Subsidence Tree Report

For The Egypt Exploration Society

Property:

2-4 Doughty Mews, London, WC1N 2PG

Insured:	The Egypt Exploration Society
Insurer:	TBC
Insurer Ref:	TBC
Client Ref:	TBC
Our Reference:	03679R
Consultant:	Keiron Hart (BSc Hons, C.Env, F.Arbor.A, MICFor, MEWI)
Visit Date:	10.11.2021
Report Date:	12.11.2021

Scope of Report

To assess trees within potential influencing distances. Identify their current & future potential to cause or contribute to damage to the property extension by way of direct or indirect damage.

Note

This report is based on the assumption engineers are satisfied that any damage is attributable to vegetation related subsidence/ direct damage. It is intended for use between the client, Tamla Trees Ltd and any parties detailed within the report.

1. Property Description

1.1 The property is a terrace building occupied by the The Egypt Exploration Society and utlised as a research and library building. It appears of traditional brick-built construction.

1.2 Our instructions relate to 2 London Plane trees located within the grounds of 8 Doughty Street. This appears the original main property with Doughty Mews like ancillary buildings/ stables.

1.3 2 mature London Plane trees are in direct contact with the rear wall of the property causing displacement damage to the wall of the building. This is not a 'typical' subsidence claim as a result but due to direct physical contact damage.

1.4 The site appears generally level with no adverse topographical features. All observations and measurements were made from within the grounds of 8 Doughty Street.

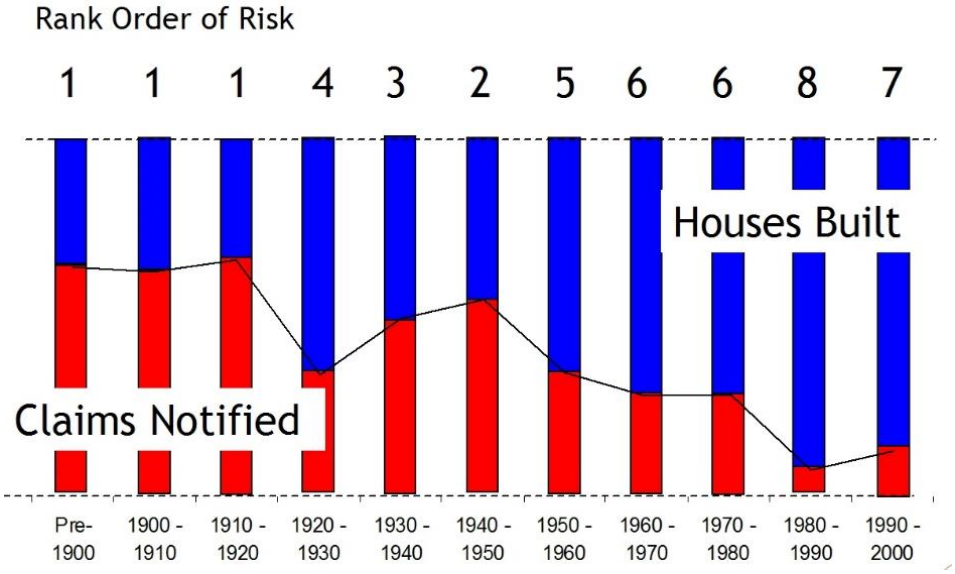


Fig 1 – A properties age can influence the risk of subsidence damage. The original property dates from circa 1890. (Source: Clay Research Group)

1.5 The level of cracking assessed with Table 1 of BRE Digest No.251[1] has not been advised:

Category	Description	Size
Cat 0	Negligible	<0.1mm
Cat 1	Very Slight	0.1-1.0mm
Cat 2	Slight	1mm-5mm
Cat 3	Moderate	5mm-15mm
Cat 4	Severe	15mm-<25mm
Cat 5	Very Severe	>25mm

[1]BRE Digest 251: Assessment of damage in low-rise buildings, with particular reference to progressive foundation movement. Revised 1995

2. Underlying Soil

2.1 For vegetation related subsidence damage to occur an underlying clay soil is required. An assessment of the British Geological Soil[2] open-source data for the property has identified the following:

Soil Description
Bedrock Deposits: London Clay Formation - Clay, Silt And Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas. **Superficial Deposits: Lynch Hill Gravel Member -** Sand And Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by rivers (U).

3. Site Investigations

The following site investigations were available for the formation of our report.

