

Structural Survey Report

182-184 St Ann's

CF2 Studio Project Reference
0021

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1. Executive Summary

The property comprises of a number of buildings that were originally used for a piano factory facility and residence to the families that own the factory at 182-184 St Ann's Rd, London N15 5RP, UK. The property has since then been sold, to which the client received 'Prior Approval' for the conversion of the Box Factory and adjacent warehouse (F & G) into residential flats earlier this year

CF Squared Limited has been appointed to undertake a site visit and write a report with the findings during the site visit and any recommendations. The site visit was undertaken on the 24th of September 2026 and the weather was sunny and dry.

The focus of the site visit was to assess the impact of an existing tree on the surrounding structures and understand the best course of action to limit any future damage due to the tree roots.

The existing tree is a Dawn Redwood tree (T1), it's a mature tree and on the plan below it's possible to understand the tree location in relation to the existing buildings.

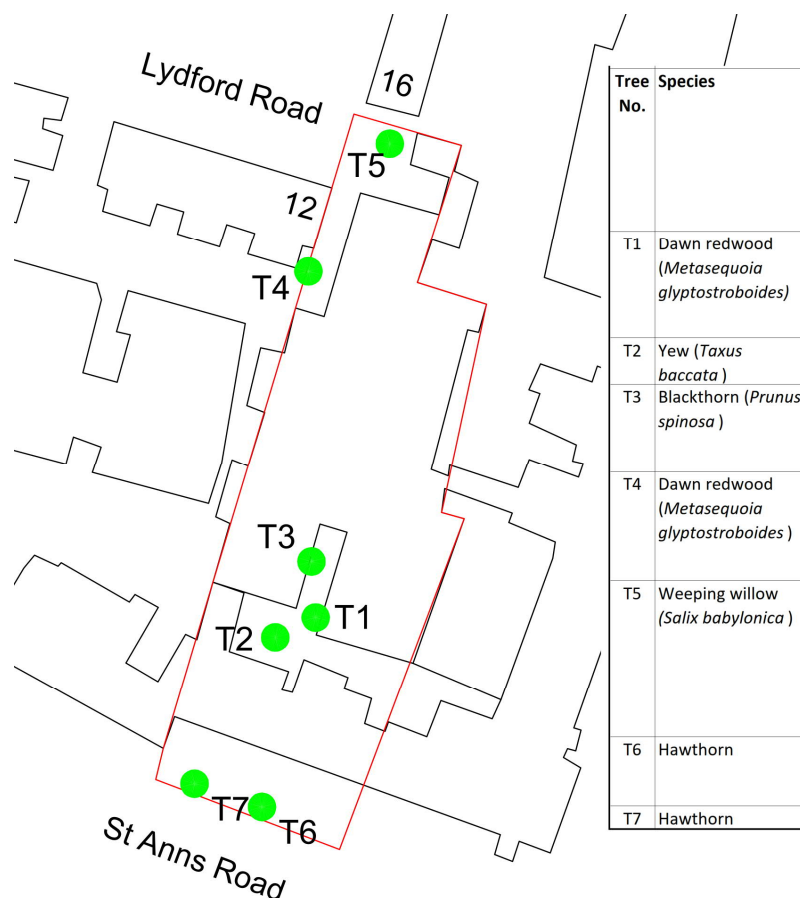


Figure 1 - Existing Trees on Site

On the adjacent buildings it's possible to identify significant cracks internally and these are shown on the photo record section on this report.

Due to the proximity of the tree to the existing building, several cracks are visible inside the building, with the cracking pattern being in line with subsidence movement. This can be due to the soil conditions being unfavourable or the existing foundation depth not being adequate for the tree species, given its proximity to the existing building. A manhole excavation near the area showed that the existing ground is clay and therefore, potentially subject to volume change depending on the water content.

A foundation assessment undertaken under LABC guidance, shows that the proposed foundation should be approximately 2m deep:

FOUNDATION DEPTH CALCULATION RESULT

Foundation depth for strip and mass-fill concrete foundations where trees are nearby. Please note heave protection is required to all foundations in excess of 1.5 metre deep in accordance with Technical Manual section 3 (Foundations).

Postcode area: N - London N

Volume change potential: High

Tree Type	Tree Group	Water Demand	Mature Height	Status	Actual Height	Actual Distance to Foundation
Redwood - Dawn	Conifer	Moderate	16	Removing	14	1

All dimensions are in metres.

