1-38-4000/2

REPORT

on the impact on trees

of proposals for development

at

Main Street, Llangrove, Ross-On-Wye

(17th July 2017)

JOHN CROMAR'S ARBORICULTURAL COMPANY LIMITED

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The Old School
Titley
HR5 3RN
at Jericho, Oxford
& Harpenden, Herts.

TEL 01582 80 80 20
FAX 01544 231 006
MOB 07860 453 072

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admin@treescan.co.uk
www.treescan.co.uk

Registered Consultant of the Arboricultural Association
John Cromar, Dip. Arb. (RFS), F.Arbor A.

AA Registered CONSULTANT trees.org.uk

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01
Introduction and Instructions

I am instructed by Darley Developments Ltd. to make an assessment of tree amenity value and condition of trees at Main Street, Llangrove, Ross-On-Wye and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 13th May, 2016 in order to carry out an inspection.

02
Copyright

02.01

03
Notes

03.01
PLANS
1-38-4000/P1 gives an approximate representation (in plan) of actual crown form, and is intended to indicate the relationship of neighbouring trees to each other, and should be read with the comments on crown shape and tree value in TREE DETAILS appended. The plan gives a quick reference assessment of value as per section 4, table 1, of BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 related mainly but not exclusively to the criterion of *visual value to the general public*. The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Some surveys may not include any trees of one or more categories. Table 1 suggests categories 'U', 'C', 'B' and 'A' , in ascending merit. 'U' **(RED crown outline on plan)** category trees are dangerous \ low value trees that could require removal for safety or arboricultural reasons. 'C' **(GREY or black/uncoloured crown outline on plan)** category trees are of no particular merit, but in adequate condition for retention. 'A' category trees **(GREEN crown outline on plan)** are trees of high vitality or good form, or of particular visual importance: 'B' **(BLUE crown outline on plan)** category are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees. See TREE DETAILS appended. Category Assessment appears in column 10. This standard also provides a way of determining an area (see TREE DETAILS column 7) – the **RPA** – root protection area - around the trunk of the tree in which protective measures should be used in order to prevent significant damage to trees. There are various ways of achieving this. A simple way is to use exclusion fencing, but other methods have been shown by established use to be very effective.

03.02
1-38-4000/P2 and 1-38-4000/P3 show proposed retained trees and are colour-coded to indicate where arboricentric methods are proposed, respectively, during the preparation / main construction and late construction / landscaping phases.

04
Sources and Documents

Ground level inspection.
Supplied plans :
Chilcote Engineering Services drg. no.: 101215/01
NPA LTD. DRG. NO.: NPA 10901 301
ROBERT WEST DESIGN DRG. NO.:RW1602_501D

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
Certain trees, typically those on or close to the boundaries of the site are of some significant general public amenity value, as they are visible from Main Street. However, most trees onsite are of limited, local amenity value to owners / users of the site, and to those of adjoining properties.

05.02
TREES AND LAYOUT - POTENTIAL FOR CONFLICT WITH ROOTS
(Details appear in the tree detail table appended.) The figures in columns 6 and 7 in the tree details table appended indicate the root protection area ('RPA'), and typically the basic exclusion fence position. New materials and methods have been developed and continue to be developed that assist in promoting the successful retention of trees in association with constructed features. It should be noted that BS 5837:2012 (section 7.4.2) supports 'up and over' methods of construction where appropriate. The design principle of this method is outlined within Arboricultural Practice Note 12 (Through the Trees to Development, - a revision of APN 1, 1996, published by AAIS / Tree Advice Trust). This method has been used for many years on the recommendation of John Cromar's Arboricultural Co. Ltd. and has successfully allowed the retention of mature trees very close to construction activities.

05.03
An assessment as per BS5837:2012 section 4.6.2 has been carried out in connection with all trees to be retained. (This section requires that site conditions, tree mechanics, etc., are taken into account in determining the likely position of roots.)

05.04
ROOTS and DESIGN
SRP is an acronym for *static root plate*, (after *Mattheck*, 1991, etc.) a radial dimension derived from trunk diameter based on studies of wind-thrown trees and thus a guide to where structurally significant roots are likely to be located.

RPA is an acronym used in BS5837:2012 and signifying the *root protection area*. The RPA is a guide to where systemically significant roots are likely to be located.

