FLAC

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MORELLO II

RICS

PLANNING CONDITION DISCHARGE INFORMATION:

EXPERT WITNESS INSTITUTE

21—TREE PROTECTION MEASURES

Prepared for: Menta Redrow (II) Ltd

FLAC Instruction ref: CC28-1010

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FLAC is instructed on this occasion by Menta Redrow II Ltd. The scope of our instructions comprising the following elements:

1. Maintain currency of a tree survey compliant to applicable British Standards (namely, BS5837);
2. Provide the arboricultural input for the discharge of planning condition 21 in the form of a Tree Protection Plan & Arboricultural Method Statement.

Document Structure

Tree Protection Plan & Arboricultural Method Statement

Tree survey key

Tree survey data

Tree Retention & Removal Plan

The planning conditions are as follows:

Prior to the commencement of works on site including those for demolition, drainage and foundations, a scheme shall be submitted for approval to the Local Planning Authority specifying the means by which those trees to be retained shall be protected during the works. The approved scheme shall be implemented on site prior to commencement and retained for the duration of the works.
Reason: To ensure that trees which contribute to visual amenity can be retained and are not damaged by the construction and associated works.

CAUTION: THIS DRAWING IS INTENDED TO BE READ IN COLOUR

5m 10m 20m 30m 40m 50m

Client
Menta Redrow II Ltd

Instruction
Morello II

Instruction ref.
CC28-1010

Dwg title
Tree Protection Plan

Dwg no.
28-1010.03

Date
06.10.19

Scale
1:500 @ A1

Category A High
Category B Moderate
Category C Low
Category U Unretainable

Trees for retention

Trees for removal for arboricultural reasons

Indicative tree root protection area (retention trees)

Position 1 Alignment of tree protection fencing

No-dig surface

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Notes

Do not scale off dwg - refer to tree survey data schedule for crown spreads etc

All tree positions are indicative unless a topo survey has been provided to FLAC

Any trees omitted from topo survey are located indicatively

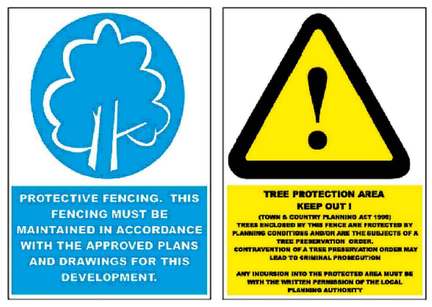
Notes on potential habitat features are for guidance only: ecological assessment is recommended

Drawn to N unless otherwise indicated

BS5837:2012 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

Example alert & prohibition signage for attaching to tree protection fencing



ARBORICULTURAL METHOD STATEMENT

A) RESPONSIBILITIES & KEY PERSONNEL

1. FLAC provides the arboricultural input for this project. The first point of contact is FLAC head office (Tel 01767 641648) and the project will be overseen by the Operations Director for Planning & Development, Patrick Stileman BSc(Hons), MICFor, RC.Arbor.A., Dip.Arb(RFS). Once the project is underway, but before any works on site, a member of the FLAC team will be appointed with direct responsibility for this project. The Site Manager for the developers will either assume responsibilities for the overseeing tree issues and reporting and liaising with FLAC or appoint a person to these tasks.

B) PRELIMINARY MATTERS

2. Prior to the commencement of all works on site FLAC will provide an induction briefing with the contractors from each of the following disciplines: Tree work, Demolition, Construction & Landscaping. The purpose of these briefings are to ensure all personnel are aware of the site specific arboricultural constraints and associated tree protection measures and the requirements for specialist working/construction techniques. These briefings may be help with all disciplines in a single session or with each discipline individually. For either route the briefing will be help prior to any works on site by each discipline.

3. Prior to any ground modeling, demolition or construction work on site, the approved tree works shall be undertaken by tree contractors (not unskilled personnel). Note during the pre-start meeting FLAC will identify any additional requirements for access facilitation pruning. A specification for this tree work shall subsequently be prepared by FLAC.