Species of tree governing the depth: Redwood - Dawn (*Metasequoia glyptostroboides*)

Required Foundation Depth (metres): 2.15

Figure 2 - LABC Foundation Depth Recommendation

Using NHBC guidance we obtain the same result, as shown below:

FOUNDATIONS NEAR TREES

In accordance with Clause 4.2.12 of NHBC Part 4: Foundations - Chapter 4.2

Tedds calculation version 2.0.03

Site Details

Site location; London

Reduction depth due to climate variations - cl.4.2.4; $Z_c = 0.00$ m

Soil Details

Plasticity index from lab tests; $I_p = 40$ %

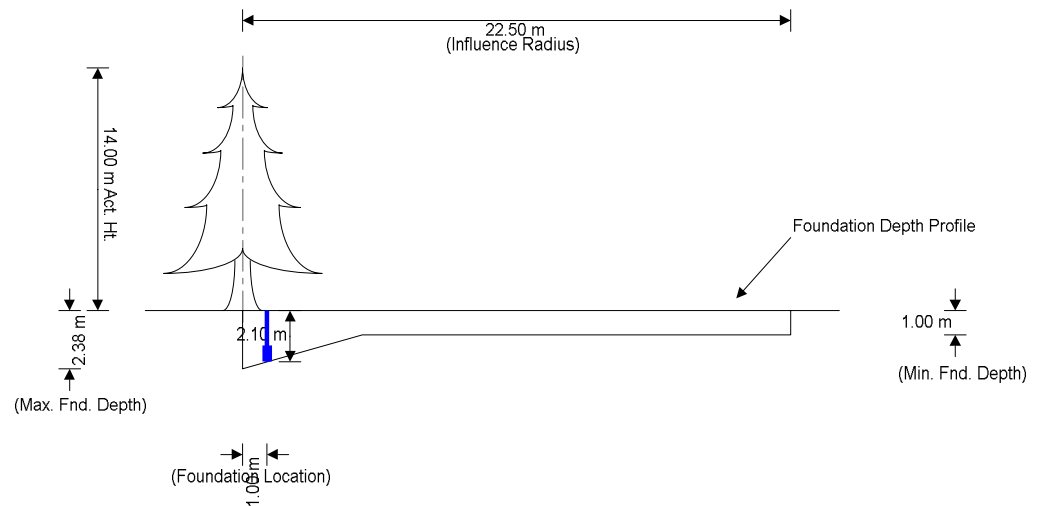
Percentage of particles < 425 μ m; $p_{425} = 100$ %

Modified plasticity index - cl. 4.2.4; $I'_p = I_p \times p_{425} / 100$ % = **40** %

Volume change potential - Table 1; High

Details for Tree - 1 :

Species of tree; Redwood
tree is to be removed from the site, and H_{act} is less than 50% of H_m , with no further planting allowed.
Water demand of tree - Table 3; Moderate
Mature height of tree - Table 3; $H_{m1} = 30.00$ m
Influence radius - Table 3b; $r_{inf1} = 0.75 \times H_{m1} = 22.50$ m
Measured height of tree; $H_{act1} = 14.00$ m
Distance from centre of tree to face of foundations; $D_1 = 1.00$ m
Effective height of tree - Table 3a; $H_{eff1} = 14.00$ m



Minimum foundation depth - Table 4B; $Z_{min} = 1.00$ m
Look up value for foundation depth -; Chart 1 Soils with HIGH volume change potential;
 $Z_{LookUp1} = 2.10$ m
Required foundation depth; $Z_{req1} = Z_{LookUp1} - Z_c = 2.10$ m

Summary Table

Tree	Description	Name	Distance (m)	Measured Height (m)	Effective Height (m)	Tree to be removed	Required Foundation Depth (m)
1		Redwood	1.0	14.0	14.0	Yes	2.10

To avoid any movement in the existing building in the long term, we believe the best course of action would be to remove the existing tree and remediate the existing foundation to be in line with the requirements outlined above.

2. Background and Brief

The subject property comprises of a number of different buildings ranging from single to two stories building and warehouses to which the client received 'Prior Approval' for the conversion of the Box Factory and adjacent warehouse (F & G) into residential flats earlier this year

As part of the proposed strip out works, it has been identified that the proximity of the existing tree and the damage identified on the neighbouring structures imposes concerns on the behaviour of the building in the long term once all renovation works are undertaken due to the tree roots and clear evidence of subsidence movement.

The existing tree is a Redwood Dawn tree (T1) and, due to its close proximity to the existing building, any remediation works to increase the foundation depth using an underpinning technique will most likely require the removal of major tree roots and compromise the life of the tree during those works.

Bearing that in mind, before proceeding with the proposed renovation works and remedial works, we would suggest the tree is removed, and once the tree has been removed, we would recommend that underpinning is done on the existing surrounding structure foundations, to ensure no further movement occurs once the tree is removed, which will be expected if nothing is done.