Some encroachment on the RPA of certain retained trees is entailed, as analysed in the table below :

No.	Tree	RPA in sq.m.	Area sq.m affected	% affected	Notes
1	ash	198.51	0.28	0.14	Proposed structure
1	ash	198.51	24.40	12.29	Proposed path
19	ash	326.85	16.87	5.16	Proposed structure
G20	*Thuja plicata*	91.61	12.98	14.17	Proposed driveway
21	Leyland cypress	206.12	20.26	9.83	Proposed driveway
23	holly	51.17	10.13	19.80	Proposed path
25	ash	113.10	8.52	7.53	Proposed path
26	oak	206.12	18.41	8.93	Proposed path
28	walnut	168.33	28.04	16.66	Proposed driveway
28	walnut	168.33	13.58	8.07	Proposed path
29	walnut	215.38	46.01	21.36	Proposed driveway
29	walnut	215.38	13.41	6.23	Proposed path
30	holly	22.56	0.18	0.80	Proposed structure

In the writer's now extensive experience gained over more than a third of a century in arboriculture, controlled, limited-extent, vertical root cutting is of little or no significance to tree health. (It should be noted that the only areas where vertical root cutting may occur is in connection with items 1, 19, and 30.)

The actually damaging operations are those that degrade or compact the ground surface within the RPA, for example by uncontrolled access by mechanical excavators, dumpers, etc. It should be noted that the very limited root cutting entailed in this proposal is, by an order of magnitude, far less than that entailed in the commercial moving of maturing and even mature trees, which has been practised successfully for centuries. In view of the above I conclude that no special footings are needed from the arboricultural perspective. In this case all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated. Arboricentric methods are proposed below to reduce impacts on root systems of retained trees.

BS 5837:2012 7.4.2.3 recommends restricting permanent impermeable hard surfacing of any existing unsurfaced ground within the RPA of trees to be retained to 20% of the RPA. All surface cover methods below entail no root cutting.

In this case all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated.

05.05
PERCEPTION OF TREES

Dwelling no.	Trees in relation sited mainly to	Room use on relevant elevation(s)	Comments
1	SE		Typically unproblematic orientation
2	SSE		Typically unproblematic orientation
3	-		No retained trees
4	-		No retained trees
5	N		Typically unproblematic orientation
6	NW / N		Typically unproblematic orientation
7			
8			
9	NE		
10	-		No retained trees
11	S		Small hawthorn 39 on adjoining land : no windows in south elevation GF
12	-		No retained trees
13	E		Typically unproblematic orientation
14	W		Elm G37 5m away; typically short-lived owing to elm disease prevalence.
15	W		No windows west elevation GF ; garage closest to tree 28
16	-		No retained trees
17	NW		Typically unproblematic orientation
18	SE		Typically unproblematic orientation

In view of all the above I conclude that shading by and perception of trees has been considered (as sections 5.3.4 and 5.6.2.6 of BS 5837:2012 recommend) and appear not to be negative factors.

05.06
Processing by the LPA of any due application from future owners for permission to carry out tree work will no doubt be carried out with due regard for good arboricultural practice and according to British Standard 3998:2010 'Tree Work – Recommendations'. In any appeal that might arise against refusal of LPA consent to reduce inappropriately, or fell trees, common arboricultural criteria to those of the LPA would be used by any specialist tree inspectors of the Planning Inspectorate, and thus the trees would in my view be thus protected against inappropriate work. I consider that any such notional issues are very likely to be dealt with appropriately as no doubt in the past they have been within the Borough, as such tree/building juxtapositions are far from rare.

05.07
SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING
I note from the elevation drawings supplied that virtually no encroachment on the crowns of retained trees will occur. It is of note that the form of the trees is

such that the defining branch structure is well above or clear of the proposed building lines. No trees require major pruning, and all the species involved responds well to pruning. The minor pruning required (clearance of scaffold) is of no importance to the health or appearance of the retained items – trees 1, 19, 34 and limited zones of retained hedges - and can easily be addressed by tree surgery in accordance with BS5837:2012 5.3.4 (c) NOTE 2, 7.7.3, etc., and is within the bounds of good arboricultural practice and British Standard 3998:2010 'Tree work – Recommendations'. Tree surgery is proposed to be to British Standard 3998:2010 'Tree work – Recommendations'. A schedule for the use of a contractor appears below.

05.08
TREE REMOVAL APPRAISAL and REPLACEMENT PLANTING
Please see section **08** for comments on the individual trees proposed for removal. Overall, appropriate tree planting will play a moderately important role in providing for future public and local amenity. The British Geological Survey information for the area indicates that the underlying sub-soil is the Brownstones Formation - sandstone, micaceous. This places no significant constraint on species selection for tree and other planting. A landscape scheme is submitted by others.

05.09
SUPERVISION
Supervision by and regular communication with an arboriculturist is a nigh-essential element of site management where trees are present and to be retained. I propose that this takes place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are as per method 1 in section 06.02 below.

05.10
PUBLISHED GUIDANCE IN RELATION TO TREES AND DEVELOPMENT
In conserving trees on development sites, expected best practice is as in B.S. 5837 : 2012. Section 5.1.1 notes :

"Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification : attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal."