4. No plant access is permitted for tree work operations within the RPAs of retention trees, except where existing hard-surfaces are present

5. All approved tree removals shall be undertaken by tree contractors. Each tree shall be cut down to a low stump

6. Stumps from felled trees not in proximity to retention trees can be grubbed out.

C) INSTALLATION OF PHYSICAL TREE PROTECTION MEASURES

7. Following completion of enabling tree works, physical tree protection measures shall be installed in line with the provisions of BS5837:2012. These measures comprise:

- Tree Protection Fencing (TPF) to BS5837:2012 Figure 2 (see Inset Sketch 1) fitted with all-weather warning signs (see elsewhere on plan)
- Site exclusion fence

8. The tree protection measures are to be installed prior to any demolition and construction operations. They are to be left in situ throughout the redevelopment process.

9. The TPF is to be installed on the Position 1 alignment (as per the dwg key)

D) PROHIBITIONS & PRECAUTIONS

10. The fencing, ground protection and any existing hard surfaces within the root protection area comprise the Construction Exclusion Zone. Within this zone, the following activities are strictly prohibited during primary demolition (other than as described below):

- Excavation / lowering of levels into rootable soil: removal of surface organic matter using hand tools is acceptable; scraping or reduction in depth of topsoil is not
- Removal of existing hard surfaces
- Grubbing out of redundant buried structures (see below)
- Operation, transit or storage of plant, and storage of materials, including demolition arisings, other than on ground protection
- Storage or handling of any chemical substance injurious to trees, including fuels, oils, lubricants and cement washings

11. The Construction Exclusion Zone shall be established site-wide as set out above, and shall remain in place throughout the redevelopment process. No elements of the physical tree protection shall be removed or altered without prior written consent from the local planning authority

E) METHODS FOR TREE FRIENDLY WORKING

12. Redundant buried structures, if present, are preferably disconnected / backfilled and retained in situ; further advice should be sought from FLAC before consideration is given to grubbing them out. Existing hard surfaces within the Construction Exclusion Zone are to be retained and not demolished / removed until completion of primary construction

13. The recommendations of BS5837:2012 6.2.4.1 shall be strictly observed throughout the demolition and construction process:

BS5837:2012 6.2.4.1

Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertake where necessary to maintain this clearance

Note In some instances local planning authority consent for pruning might be required

14. Landscaping works within the CEZ will be completed under arboricultural supervision and following the take-down of the tree protection measures. Works will be completed by hand and using hand-tools only.

15. The landscaping works in a no-dig surface at the location shown by the orange honeycomb hatch on this drawing. This will be constructed in accordance with the principles set out in the Arboricultural Practice Note 12 *Through the trees to development* (APN12) using a 3 dimensional cellular confinement system of appropriate specification to the anticipated loading. The design of the cellular confinement system is to be produced by the Landscape Architects / Structural Engineers. The installation of no-dig surfaces within the RPA of retention trees is a high-risk operation and will be completed under arboricultural supervision.

F) VARIATIONS AND INCIDENTS

16. Where variations to the arboricultural method statement and tree protection measures becomes necessary these will be handled by FLAC. The contractors will detail in writing why a variation is required. FLAC will appraise the arboricultural impact of the proposed works. Written advice will be provided detailing the appraisal and providing written advice as to how to minimize the impact if possible. FLAC will present the variation to the LPA for approval. Works will not proceed until this written confirmation from the LPA is in received.

17. Incidents that damage the retention trees and negatively affect long-term retention, physiological health and/or visual amenity must be reported to FLAC, in the first instance, as soon after occurrence as is reasonably practicable. Photographs should be taken at the time of the incident, including both close pictures of the damage and contextual pictures. A site visit will be carried out by FLAC and a written assessment of the damage carried out with recommendations made for the appropriate remedial action. This will be presented to the LPA.

