Arboricultural Assessment Report

Detailed Report on Trees

For:	**Client:**	Richard F Gill & Associates
	Insurer:	Punch Taverns PTL Ltd
Site:	**Policyholder:**	Punch Taverns PLC
	Risk Address:	Lord Stanley, 51 Camden Park Road, London, NW1 9BH
Refs:	**OCA Ref:**	47366
	Client Ref:	10389
	Insurer Ref:	

Survey By:	John Hall		
Title:	Senior Consulting Arborist	**Date:**	29 March 2011
Report By:	Andrew Graham		
Title:	Senior Consulting Arborist	**Date:**	15 March 2012

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References

Reference	
1	Richard F. Gill & Associates 'Engineer's Report' dated 16 March 2011
2	Site Investigation dated 05 January 2011
3	Level Monitoring for the period September 2011 – January 2012

1.0 Introduction & Brief

1.1 OCA UK Limited has been instructed by Richard F. Gill & Associates on behalf of the building insurers of Lord Stanley, 51 Camden Park Road, London, NW1 9BH (the insured property). We have been advised by our client that the insured property has suffered differential movement and damage which is considered to have been caused by trees growing adjacent the property influencing soils beneath its foundations.

1.2 We have been instructed to undertake a survey of the vegetation growing adjacent the insured property, to provide our opinion as to whether, based on the available information any of this vegetation is likely to be influencing soil moisture levels beneath the foundations of the property and if so to provide recommendations as to what tree management could be implemented to effectively prevent damage continuing.

1.3 The vegetation growing adjacent the risk address has been surveyed from the ground using digital measuring devices and/or standard tape measures. All distances are measured to the nearest point of the risk address unless otherwise stated.

2.0 Limitations

2.1 Recommendations, with respect to tree management, are associated with the risk address following consultation with Engineers. In relation to the possibility of heave damage, the owners of any trees in third party control must obtain their own advice in respect of the possibility of any damage to their own or other structures outside of the control of the insured.

2.2 Recommendations do not take account of any necessary permission (statutory or otherwise) that must be obtained before proceeding with any tree works.

3.0 Evidential Assessment

Circumstances of discovery	The Engineer has advised that damage was discovered in the summer of 2010 and was seen to worsen during the subsequent summer period of 2011.
Engineers brief description of main damage	The Engineer describes the main area of damage as being to the male toilet block and garden boundary wall.
Engineers brief description of the mechanism of movement	The Engineer has advised that the pattern of movement indicates a mechanism of downwards movement to these areas.
Engineers BRE 251 numerical category	The Engineer has classified the damage as category 2 in accordance with the BRE Digest 251 – Assessment of damage in low-rise buildings.
Engineers assessment of onset and progression of damage	The Engineer considers that damage has occurred recently and that it is likely that movement will be of a cyclical nature with cracks opening in the summer and closing in the winter.
Engineers conclusion as to cause of damage	The Engineer has concluded that the damage has resulted from clay shrinkage subsidence. This has been caused by vegetation which is the responsibility of the insured.
Foundations	Site investigations comprised of one trial pit and borehole that was excavated adjacent the male toilet block of the insured property. The excavations revealed foundations at this point to be constructed at a depth of 800mm below ground level.
Trial Pit / Borehole, soil characteristics description	Soils at the underside of the foundations are described as: Firm mid brown silty Clay to a depth of 1m; very stiff silty Clay to a depth of 1.7m; stiff silty Clay to a depth of 2.1m and Claystone to a depth of 4m. The borehole ended at 4m.
Soil plasticity	Soil samples were taken from the trial pit and borehole and were subjected to laboratory testing. The results of these tests indicate that soils beneath the male toilet block of the Insured Property have a modified plasticity indices of 54%. This confirms that underlying soils have a high potential for volume change due to their moisture content.
Desiccation	The Moisture Content Profile is indicative of desiccation at around a depth of 1.5m. This is demonstrated by the sudden and significant reduction in moisture content at a depth consistent with observed rooting.
Heave Potential	The Engineer does not consider heave to be a consideration should the adjacent vegetation be removed.
Roots as described in Trial Pit / Borehole Log	Roots of up to 3mm in diameter were noted at the underside of foundations in Trial Pit 1. Hair & Fibrous roots were noted a depth of 3.5m in Borehole 1.