05.11
The above advice appears to have been considered in formulating proposals for development.

05.12
CONCLUSION
I conclude that the construction proposed, subject to precautionary measures as outlined above and as per the recommendations outlined below, will not be injurious to trees to be retained, nor will require any trees of significant public amenity value to be removed. Any tree losses will be satisfactorily addressed by proposed planting.

06
Tree Protection Proposals

06.01
TREE PROTECTION - GENERAL
It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree protection methods specified. A single traverse of a root protection area by a mechanical excavator can cause SIGNIFICANT and PERMANENT (albeit temporarily invisible) damage to trees. Such machinery, including piling rigs, shall be kept at ALL times outside the root protection areas as indicated in the tree details table appended, and/or shall be subject to SPECIAL METHODS below. Fences to protect trees shall be respected as TOTAL EXCLUSION fences. Hence, before any site activity, including demolition, the fence lines shall be complete. Protective fencing and any temporary protection of ground surfaces will have to be removed in due course to allow finishing of landscaping, paving, etc., but this shall not take place until all need for vehicular access to the site has passed, and shall be agreed with arboriculturist / planners on site during progress of works.

06.02
TREE PROTECTION
All structural design element is subject to engineering approval but believed to be practicable.

OVERVIEW

Supervision by an arboriculturist shall take place at key points in the construction process, and additionally whenever required by the architect, client or LPA. These key stages are :

1) **At site possession by contractor, outline all tree protection measures with site agent and resolve any issues arising.**
2) **Ensure remedial tree work including any minor accommodatory tree work required for erection of scaffolding near trees is carried out to specification and sign off. Ensure protective fencing is erected and completed as proposed. Ensure any site cabins, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
3) **Supervise lifting of hard surfacing near trees.**
4) **Supervise laying of temporary or permanent geotextile combination ground protection and sign off.**
5) **Attend as required to supervise digging for and the laying of lighting cable ducts or services.**
6) **Approve any removal or adjustment of protective fencing and sign off.**

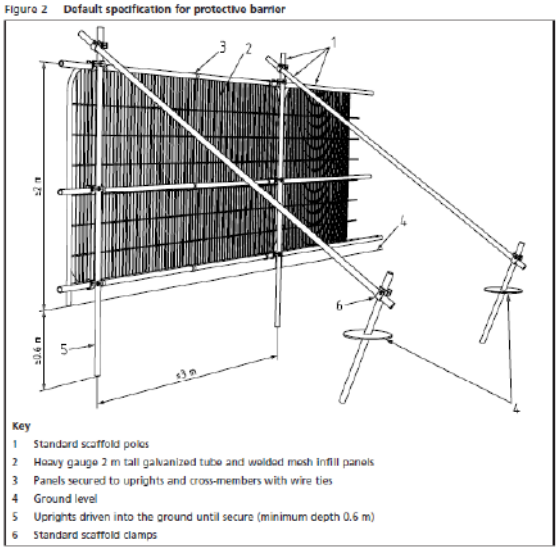
PLEASE READ WITH PLAN REFERENCE 1-38-4000/P2, APPENDED.
The 18no. arboricentric methods below shall be implemented in the order given unless it is stated to the contrary.

PREPARATION

Method 1 : TREE WORK

Tree work shall be in accordance with the provided specification and good arboricultural practice, and to BS 3998:2010 'Tree Work - Recommendations'. The stumps of certain trees (see SCHEDULE appended) shall be removed by mechanical stump grinder, not by mechanical excavator. Arisings shall be chipped and removed from site, or stockpiled outside RPAs for 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 by contractor's vehicles shall be preceded by laying of temporary trackway, such as Zigma Ground Solutions Euromat Ground Guards. The temporary trackways shall be fixed together with manufacturers' approved fixings. This protective layer shall stay in place throughout arboricultural site preparation phase.

Figure 2 Default specification for protective barrier



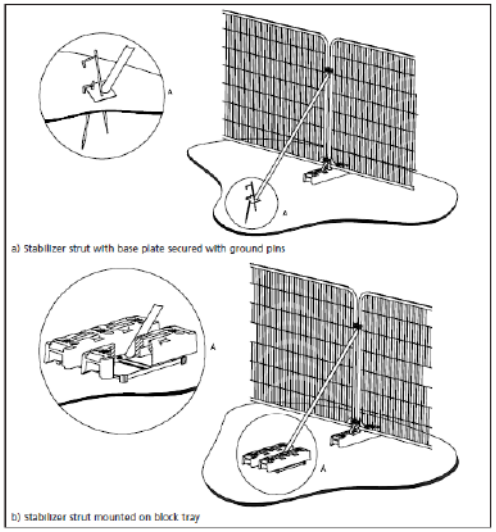
Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Method 2 : TREE and HEDGE PROTECTION FENCING