ARBORICULTURAL SUPERVISION SCHEDULE

All high risk operations require arboricultural supervision (see items 12, 14 & 15 of the Arboricultural Method Statement).
Additionally ongoing inspection of the tree protection measures shall be provided throughout the redevelopment process.

The minimum schedule of supervision is as follows:

- Pre-start tree works site briefing
- Tree works completion audit combined with
- Pre-start tree protection meeting
- Tree protection correct installation audit
- For all 'high risk operations' (see Arb Method Statement for details)
- 4no. weekly tree protection monitoring visits during which FLAC query site management on the implementation of tree protection measures
- 4no. fortnightly tree protection monitoring visits
- 6no. monthly visits as above or more frequent if queries arise
- Tree protection monitoring visits continue at no lesser frequency than monthly, or more frequently if queries arise, until completion

Notes: If after the weekly, fortnightly and monthly visits are completed, there have been no significant incidents or issues with tree protection, application may be made to the LPA for a minor variation to the terms of the approval to allow a reduction in the frequency of visits.
A minimum of 24hrs notice of the site monitoring visits will be given.
A written record of each site visit will be retained by FLAC and copied to the client. A copy will be sent to the LPA within 5 days of the visit.

CHERRY ORCHARD GARDENS: KEY TO TREE SURVEY DATA SCHEDULE

Note

This survey has been undertaken in compliance with BS5837:2012; it is not intended to be a tree safety survey. Any notes offered on structural integrity of trees are incidental, though where trees are considered to be in immediately hazardous condition (identified by red font in the *Structural condition & Notes* column, see below*)*, our recommendations given for immediate intervention should be put in hand by the owner / site manager as soon as can be arranged.

Trees are dynamic living organisms capable of achieving considerable size and structural complexity. They are exposed to and can become damaged by the elements and by human activity, and have co-evolved with decay-causing organisms that can degrade and sometimes destroy their structural integrity. Due to genetic characteristics and local microenvironmental factors this integrity can be innately uncertain. The laws and forces of nature dictate a natural failure rate even among trees that are healthy and structurally sound. By their very nature, therefore, trees cannot be considered entirely hazard-free.

Tree surveys and / or tree inspections are, inherently, only a snapshot in time of the physiological and structural condition of the trees concerned.

Unless otherwise stated in our reporting material, all such surveys and inspections are undertaken from ground level and no internal inspections or tests have been undertaken. Any structural defects present might be not be visible, for example being masked by vegetation, whether the tree's foliage, plants growing round the base of the tree, or climbing plants growing on the stem and into the crown.

Unless otherwise states, the survey data should be considered time-limited **for planning purposes** to a maximum of three years (absent revisions of BS5837, which render pre-existing data obsolete).

FLAC Ref. No.

Tree numbers per FLAC dwg no. 28-1010.01 and subsequent drawings

In line with the advice of BS5837:2012, where trees occur as a cohesive group feature (prefixed TG for tree group or WG for woodland group), they are assessed as such

Size data for TG or WG are given as mean figures for trees at roughly the 80 percentile of the population concerned. Trees in the 90-100 percentile range for the group are identified on the TSP

Trees within TG / WG boundaries that have more than one stem and which are sub-dominant within the TG / WG (i.e. <80 percentile) are subsumed within the TG / WG data; dominant multi-stemmed trees (i.e. >80 percentile) within TG / WG boundaries are listed as individual trees

TG / WG outlines follow the mapping base (typically either topographical survey or geo-rectified aerial imagery)

Hedges (domestic) are recorded prefixed H and are always excluded from the provisions of the Hedgerows Regulations 1997

Hedgerows (rural) are recorded prefixed HR and possibly fall within the provisions of the Hedgerows Regulations 1997

All numbering starts from *x*001 **for each type of vegetation**, where *x* identifies the surveyor (9000 series = JFL). Thus:

9000	Individual tree
TG9000	Tree group
WG9000	Woodland group
H9000	Domestic hedge
HR9000	Rural hedgerow

The addition of the FLAC instruction ref. ahead of the tree number provides a unique, non-repeated reference number for the particular tree in question

Any trees omitted from the topo survey are listed on the referenced plan, though their positions are only shown indicatively. Off-site trees are included where deemed relevant, though their positions are also shown indicatively if omitted from the topo base

TPO Ref.