Laboratory analysis of roots	Root samples were taken from the trial pit and borehole and have been subject to laboratory testing using light microscopy techniques. The results of these tests are as follows: TP1 (underside foundation) – *Acer* (Sycamore/Maple) roots of up to 8mm in diameter. BH1 (depth 1m – 1.5m) – *Acer* (Sycamore/Maple) roots of up to 2mm in diameter.
Drainage	Engineers do not consider leaking or damaged drains to be a factor in current damage. The soils description of firm, stiff and very stiff would appear to support this opinion.
Monitoring	A programme of precise level monitoring is currently being undertaken at the Insured Property. Readings are available for the period Sept 2011 – January 2012 and show a clear pattern of seasonal movement. The greatest amplitude of movement is recorded at point 10 (5mm of movement). I note that this point is closest to Sycamore T1 and Sycamore T2.
Estimated cost of superstructure and repair works if tree removed	£20,000
Estimated cost of works if trees retained	£70,000

4.0 Conclusions

From the evidence summarised above we consider that we have demonstrated that on the balance of probabilities:

4.1 Tree Roots have extended beneath the foundations of the risk address

Roots have been noted throughout TP1 and to a maximum depth of 3.5m in BH1.

Samples of these roots have been tested using light microscopy techniques and have been formally identified as Acer (Sycamore/Maple).

Given their size, species and proximity to the location of the trial pit/borehole, we consider that these roots have emanated from Sycamore T1 and Sycamore T2.

4.2 Damage to the risk address has resulted due to the presence of these roots

The timing of damage is consistent with a time of year when soil moisture deficits due to the influence of adjacent vegetation would be at or reaching their peak.

The mechanism of movement as described by the Engineer is entirely consistent with the location of Sycamore T1 and Sycamore T2.

Shrinkable clay soils have been encountered beneath foundations adjacent to the toilet block. These soils will be subject to volumetric changes due to fluctuations in their moisture content.

The soils analysis results indicate that underlying soils are in a desiccated condition.

Level monitoring demonstrates a seasonal pattern of movement that we can only attribute to the influence of adjacent vegetation. Readings are available for the period Sept 2011 – January 2012 and show a clear pattern of seasonal movement. The greatest amplitude of movement is recorded at point 10 (5mm of movement). I note that this point is closest to Sycamore T1 and Sycamore T2.

Engineers have confirmed that other potential causes of damage such as leaking or damaged drains have been discounted as a cause of the current damage.

Therefore it is our opinion that sufficient information has been provided to demonstrate that, on the balance of probabilities, Sycamore T1 and Sycamore T2 are the material cause of the current subsidence damage

We do not consider that there is any other vegetation growing adjacent the Insured Property that could be considered to be a factor in current damage.

5.0 Recommendations

Given their close proximity to the insured property we do not consider that undertaking pruning works to Sycamore T1 and Sycamore T2 will provide either an effective or sustainable means of controlling their water use. Therefore and in order to provide a long-term solution to the current subsidence damage we recommend these trees be removed.

5.1 Recommended vegetation management to address the current subsidence:

Tree No:	Species	Works Required
T1	Sycamore	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth
T2	Sycamore	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth

Age Class	**YO** – Young. **SM** – Semi-Mature.**EM** – Early Mature. **MA** – Mature. **FM** – Fully Mature. **OM** – Over Mature	Ownership	**PH** – Within boundary of risk address. **P3P** – Within boundary of third party properties. **LA** – Within land owned by a Local Authority. **C3P** – Commercial third party. **U** – Within land of indeterminable ownership.
Condition	**G** – Good. **F** – Fair. **P** – Poor. **D** – Dead, Dying or Dangerous		
Stem Diameter	**MS** – Multi-stemmed tree		