This method shall apply where indicated by double pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section 6.2.2.2., Figure 2 :

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

Figure 3 Examples of above-ground stabilizing systems



Method 3 : TREE and HEDGE PROTECTION FENCING

Tree protection fencing shall be erected, consisting of 'Heras' type fencing (weld-mesh panels), each section securely attached to uprights driven at least 0.6m into ground, as per the layout as shown on the plan (pink lines). No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines. The standard rubber supports ('elephant's feet') shall if used, be as per BS 5837:2012 section 6, figure 3, left; that is, pinned to the substrate with re-bar.

Method 4 : GROUND SURFACE HANDLING and PROTECTION
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 'Treetex T300' type shall be laid; 100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area may be used for pedestrian access. Scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

OR

If zones are used for pedestrian-operated plant up to 2 tonnes a 2D geotextile membrane, such as 'Treetex T300' type shall be laid; 150mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold board so as to completely cover this area.

OR

If zones are used for vehicular access in excess of 2 tonnes the ground surface shall be protected with Zigma Ground Solutions Euromat Ground Guards. The temporary trackways shall be fixed together with manufacturers' approved fixings.

These protective layers shall stay in place throughout construction phase and shall not be modified without reference to an arboriculturist. On completion of build phase the Zigma GS Euromat Ground Guards or similar appropriate temporary trackway sections shall be lifted by hand or by plant standing outside the zone.

MAIN CONSTRUCTION

Method 5 : TEMPORARY ACCESS - INTENSIVE SITE
This method shall apply in zones gridded green on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used, except if standing on completed formation as outlined below. Edge restraint shall be of timber formwork around the entire perimeter of the zone pegged to underlying ground surface An HDPE impermeable membrane shall be laid over the surface ; 100mm depth sharp sand shall be laid over membrane ; such edge restraint shall stand 50mm above finished concrete-pour level to prevent concrete leaching into the soil ; concrete shall be poured to a depth of 100mm over sharp sand layer. On completion of construction phase or when all need for vehicular access to the zone has ceased, slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools. Any subsequent works in this zone shall be carried out as per Method 10.

Method 6 : SERVICE TRENCHES
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. Services shall be worked under/over/around/ between roots so as not to cut or damage any larger than 20mm diameter. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape.
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.
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 7 : ROOT PRUNING
This method shall apply in the magenta honeycomb zone . Any roots encountered shall be trimmed to the edge of excavation using a sharp edge tool such as handsaw or secateurs; the cuts shall be made at right angles to the long axis of the root, and in accordance with BS3998:2010, 8.6. An HDPE membrane shall be placed between any root-bearing soil and any wet concrete to be poured. Impermeable sheeting (to exclude wet concrete) shall be laid and secured locally by temporary weighting as required. Concrete casting shall take place without disturbing this protective layer.

LATE CONSTRUCTION / LANDSCAPING PHASE

PLEASE READ WITH PLAN REFERENCE 1-38-4000/P3, APPENDED.
The Methods shall be implemented in the order given unless it is stated to the contrary.

Method 8 : TREE PROTECTION FENCING
Tree protection fencing shall be maintained/adjusted, as per Method above.

Method 9 : GROUND SURFACE HANDLING and PROTECTION
This method shall apply in the zones hatched blue on plan. Ground protection as per Method above shall be maintained/adjusted.

Method 10 : TRANSITION FROM TEMPORARY ACCESS TO PERMANENT POROUS DRIVEWAY /CAR PARKING
This method shall apply in zones gridded green on plan. On completion of construction phase or when all need for construction-related access to the zone has ceased, the formwork shall be removed and edge restraint shall be formed. No conventional concrete kerb haunching shall be used. Edge blocks or kerb sections shall be drilled and pinned through to the substrate with 20-25mm dia. rebar and the holes sealed. Alternatively permanent tanalised timber such as modern railway sleepers shall be pegged or pinned - e.g. with re-bar - to the substrate. The re-bar shall be driven below the upper face of the timber and the hole sealed with a hardwood peg and glued and trimmed flush. (If edge restraints are required to be flush with adjacent ground levels, topsoil shall be loose-tipped and graded by hand to slope to existing levels.) The temporary slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools. No excavation below the underside of the membrane shall take place. A 2D geotextile such as 'Treetex T300' type, shall be laid directly on the ground surface, overlaid by a 3D 'CellWeb' type 100 or 150mm or 200mm deep (available from e.g., Geosynthetics Ltd. 01455 617139), depending on envisaged loads backfilled with 40-60mm CLEAN STONE – NO FINES (typically sold as 'track ballast') , and may also be augmented where required to function as a SUDS feature. A further 2D geotextile shall be laid. Levels can be finely corrected by use of granite chippings - NO FINES. Setts shall be laid open-jointed and the joints rammed with granite chippings, or the surface dressed with driveway gravel directly over the 40-60mm clean stone. (All design subject to engineering approval, but used on other sites and known to be practicable and reliable).