Statutory protection listing for individual trees, TG and WG
ATTENTION: SEE NOTE IMMEDIATELY BELOW

Note
This column is only completed in cases where FLAC has been instructed to undertake a TPO search and correlation to FLAC reference numbers. The absence of data in this column **must not** be taken to indicate that the trees concerned are not under TPO protection. Statutory protection may also arise from the trees' location within a Conservation Area. Further statutory control over tree removal may be conferred by the Forestry Act 1967

Species

Tree species as listed in the schedule by common name. Species present are:

Common name	*Botanical name*	*Provenance*	*Notes*
False acacia	Robinia pseudoacacia	Exotic	
Gean	Prunus avium	Native	
Horse chestnut	Aesculus hippocastanum	Naturalised	
London plane	Platanus x hispanica	Exotic	

Crown Spread

For individual trees, measured radial crown spread in metres, listed for each of the four cardinal points

Ht. 1st Br.

For individual trees and trees assessed as groups or woodland, height in metres above ground of attachment point of first significant branch (cardinal point may be given indicating growing direction)

Ht. Can.

For individual trees and trees assessed as groups or woodland, mean height in metres of lower extent of tree canopy above ground

Stem Count

For individual trees, number of stems present below 1.5m AGL. Stem count affects diameter entry as follows:

Where the stem count is 1 the diameter should be entered into the 1 column under Stem Dia.
Where the stem count is up to 5 each stem dia. should be listed
Where the stem count exceeds 5, the mean stem diameter should be entered in the 1 column

Either:

Stem Dia. (mm)

Stem diameter(s) at 1.5m above ground level (see measurement system in BS5837:2012 Annex C), given in millimetres

Where entered 1:
Single measured stem diameter

Where entered 2-5:
Multiple measured stem diameters, listed per stem

Where entered >5:
For trees with more than five stems, diameter is listed as an estimated mean

Where the diameter entry for trees with 1 or 2-5 stems appears in italics, this indicates that it was estimated by the surveyor (for example, due to the presence of ivy on the stem)

It is our practice to round up when estimating stem diameters

RPA Rad.

Radius in metres of the notionally circular Root Protection Area

RPA Area

Conversion of RPA radius to an area, given in m^2, capped to a maximum of $707m^2$ (in line with BS5837:2012)

Life Stage

Life stage assessment according into:

Y	Young
SM	Semi-mature
EM	Early mature
M	Mature
OM	Over-mature

Phys. Condition

An assessment of the **physiological** condition (i.e. health/vitality) status of the tree summarised according to:

GOOD	Generally in healthy condition
FAIR	Condition satisfactory though below mean species performance
POOR	Tree in decline/retrenching
DEAD	Self explanatory

Structural condition & Notes

Notes on the apparent structural integrity of the tree based on visual tree assessment, including notes on form, taper, forking habit, storm damage, decay fungi, pests, etc. plus other pertinent observations

Management recommendations

Preliminary recommendations for intervention (e.g. tree surgery, felling, etc) in relation to existing context

Trees assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practical. Where the recommendation is for further investigation, including removal of ivy and reinspection, the given retention span and quality/value grade (see below) should be treated as provisional

Notes
This is **not** intended to comprise a specification for tree work: further advice should be sought prior to implementation

Change in land use (target value) requires further assessment

Ret. Span

Estimated remaining retention span based on species, condition & context divided into the following bands (relates to quality and value grade achievable as stated):

