, appended.

PREPARATION / DEMOLITION

The Methods shall be implemented in the order given unless it is stated to the contrary.

Method 1: SCHEDULE OF TREE WORK (*Aim of method: to ensure only appropriate tree work is carried out*) Tree work shall be in accordance with the schedule below, and to BS 3998:2010 'Tree Work - Recommendations'. Heights are in metres; diameters are in millimetres.

Tree number	Tree type	Height	Stem diameters	Comments
2	sycamore	14	686	Prune to clear 8.2m above ground level on west side of tree only
G5	sycamores	4	<30	Remove including stumps

NOTES:

- All tree work should be carried out to BS 3998:2010 'Tree Work - Recommendations'.
- The Wildlife and Countryside Act 1981 protects with certain exceptions all birds and their nests. It is an offence to destroy such nests or take or injure such birds in the course of tree works operations.
- If a tree is a bat-roost, a licence to work on the tree must first be obtained from the relevant Statutory Nature Conservation Organization (in England: Natural England 0845 601 4523.) Acting without a licence is likely to be justifiable only in acute emergencies threatening human life and where all other legally available option such as footpath diversion, fencing and warning signs cannot be applied.

Arisings shall be chipped and removed from site, or stockpiled outside RPAs for possible later use as mulch at landscape phase. No vehicles shall stand or operate in any of the RPAs of retained trees. Any traversing of RPAs shall be preceded by laying of temporary trackway, such as TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. This protective layer shall stay in place throughout arboricultural site preparation phase. Alternatively, tree pruning operations shall be carried out with foot access only

Method 2: WELFARE FACILITY (*Aim of method: to facilitate compliance with HSE regulations whilst providing protection for trees during demolition operations and construction*)

The placement in terms of whereabouts on site of any such structure is flexible: no pruning of tree branches to accommodate the superstructure shall take place. No reduction whatever in existing ground levels shall take place in RPAs (orange circles on plans). Timber bearers such as modern or re-purposed railway sleepers shall be laid directly on the ground surface. Alternatively the floor and superstructure supporting frame shall be supported by micro-piles such as StopDigging or Great British Ground Screw Company Ltd. proprietary or similar

micro-piles inserted with hand tools only. Trial pits to determine micro-pile locations shall be dug with hand tools only. N.B. The precise location of piles is flexible. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. No roots over 20mm diameter shall be cut. No connection to services of any kind shall be made below ground level in RPAs (orange circles on plans): all services in and out shall be above ground level.

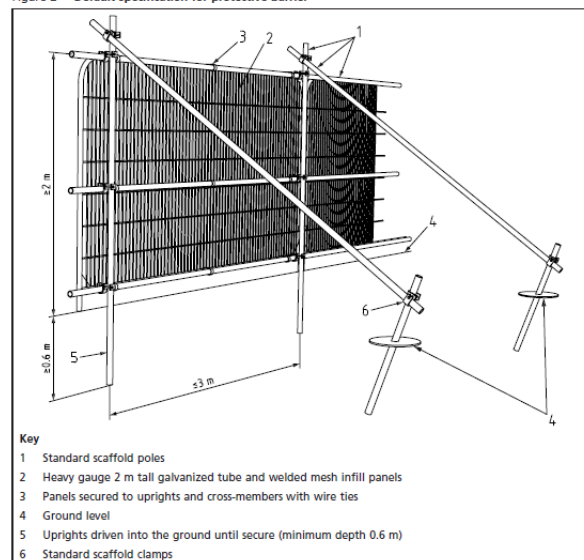
Method 3: TREE PROTECTION FENCING (Aim of method: to provide protection for trunks, branches and roots during demolition operations and construction)

This method shall apply where indicated by pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section 6.2.2., Figure 2.

No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines.

No fires shall be made on any part of the site, or within 20m of any tree to be retained. No storage of materials shall be made within (the tree side of) the protective fences.

Figure 2 Default specification for protective barrier



Method 4: GROUND SURFACE HANDLING and PROTECTION (Aim of method: to provide protection for roots during demolition operations and construction)

This method shall apply in the zones hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. Any existing hard surfacing, any existing surface debris, light vegetation, etc., that lies within the zone shall be removed using hand tools only. A 2D geotextile membrane, such as 'Ekotex' shall be laid; 100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, a 2D geotextile membrane, such as 'Ekotex' shall be laid, and in sequence; 100mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards.

OR

To handle loads exceeding 2 tonnes the ground surface shall be covered with TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Any scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

CONSTRUCTION

Method 5: SERVICE TRENCHES (Aim of method: to limit and control root damage during services installation close to tree roots)

N.b. This applies to ALL services: Electricity, gas, water, etc. Existing services shall be utilised wherever possible.

These methods shall apply generally within any RPA (orange circles).

- 1) The trench shall be opened with an air-spade to required depth. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of trench is dug. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.
OR
- 2) The trench shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. No roots over 20mm diameter shall be cut. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of trench is dug. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.
OR
- 3) Services shall be thrust-bored using trenchless techniques (compressed air-driven 'mole') at a depth of 700mm or more below ground level, entailing no surface excavation. Starter pits for rams shall be outside any RPA, or reception/starter pits shall be opened according to 1) or 2) above.