Method 11 : GARDEN WALL
This method shall apply in zone of purple fill on plan. Footings shall be confined to isolated pads, dug initially to trial positions. The trial pits to determine pad locations shall be dug with hand tools only, or opened with an air-spade to required depth. N.B. The precise location of pads is flexible within a dimension to be determined by retained engineer. If

hand digging is adopted, 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 hole is dug. It shall be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of trial pit, as this would be sufficient reason to terminate the operation and consider its purpose complete or would entail the moving of the trial pit to a different location. If a root > 20mm diameter is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist. Where roots more than 20mm diameter are unearthed in the pad locations and a pad cannot be re-located, the roots shall be wrapped in bubble wrap. The wrap shall not be wound very tightly against the root. All edges shall be sealed with insulating or gutter tape (not packing tape). (This sleeving both protects the root and forms a compressible layer when wet concrete is poured.) The sleeving shall be chased into the sides of the pit (where the root enters the soil face) for a distance of about 50mm and the entry point ring-sealed with expanding foam. A 25mm minimum thickness of wrap shall be fixed around the roots to be preserved. This protection shall be carried out progressively as the pad pit is dug, so as to protect roots from casual damage during excavation. An impermeable membrane shall line the trial pit and all edges sealed to prevent concrete leachate coming into contact with root-bearing soil. The pads shall be cast and pre-cast lintels or architectural steelwork placed so as to leave a clearance of at least 50mm from retained roots. The wall shall be constructed. Bricks slips may be bonded to any exposed pre-cast lintels or architectural steelwork if desired.

Method 12: FOOTPATHS
This method shall apply in zones of cyan crosses on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used : construction shall be by means of hand tools. NO reduction in existing ground levels shall take place – no 'scraping up' with or without a mechanical excavator.

'NIDAGRAVEL'
Edge restraint shall be formed from tanalised timber pinned to substrate with tanalised timber pegs or similar. Levels can be corrected by use of granite chippings NO FINES. A 3D pocket geotextile system, such as the 'Nidagravel' tray system 40mm deep backfilled with 10-20mm, clean stone or gravel – NO FINES can be laid directly over the level correction layer. This system provides a wheelchair-friendly finish.

Method 13 : PATIOS
This method shall apply in zones of brown crosses on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used : construction shall be by means of hand tools. NO reduction in existing ground levels shall take place – no 'scraping up' with or without a mechanical excavator. A 2D geotextile such as 'Treetex' type, shall be laid directly on the ground surface. Levels can be corrected by use of

granite chippings NO FINES. Sandstone slabs shall be laid open-jointed and the joints rammed with granite chippings.

Method 14 : 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' 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 2D geotextile such as 'Treetex T300' type. A coarse shingle layer can be placed directly over this, or for a slab finish, a blinding of lime-free bedding sand or granite chippings may 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 15 : PERMANENT END-USER FENCING
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 16 : GROUND PREPARATION FOR TREE PLANTING AREAS
This method shall apply after completion of main build only. Ground preparation for tree planting areas shall entail removal of hard surfacing using hand tools or hand-held power tools only, the removal of degraded or compacted or contaminated soil to a depth of at least 0.45m below finished surrounding ground level. The base and sides of the pit shall be forked over to at least one hand fork's spit in depth. Screened topsoil (to BS3882 : 2015 topsoil) shall be laid to replace soil

volume removed and to a minimum depth of 0.45m within 1.3m of the trunk location of each tree to be planted. Soil handling of any kind 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. Tree planting shall be in accordance with British Standard 8545:2014 'Trees : from nursery to independence in the landscape - Recommendations'. This enshrines good arboricultural practice: the tree shall be planted so that the root collar lies at finished ground level, shall be short-staked and tied with proprietary tree tie. Whips shall similarly be planted so that the root collar lies at finished ground level, and shall be protected with proprietary growing tube (staked). The ground surface shall be mulched within 0.75m of the trunk location to a depth of 100mm with composted organic material or proprietary mulch mat.