Years	*Best QV grade*
<10	U
10+	C
20+	B
>40	A

QV Grade

Quality & Value grade classification according to BS5837:2012 (see attached extract from BS5837:2012 'Table 1 - Cascade Chart for Tree Quality Assessment') –

Grade	*Summary meaning*	*Ident. colour spot on TSP*
U	Trees that are unretainable in viable condition	Dark red
A	High quality & value and consequent high retention priority	Light green
B	Moderate quality and value (moderate priority for retention)	Mid-blue
C	Low quality and value (generally considered to be sacrificial)	Grey

Note
Trees present which we consider to be **exceptional** specimens are identified by the suffix * after the A grade, e.g. A1*

Proposal

This column identifies:

1. Planning Condition Discharge (Arboricultural Stage 4):
   Approved tree retention / removal.

The following codes are used:

RET	Trees that would be retained
REM	Trees that would be removed
U	Trees identified to be unsuitable for retention

CHERRY ORCHARD GARDENS: TREE SURVEY DATA TABLE

Data for individual trees

FLAC Ref. No.	TPO Ref	Species	Ht. (m)	Crown Spread (m) N	S	W	E	Ht. 1st Br. (m)	Ht. Can. (m)	Stem Count	Stem Dia. (mm) 1 / mean	2	3	4	5	RPA Rad. (m)	RPA Area (m2)	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Structural condition & Notes	Management recommendations	Ret. Span <10, 10+ 20+, >40	QV Grade U-A-B-C	Proposal
3001		False acacia	12	6	5	5	8	4 W	4	3	*600*	*450*	*250*			9.49	283	M	P	Very dense ivy impedes inspection of most of crown structure and stem diameter measurements. Secondary stem inclined acutely to south appears entirely dead. Frequent medium sized and occasional large dead wood present throughout crown with potential to fall into high occupancy footway and highway to north, construction site to south and west, and neighbouring land to east. Further crown decline and condition deterioration inevitable.	Fell.	<10	U	**U**
3002		Horse chestnut	15	6	6.5	6.5	6	4 W	4	1	*700*					8.40	222	M	G	Off site trees. No access. Remote inspection only. Crown has regrown after historic topping to around 3 metres. Principal branch structure and unions appear in satisfactory condition. Visible crowns indicate good health. Good overall condition. Old, large brick walls may represent an impediment to root growth across site boundary.	No action required at time of survey.	20+	B1	RET
3003		Horse chestnut	15.5	6.5	7	6	7	4 S	4	1	*800*					9.60	289	M	G	Off site trees. No access. Remote inspection only. Crown has regrown after historic topping to around 3 metres. Principal branch structure and unions appear in satisfactory condition. Visible crowns indicate good health. Good overall condition. Old, large brick walls may represent an impediment to root growth across site boundary.	No action required at time of survey.	20+	B1	RET
3004		London plane	19.8	11	9.2	10	4.8	4 N	2.5	1	800					9.60	289	M	F	Highways tree in open ground within formal planter. Stout lower stem. Crown regrown from historic pollarding at around 5 metres. Principal branch structure and unions in good overall condition. At time of survey new foliage is expanding and assessment of physiological condition is at least fair, possibly good. Some crown asymmetry at east due to companion shelter with 3005. Good overall condition.	No action required at time of survey.	>40	B1	RET
3005		London plane	19	11	6.6	9.5	11.8	3.5 SW	4	1	860					10.32	334	M	P	Highways tree in open ground within formal planter. Stout lower stem. Crown regrown from historic pollarding at around 5 metres. Principal branch structure and unions in good overall condition. In the region of 50% of the crown displays dead branch tips with dead branch and limb structure, some branch tips declining and not entirely dead yet, overall poor physiological condition. Foliage, where present appears small and behind the neighbouring planes in terms of performance. No symptoms of causal agent, likely to be related to abiotic agents. Most of the crown decline is present at the east half of the crown and overhangs the busy site entrance. Gate operatives report falling dead wood material. The affected portion of the crown at east is the most critical in terms of amenity. Certainly remedial work is necessary to make the crown safe but both residual amenity and future prospects for this specimen are poor.	Fell.	<10	U	**U**