Method 6: CYCLE SHED / BIN STORE

This method shall apply in the zone of yellow fill on plan. Edge restraint shall be formed from timber baulks (e.g. modern railway sleepers) or lighter section tanalised timber pegged or pinned to substrate with 25mm dia. re-bar or similar. A geogrid such as Tensar 'TriAx' type, with a grid size sufficient to retain the size of aggregate shall be laid directly on the ground surface within the timber edges, then a sub-base 75mm deep of 20-40mm clean stone -NO FINES- (typically sold as 'track ballast'), then a further fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the layer above, such as coarse shingle; or for a slab finish, granite chippings, no fines shall be laid to correct levels, then the slabs. The slabs shall not be bedded on mortar or lean mix.

The enclosure shall be of timber and uprights. Post holes shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It should be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent the completion of the post hole, and typically shall require terminating the dig and moving the post hole to a different location.

The timber superstructure may be placed directly on and affixed to the timber edging or may alternatively be attached to posts placed according to the method outlined.

Method 7: PATHS (various finishes possible)

This method shall apply in zone of **red crosses** on plan. No 'scraping up' with a mechanical excavator shall take place. No wheeled or tracked machinery shall be used: construction shall be by means of hand tools/hand-held power tools. No reduction of levels shall take place, except to remove any wearing surface where a competent sub-base is to be retained and utilized. Edge restraint shall be formed from tanalised timber pinned to substrate with tanalised timber pegs or similar.

POROUS TARMAC

A fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the level correction/bedding layer stone to be laid. This shall be 'no fines', granite or other hard stone, such as 'track ballast'. Then a 3D pocket type geotextile 75mm deep, backfilled with 20-40mm CLEAN STONE – NO FINES (typically sold as 'track ballast'). A further fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the tarmac to be laid. The porous tarmac layer shall then be applied. Total thickness over existing ground level can thus be as little as 100-120mm.

OR

SLABS

A fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the level correction/bedding layer stone to be laid: granite chippings, NO FINES. Paving shall be laid open-jointed and the joints rammed with granite chippings.

Method 8: PERMANENT END-USER FENCING (Aim of method: to prevent potentially significant root cutting during an operation often assumed to be of low tree-impact)

Where such fencing is proposed within root protection areas (**orange** circles), post holes shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It should be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of post hole, and this would be sufficient reason to terminate the operation and move post hole to a different location. If a root >20mm is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist.

Method 9 : REMEDIAL ROOT TREATMENT (Aim of method: to enhance soil structure and components to facilitate and stimulate new root growth where some root cutting may take place)

This method shall apply in the zones hatched **blue** on plan. Holes in the ground shall be made on a 1m x 1m spacing with a 50mm auger to a depth of 600mm BGL. Screened topsoil (to BS3882:2015 topsoil) mixed with biochar (such as <https://www.soilfixer.co.uk/biochar-article>) - 5% of the topsoil volume (this equates to about 20 kgs of product per cubic metre of topsoil) shall be backfilled into the augered holes. Earthworm Inoculation Units shall be placed 150mm with their tops below ground level at 3m intervals. The units, which are typically cardboard, shall be earthed in and irrigated.

Method 10: LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS (Aim of method: to ensure thrift of topsoil)

This method shall apply after completion of main build only. Operations shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. Weed treatment if required shall be via BASIS qualified operatives. Surface debris shall be removed by hand to barrow and disposed of off-site. No wheeled or tracked plant shall be used: hand-held power tools may be used. (Outside root protection areas, mechanical cultivation shall be permitted.) The finishing soil horizon where additional planting medium is required shall be composed of biochar (see: <https://www.soilfixer.co.uk/biochar-article>) mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally. Earthworm Inoculation Units (see: <https://www.wormsdirectuk.co.uk/product/worm-colonies-lawn-areas/>) shall be placed with their tops 150mm below ground level at 5m intervals in all soil build-up areas. The units, which are typically cardboard, shall be earthed in and irrigated.

Conclusion

The 10no. methods proposed will adequately protect the trees to be retained, both inside and outside the site, and I accordingly invite the LPA to discharge the relevant condition.

If I can be of further assistance, or any point needs clarification, please do not hesitate to contact me.

Yours sincerely,



John C. M. Cromar

Enc

TREE DATA

PLAN (TPP)

Tree Data

Tree number	Tree type	Height	Height to lowest branch	Stem diameters	Radius of RPA if circle (mm)	RPA (m ²)	Comments	Life expectancy (years)	Assessed BS5837 value category
1	common lime	9		385	4620	67.1	Outside site.	20+	C1
2	sycamore	14	3.5	686	8232	212.9	Once pollarded to about 8m in height, c.1980.	40+	B1
3	sycamore	7		300, 270	4843	73.7	Very poor form. Pollarded c.2014	20+	C1
G4	sycamores	9				0.0	Diameters as per plan	40+	C2
G5	sycamores	4		<30	360	0.4	Seedlings	40+	C2

In all cases, in the absence of negative comment on vitality and structure, normal systemic and physiological condition should be considered to apply.

Plan - TPP