Method 17 : GROUND PREPARATION IN ROOT PROTECTION AREAS
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. Weed treatment if required shall be via BASIS qualified operatives. Ground preparation within root protection areas shall entail removal of perennial shrubs, climbers, ground covering plants to just above ground level. Surface debris shall be removed by hand to barrow and disposed of outside root protection areas. No wheeled or tracked plant shall be used : hand held power tools such as clearing saws and strimmers may be used. Any dressing with topsoil (to BS3882 : 2015 topsoil) shall be restricted to a maximum of 100mm in depth. Turfing or seeding may take place after levelling and minimal consolidation and which shall by hand tools / foot and board only, or naturally. No mechanical compaction whatever shall be used.

Method 18 : In addition to the above, careful general operation and site handling shall be observed as outlined at 06.03 below.

06.03
GENERAL TREE PROTECTION METHODS

A) No fires shall be made on any part of the site, or within 20m of any tree to be retained.
B) No spilling or free discharge of wet mortar, concrete, fuels, oils, solvents, or tar shall be made on any part of the site.
C) No storage of wet materials shall be made within the protective fences.
D) No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

06.04
It is recommended that acceptance of the recommendations in this report is demonstrated by, for example, the architect specifying in writing to the building contractor that tree care conditions apply in execution of the contract, and by an estimate or written undertaking from the contractor to the architect demonstrating that the practical aspects of observation of such recommendations have been priced in.

06.05
Note to LPA : if the Authority is minded to grant consent, it is invited to consider the incorporation of the specific *order of implementation* of the arboricentric methods above into any Conditions applied. Such a measure is likely to maximise tree protection.

07
General

If conflicts between any part of a tree and the building(s) arise in the course of development these can often be resolved quickly and at little cost if a qualified arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can spoil design aims and can of course affect saleability, and reflect poorly on the construction and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development.

Dated:17th July 2017
Signed:

John C. M. Cromar, Dip.Arb.(RFS) F.Arbor A. 01582 808020 / 07860 453072

APPENDICES

08
Tree Data

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy	Assessed BS5837 value
1	ash	16	400,500, 170	7949	199	Lowest branch over site 3m, ivy infested	20+	B1
2	ash	16	750	9000	254	No access. Dia. est.	20+	C1
3	oak	9	475	5700	102	Some major dead wood	40+	B1
4	Norway spruce		300,200	4326	59	No access	20+	C1
5	aspen	14	350	4200	55		20+	C1
6	aspen	14	200	2400	18		40+	C1
7	aspen	9	170	2040	13		40+	C1
8	aspen	14	160,100, 120	2683	23	Poor form	40+	C1
9	aspen	14	160	1920	12		40+	C1
10	field maple	9	170,150, 150,100, 100,100	3772	45		40+	B1
11	holly	8	400	4800	72	No access	40+	B1
12	Leyland cypress	12	400	4800	72	Severe gale damage, possibly unstable	<10	U
13	hawthorn	9	280,120	3655	42	Minor dieback	20+	C1
14	Wych elm	7	150,150, 100,120, 120,100, 100,80, 80,80	4098	53	Part of neglected hedgerow	20+	C1
15	oak	10	250	3000	28	No access	40+	B1
16	birch	13	540	6480	132	Ivy infested	20+	B1
17	oak	14	1180	14160	630	Major dead wood overhanging footpath, outside site	20+	B1
18	*Thuja plicata*	10	340	4080	52	Dominated by 19	40+	C1
19	ash	17	850	10200	327	Lots of minor dead wood. Unthrifty.	10+	C1

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy	Assessed BS5837 value
G20	*Thuja plicata*	17	450	5400	92	Partly dominated by 19. Little value as screen as few lower branches.	40+	C2
21	Leyland cypress	18	675	8100	206	Leaning, possibly unstable. Part windblown.	<10	U
22	lime	11	400,250	5660	101	Leaning, but self-corrected	40+	C1
23	holly	4	160,130, 120,90, 150,120, 120	4036	51	Screening value	40+	B1
24	elm	8	120	1440	7		<10	U
25	ash	12	500	6000	113	Rather one sided. No access, clearance over site only 1m.	20+	C1
26	oak	13	675	8100	206	Clearance over site 1.8. Ivy infested, some major dead wood. Apparently just outside site.	40+	B1
27	walnut	12	386	4632	67	Clearance over site 2m	40+	B1
28	walnut	13	610	7320	168	Clearance over site 2m	40+	A1
29	walnut	13	690	8280	215	Ivy infested, slight lean, not unstable	40+	B1
30	holly	7	150,150, 70	2680	23	Potential for screen.	40+	B1
31	hazel	6	90,90, 90,90, 90	2414	18		20+	C1
32	Wych elm	4	90,90, 80,80, 70,70, 70	2494	20	Neglected hedge remnant	20+	C1
33	Wych elm	4	90,90, 80,80, 70,70, 70,140, 140	3320	35	Neglected hedge remnant	20+	C1

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy	Assessed BS5837 value
34	ash	13	650	7800	191	Ivy infested. Large branch over site (180mm diameter)	40+	B1
G35	hawthorn	7	250	3000	28	Inaccessible base	40+	C1
36	plum	6	220,120	3007	28		20+	C1
G37	English elm	7	150	1800	10	Vulnerable to loss by elm disease.	<10	U
38	apple	5	250	3000	28		20+	C1
39	hawthorn	5	170,170	2884	26		40+	C1
40	laburnum	4	100,120	1874	11	Strong lean. Apparently just outside site.	<10	U

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

Deciduous trees were not in leaf at the time of inspection. This may have limited precise identification.