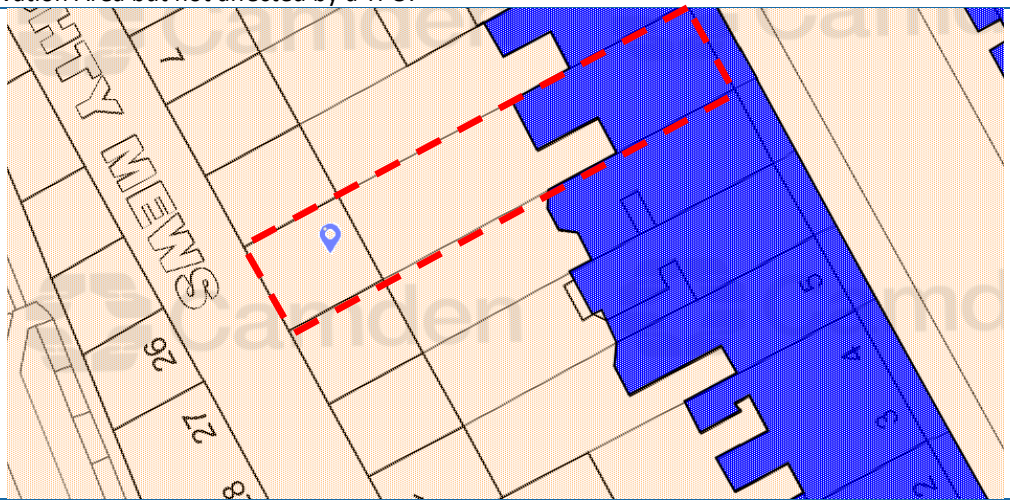
~~**Level Monitoring**~~	**Trial Pit & Borehole Logs**
Soil testing	~~**Root Identification**~~
Engineers Report	~~**Drain Report**~~

[2] http://mapapps.bgs.ac.uk/geologyofbritain/home.html?

4. Tree Ownership & Protected Status

Ownership	
Are trees all located within grounds of property	No
Are 3rd Party trees a current or future risk factor?	Yes
Protected Status	
Is the property within a Conservation Area	Yes
Is the property affected by a Tree Preservation Order	No

Conservation Area Status	
Is the site located within a Conservation Area	Yes Bloomsbury
Notes: (i) All trees larger than 7.5cm diameter at 1.5m above ground level are subject to regulations within a Conservation Area. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. A notification is required in many circumstances.	
Tree Preservation Order Status	
Are inspected trees subject to a TPO?	No
Type of TPO	~~Area~~
	~~Individual~~
	~~Group~~
	~~Woodland~~
TPO Reference	
Date TPO Made	
Notes: (i) The type and details of any TPO determine which trees are 'protected.' Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. An application may be required before undertaking works. (ii) At the time of writing Camden Council have advised the trees to be located within a Conservation Area but not affected by a TPO.	



5. Report Detail

5.1 **Bedrock Deposits:** London Clay Formation - Clay, Silt And Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.

5.2 **Superficial Deposits:** Lynch Hill Gravel Member - Sand And Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by rivers (U).

5.3 Subsidence from vegetation and trees occurs when the vegetation dries the underlying soil and if this contains clay it can shrink in size and the building subsides. The soil then rehydrates during the wet winter months giving classic cyclical movement profiles. In this claim damage is being advised as being due to the direct physical contact of the stems of the 2 trees against the rear elevation.

5.4 Site investigations were completed in June 2021. A single trial pit was opened on the rear elevation of the property. The trial pit was closed at 740mm but probing against the wall of the property had not revealed an underside of foundation depth by 1,830mm depth so any footing is below the depth to which natural climatic factors could influence the soil.

5.5 2 boreholes were also undertaken within the rear garden of No 8 (referenced as BH1 & BH2).

5.6 Recovered soils from BH1 were sent for laboratory analysis and indicated as made ground (1m) and intermediate to low plasticity (3.5m).

5.7 Driscolls formula is not applicable but provided for comparative purposes. Driscolls formula details that a soil can be described as significantly desiccated where the moisture content is <40% of the liquid limit, and in a state of desiccation <50%. The results relative to these figures are tabulated below:

Ref	Date	Depth	MC as % of LL	Desiccation
BH1	June 21	1m	**31%**	-
BH1	June 21	3.5m	**51%**	-

Table 1 – Driscolls formula applied to the supplied sample results for comparative purposes as the type of soil means that conclusions on levels of desiccation are not appropriate.

5.8 Soil testing is inconclusive given the underlying soil type but there can be no doubt given the size of T1 & T2 relative to the property that the trees will be depleting soil moisture levels below foundation level. However, soil moisture depletion/ clay shrinkage is not the advised mode of damage in this claim.

5.9 No monitoring is available but the overall engineering opinion is one of direct physical displacement damage of the rear wall being caused by long standing direct contact of an expanding lower stem. This is pushing the rear wall of the property out of line.