3006		Gean	6.6	3.2	4	4.2	2	1.7 W	2	1	255					3.06	29	M	F	Heavily suppressed with poor overall form and a heavy crown bias to west. Low arboricultural or landscape merit.	No action required at time of survey.	10+	C1	RET
3007		London plane	20	6.8	10.8	10.5	10.4	4 S	2.5	1	910					10.92	374	M	F	Highways tree in open ground within formal planter. Stout lower stem. Crown regrown from historic pollarding at around 5 metres. Principal branch structure and unions in good overall condition. At time of survey new foliage is expanding and assessment of physiological condition is at least fair, possibly good. Some crown asymmetry at north due to companion shelter with 3005. Limb from approximately 8.5 metres west growing out towards the telephone box has a mechanical wound near its base after a past co-dominant failure, intervention is advised to mitigate.	Limb form 8.5 metres at west that grows out towards the telephone box displays a large wound near union with parent limb after a past co-dominant failure - reduce the branch ends of this limb by 3 metres to reduce end-weight and sail area.	>40	B1	RET
3008		London plane	16.2	9	8.6	8.5	7.5	4 S	3.3	1	664					7.97	199	M	F	Highways tree in open ground within formal planter. Stout lower stem. Crown regrown from historic pollarding at around 5 metres. Principal branch structure and unions in good overall condition. At time of survey new foliage is expanding and assessment of physiological condition is at least fair, possibly good. Some crown asymmetry at north-east due to companion shelter with 3007. Good overall condition.	No action required at time of survey.	>40	B1	RET
3009																				Removed since initial survey				
3010																				Removed since initial survey				
3011																				Removed since initial survey				
3012																				Removed since initial survey				
3013		Norway maple	9.5	3	2.5	2.5	3	4 N	5	1	207					2.49	19	SM	F	Highways tree in small pit. Stem and principal branch structure and unions in satisfactory condition. Regrown from past crown reduction.	No action required at time of survey.	>40	B1	**REM**
3014		Norway maple	9.5	3.5	2.5	3	3	2.5 N	4	1	177					2.13	14	SM	F	Highways tree in small pit. Stem and principal branch structure and unions in satisfactory condition. Regrown from past crown reduction.	No action required at time of survey.	>40	B1	**REM**
3015		Common lime	7.5	2.5	2.5	3	3	0	0	1	*700*					8.40	222	M	F	Dense ivy impedes inspection and current and old fences impede diameter measurement. Stout lower stem becomes three members from 2.5 metres. Specimen has been heavily topped at approximately 6 metres. Very dense shoots across while of stem and residual structure. Low arboricultural or landscape merit.	No action required at time of survey.	20+	C1	**REM**

Data for trees assessed as groups (TG)

FLAC Ref. No.	TPO Ref	Species	Tree Count	Ht. (m)	MRCS (m)	Ht. 1st Br. (m)	Ht. Can. (m)	Specimen Stem Dia. (mm)	Specimen RPA Rad. (m)	Specimen RPA Area (m2)	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Structural condition & Notes	Management recommendations	Ret. Span <10, 10+ 20+, >40	QV Grade U-A-B-C	Proposal
TG3001		Himalayan birch	6	4	1	2 N	2	75	0.90	3	Y	F	Close-set linear tree group to front of sales office. Specimen at east appears dead. Low arboricultural or landscape merit.	Remove dead specimen at east.	20+	C2	REM
TG3002		Tibetan cherry	3	4	1	2 N	2	85	1.02	3	Y	F	Close-set linear tree group to front of sales office, at flank of parking. Satisfactory overall condition.	No action required at time of survey.	20+	C2	REM