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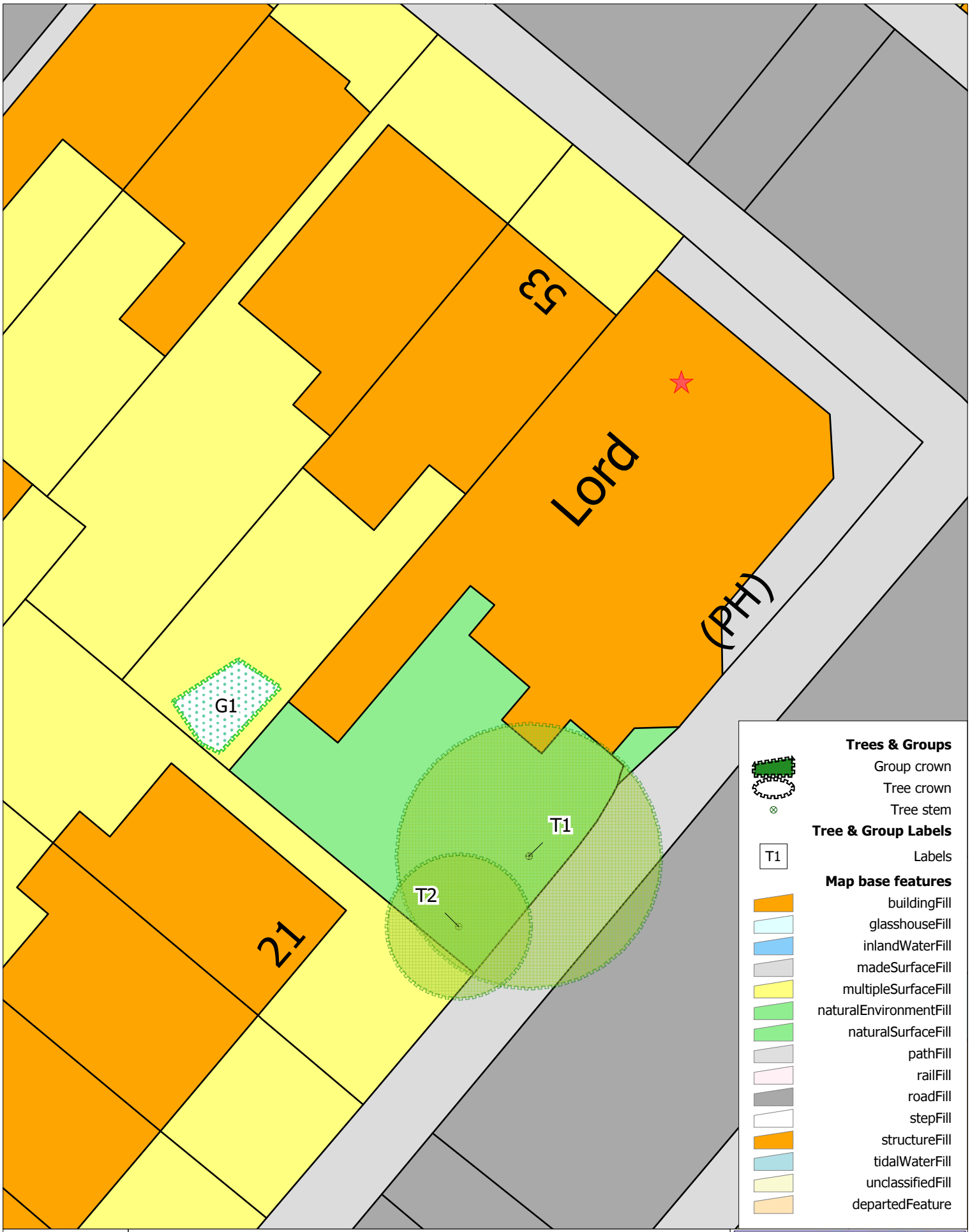
Tree No	Common Name	Age Class	Condition	Height (m)	Crown Spread (m)	Stem diam. (mm)	Dist to bldg (m)	Pruning history	Recommendation	Tree work constraints	Notes	Owner address	Owner
T1	Sycamore	MA	F	14.2	11	460	2.6 to main building	Crown lifted.	Fell and treat stump.	Limited access	Some basal decay and included union.	Lord Stanley, 51 Camden Park Road, London, NW1 9BH	PH
T2	Sycamore	MA	F	12.1	6	410	7.3 to main building	Crown lifted.	Fell and treat stump.	Limited access	Basal decay.	Lord Stanley, 51 Camden Park Road, London, NW1 9BH	PH
G1	Mixed Species	EM	F	7.5	4	150	2.5	Reduced >5 years ago	No work required.	Limited access	All dimensions estimated due to third party ownership. Included Cotoneaster.	53 Camden Park Road, London, NW1 9BH	P3P



Location:	LORD STANLEY, 51 CAMDEN PARK ROAD, LONDON, NW1 9BH
Job Ref.:	47366
Survey Date:	29/03/2011
Scale:	1:200 @ A4

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