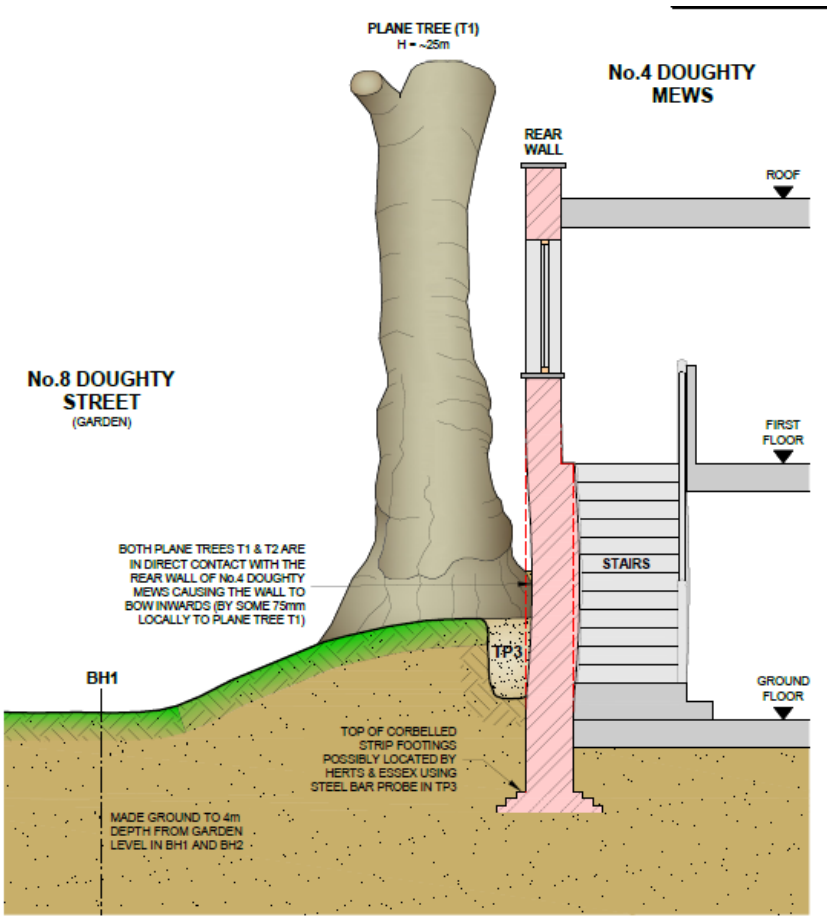


Fig 2 – Annex 1 from William J Marshall & Partners (19.7.2021) visualising the physical displacement of the rear elevation.

5.10 *Platanus* spp (London Plane) roots were not recovered but are of less relevance given the mode of action advised in this claim (physical displacement of the rear wall of the property from direct contact).

5.11 The buildings appear to date from circa 1890 and both T1 & T2 are of the same size and located either side of what would likely have been a door to stabling originally. This suggests they were planted after the buildings were constructed. A highly shrinkable clay soil is not present suggesting (when considered in the context of tree age) the risk of heave in the event of the trees being removed would appear low.

5.12 The proximity of the trees is such that large structural roots likely extend below the footing and there is a risk that as they decay voids are created but this would be unusual in resulting in actual

further damage to the building as the general rate of decay of such roots is generally slow. The alternative is to not remove the trees but the issue will progress as the trees continued to expand in size.

5.13 The trees are located within a Conservation Area and notification to the council under s211 would be required to progress removal of the trees. Removal is the only action which will remove the direct physical contact of the stems with the building and allow repairs in the location of the existing building line. There is no doubting the trees are large and locally significant although their wider public amenity is somewhat limited by their rear garden location.

5.14 Upon receipt of the s211 notification the local authority have 2 courses of action available to them *(i) raise no objections to the proposal (ii) create a Tree Preservation Order to prevent the removal of the trees.*

5.15 In the event a TPO was created then a further application would be required to seek removal of the trees. If this was refused compensation could be payable under s202 of the Town & Country Planning Act. This compensation relates only to the costs incurred as a result of the refusal (if this occurred). The costs of the repair needed at this time would not be payable.

5.16 Given the cost implications of the trees remaining in place are likely to be very significant it seems unlikely the council would resist the removal of the trees under any new TPO. It is therefore necessary to seek costs and repair remedies from engineers to ensure that the local authority are availed of all the information/ options in consideration of the s211 notification. The higher the quality of the s211 notification the greater the chance a TPO is avoided which would allow a quicker remedy to the claim.

5.17 Scope exists to replace T1 & T2 with suitable ornamentals further from the building. We would recommend trees of a slightly smaller size in this instance and chosen from lower water demand species planted spatially further from the buildings to seek to avoid a return of damage as they mature. Engineers should confirm issues of heave prior to the removal of the trees.