09
Schedule

Trees at site on Main Street, Llangrove, Ross-On-Wye

Please read in conjunction with plan 1-38-4000/P2. Trees outside the curtilage of the property may be included. Boundaries where marked should always be treated as notional, and no statement either implied or explicit as to the ownership of trees should be taken as definitive or precise. **As applicable, the consent to, or acquiescence to, and communication of the timing of the recommended remedial works, as far as the relevant owner is concerned, should be checked before any such trees are actually treated.**

Tree number	Tree type	Height	Stem diameters	Comments
1	ash	16	400,500, 170	Prune on NNW side only to 6m radius and only to 5m +GL. Treat ivy as Note (C) below
12	Leyland cypress	12	400	Remove including stump.
14	Wych elm	7	150, 150, 100, 120, 120,100, 100,80, 80,80	Part of neglected hedgerow : coppice.
16	birch	13	540	Remove including stump
19	ash	17	850	Crown clean.
G20	*Thuja plicata*	17	450	Prune to clear 3m +GL where overhanging the site
23	holly	4	160, 130, 120, 90, 150, 120, 120	Prune to hedge 3m in height and about 1m thick
24	elm	8	120	Coppice
25	ash	12	500	Prune to clear 3m +GL where overhanging the site.
26	oak	13	675	Prune to clear 3m +GL where overhanging the site. Treat ivy and dead wood where overhanging the site as Note (C) below
27	walnut	12	386	Prune to clear 3m +GL to the west only (to facilitate footpath clearance). Crown clean.
28	walnut	13	610	Prune to clear 3m +GL to west and south and east (to facilitate footpaths and access drive clearance) . Crown clean.

Tree number	Tree type	Height	Stem diameters	Comments
29	walnut	13	690	Prune to clear 3m +GL to north and west (to facilitate footpaths and access drive clearance) Treat ivy and dead wood as Note (C) below.
30	holly	7	150, 150, 70	Prune on east side only to 1m radius.
31	hazel	6	90, 90, 90,90, 90	
32	Wych elm	4	90, 90, 80,80, 70,70, 70	Remove : grind stumps to below ground level
33	Wych elm	4	90, 90, 80, 80, 70,70, 70, 140, 140	
34	ash	13	650	Treat ivy and dead wood as Note (C) below. Preserve 180mm diameter branch overhanging site : reduce tip only minimally (max cut sizes 50mm diameter) to clear garage footprint.
G35	hawthorn	7	250	Remove southernmost stem.
36	plum	6	220,120	Remove including stumps
G37	English elm	7	150	
38	apple	5	250	Prune to clear 2m over site
ITEM	retained hedges	-	-	Trimmed where indicated on plan

NOTES:

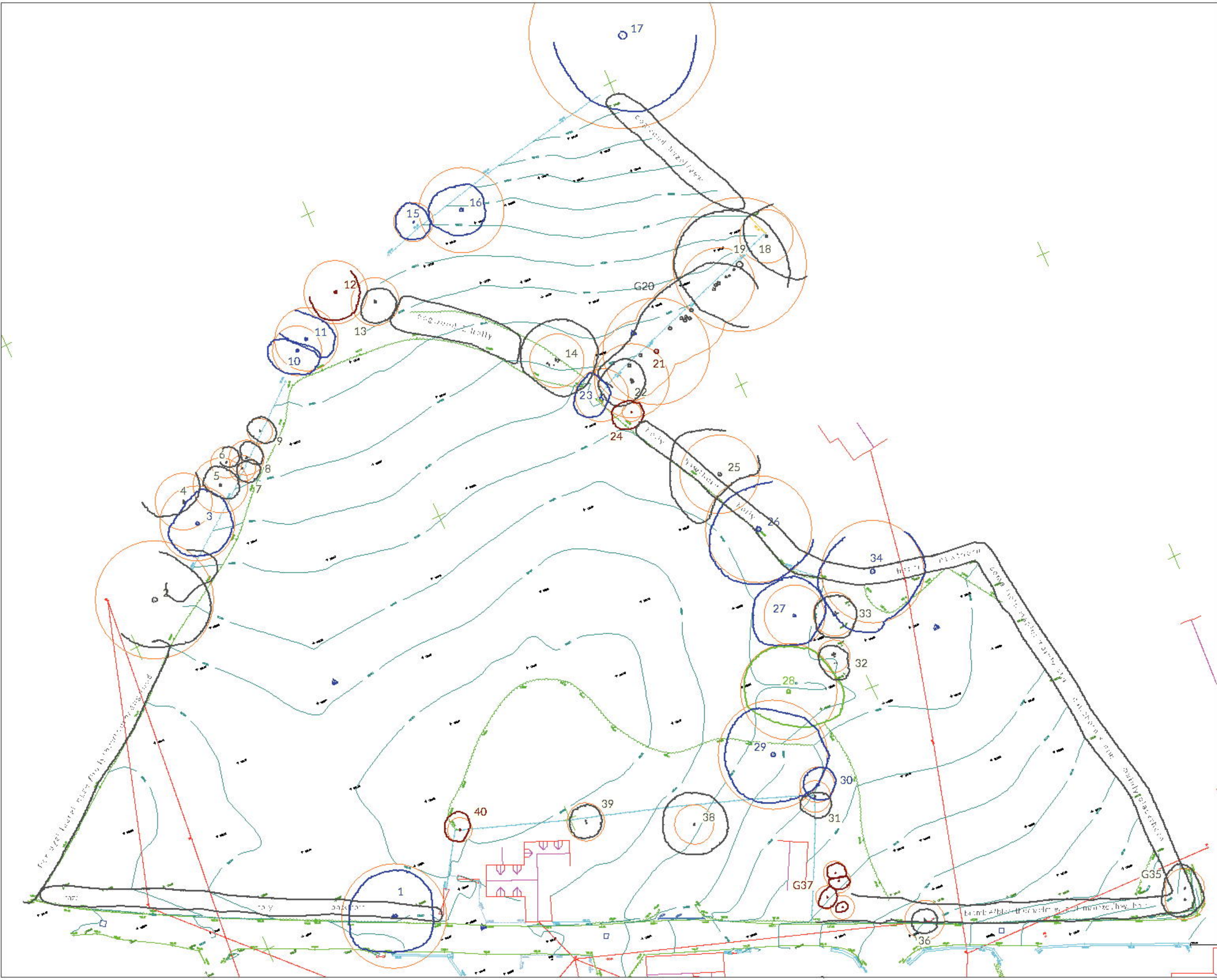
(A) **This schedule notifies the LPA of intention to remove or treat trees in accordance with TCP Act 1990 Section 211.** 42 days after notification should be allowed before proceeding with the work, during which time (and after) the LPA may place a Tree Preservation Order on the tree(s), thus requiring a formal application for any works to living wood.

(B) 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.

(C) Ivy and dead wood can be important ecological features. Ivy should, except where otherwise specified in the work schedule, be treated as per BS3998 section 7.12. In summary this means trimming back (e.g. with a hedge cutter or secateurs) to near the line of the trunk or branches, and/or removing selected stems so that the structure of the tree can be inspected. In practice this may need to be done outside the bird-nesting season. Treatment of dead wood shall be as per section 7.3.2 – essentially shorten if possible, thus retaining some resource for invertebrates, etc.

10
Plans

1-38-4000/P1 v4
1-38-4000/P2 v16
1-38-4000/P3 v8



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KEY TO COLOURS/LINETYPES
USED IN RELATION TO TREES

DRG. NAME
TREE VALUE ASSESSMENT AS PER BS 5837 ROOT PROTECTION AREAS

TEXT
FOR FULL DETAILS OF TREE VALUE PLEASE SEE REPORT

BASED ON
ENGINEERING SERVICES DRG. NO.

SITE ADDRESS

DRG. REF. | REV. NO.
SCALE & SIZE | DATE
1:250 @ A1 |

0 5 10

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KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES

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KEY TO PLAN SYMBOLS/COLOURS
USED IN RELATION TO TREES

NOTES

DRG. NAME
TREE REFERENCING & TREE PROTECTION MEASURES (Tab: Construction / Landscaping Phase)

TEXT
FOR FULL METHOD DETAILS
PLEASE SEE REPORT REF. 1 28 / 2000

BASED ON
NEAT ID. DRG. NO.: NEA 10901 201
/ ROBERTS WEST DESIGN DRG. NO.:
RW1807 501C SUPPLIED

SITE ADDRESS
Land on NW of Street Lane, ...
Ross-On-Wye

DRG. REF.	REV. NO.
1 28 / 2000 V02	V0

SCALE & SIZE	DATE
1:500 @ A1	... 17