5.18 Full management recommendations are contained at section 6.

5.19 Please note if the intention is to complete tree work between the 1st March & the 31st July (inclusive) a due diligence check for nesting birds must be completed before work starts in order to comply with the Wildlife & Countryside Act 1981. This check should be recorded in the Site-Specific Risk Assessment. If active nests are found work should not take place until the young have fledged. Further information is available here:

5.20 All tree works should be carried out by qualified, trained and fully insured operators in accordance with BS 3998 (2010): 'Recommendations for Tree Works'. If required tree surgeons can be sourced here.

Is vegetation management likely to contribute to the future stability of the property	**Yes**
Is there a risk of heave if trees are removed?	**No***

**To be confirmed by engineers*

6. Recommendations

6.1 Immediate Action

Tree No.	Species	Age Cat	Height (m)	Distance to Building (m)	Ownership	Observations	Subsidence Risk Action	Recommended Tree Work
T1	Plane (London)	B	21	0	One Housing	Mature example. Large basal stem diameter. Basal area not fully visible given undergrowth and leaf litter. In direct physical contact with the affected property. Previously reduced with relatively minor crown reduction pruning.	Current Claim	Remove & replace
T2	Plane (London)	B	21	0	One Housing	Mature example. Large basal stem diameter. Basal area not fully visible given undergrowth and leaf litter. In direct physical contact with the affected property. Previously reduced with relatively minor crown reduction pruning.	Current Claim	Remove & replace
Tree Age Category: A = Younger than property; B = Similar age to the property; C = Significantly older than property								

Note: A review of management recommendations to include further works may be required if stability does not return

6.2 Future Risk Tree Works

* Estimated

Tree No.	Species	Age Cat	Approx. Height (m)*	Distance to Building (m)	Ownership	Observations	Subsidence Risk Action	Recommended Tree Work
Tree Age Category: A = Younger than property; B = Similar age to the property; C = Significantly older than property								

7. Site Plan

T/TG	Tree/ Tree Group
S/SG	Shrub/ Shrub Group
H	Hedge
C/CG	Climber/ Climber Group

Job Reference: 03679R

Site Location:
2-4 Doughty Mews, London, WC1N 2PG

Date: November 2021

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8. Photographs

Image 1 - The property (rear elevation) and T1 & T2

Image 2 – T1 showing direct contact with the rear of the property. Only removal of T1 & T2 will remove this issue

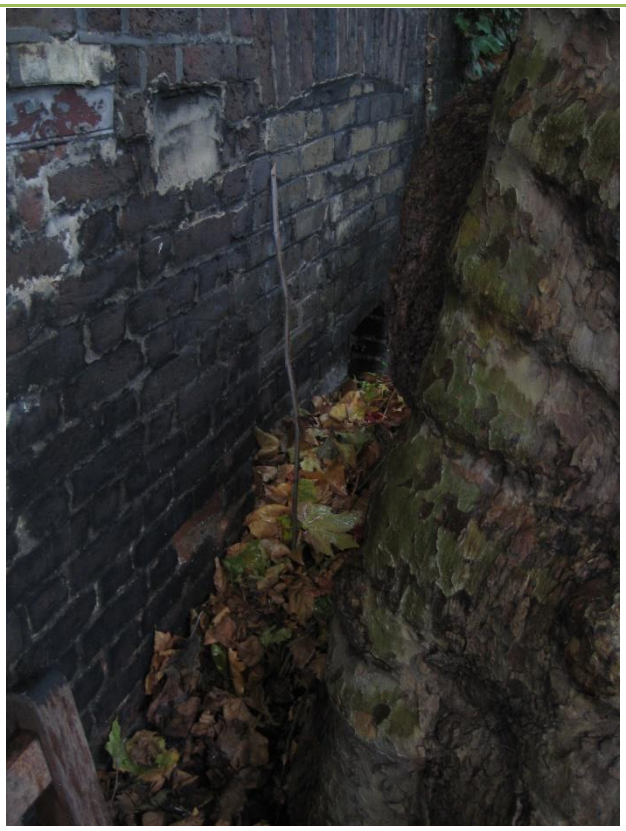

Image 3 – T2 and the rear elevation

Image 4 – T1 & T2

9. Limitations

This report is intended as a preliminary appraisal of trees >7.5cm dbh, their potential to contribute to advised subsidence damage. The potential influence on the property now and for a period of 5 years as 'future risk' from tree related subsidence. Recommendations for tree works and future management are made to meet the primary objectives of making trees safe and limiting any soil stability/ subsidence issues to the purchase property. In achieving this, it should be appreciated that recommendations may in some cases be contrary to best Arboricultural practice for tree pruning/management and is a necessary compromise between competing objectives.

The presence of Tree Preservation Orders (TPO) or Conservation Area status must be determined prior to any tree works being implemented, failure to do so can result in fines in excess of £20,000.

A legal Duty of Care requires that any tree works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998 (2010) *Recommendations for Tree Work*

Tamla Trees
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