This report has been prepared to assess the apparent condition of the building based upon visual inspection and photographic evidence, to identify defects and areas of concern, to consider the likely causes and structural implications of the observed issues, and to provide recommendations for both immediate risk mitigation measures and longer-term remedial works.

3. Limitations

The opinions, observations and recommendations contained in the accompanying structural engineering assessment report are based on a visual inspection of those parts of the property which were safely, reasonably and lawfully accessible to the surveying Engineer on the day of the visit. No invasive, intrusive or destructive investigation has been carried out. The inspection is intended to identify cracking, distortion and signs of structural movement that are visible to the naked eye or with the aid of standard surveying equipment (hand torch, surveyor's tape, feeler gauge, plumb bob, and 3-metre ladder).

No render has been removed, no plaster has been cut, no floor coverings have been lifted, no boxing-in has been opened, and no built-in furniture, fitted cupboards or stored items have been moved. Defects concealed behind any of these may exist and cannot be reported on.

No samples of mortar, brick, render, timber, concrete or soil have been taken for laboratory analysis. No load testing, no sclerometer reading and no chemical analysis has been carried out.

No trial pits have been excavated. The foundations have not been exposed. The bearing strata and any below-ground services have not been observed. CCTV drainage survey has not been performed.

The information contained in this report is intended for the use solely of the Client as set out in the text. We make no warranty or representation whatsoever, express or implied, with respect to the use of this information by any other party or for uses other than described. We do not indemnify the Client or any third parties against any dispute, claim or consequential losses arising from any finding or opinion made in the report.

4. Photographic Records

The following photographs document the key structural defects, areas of concern, and notable building alterations identified during the inspection. Each photograph is accompanied by a brief description and commentary regarding its relevance to the overall structural condition of the property. The photographs are intended to supplement the findings of this report and provide a visual record of the defects observed at the time of inspection.



P01 – Internal – Single Storey Building

Element: Single storey building adjacent to the existing tree

Defect: *Evidence of Cracks due to movement of the structural elements*



P02 – Internal – Single Storey Building

Element: Single storey building adjacent to the existing tree

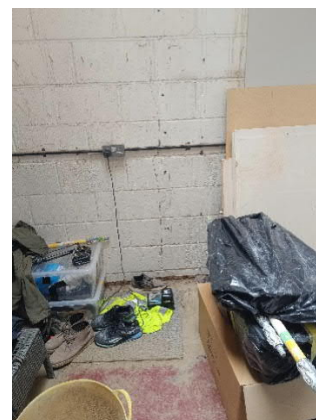
Defect: *Evidence of Cracks due to movement of the structural elements*



P03 – Internal – Double Storey Building

Element: Double storey building adjacent to the existing tree

Defect: *Evidence of Cracks due to movement of the structural elements*



P04 – Internal – Double Storey Building

Element: Double storey building adjacent to the existing tree

Defect: *Evidence of Cracks due to movement of the structural elements*



P05 – External – Ground Conditions near the tree

Element: Ground conditions found near the tree

Defect: *This photo identifies the ground to be clay which might be of high potential volume change.*



P06 – External – Ground Conditions near the tree

Element: Ground conditions found near the tree

Defect: *This photo identifies the ground to be clay which might be of high potential volume change.*



P07 – External – Nearby Structure Opposite to Tree location

Element: Existing external wall

Defect: The existing external wall shows signs of cracks and slight lean forward which can be linked to ground movement due to the tree presence



P08 – External – Nearby Structure Opposite to Tree location

Element: Existing external wall (Close up photo)

Defect: The existing external wall shows signs of cracks and slight lean forward which can be linked to ground movement due to the tree presence

5. Structural Findings

5.1. Existing Structure Near Existing Redwood Tree (T1)

The walls of the existing neighbouring structures to the existing Redwood Tree (T1) have several cracks that are in line with the expected patterns for ground movement on the existing foundations. In one location it's possible to see the crack is increasing in height which is indicative of differential movement between the different structural elements (shown on photo P02).

The tree is in its mature height and clearly has an impact on the surrounding structures with visible cracks throughout the existing building.

6. Conclusions & Recommendations

Based on the findings on site, it's clear that the existing tree is causing differential movement on the surrounding structures. The reason can be a combination of high potential volume change of the soil or inadequate depth of the existing foundations.

Any remedial works to the existing foundations, due to the tree's close proximity, will most likely result in major tree roots having to be cut back, which can compromise the tree's integrity and stability in the long term.

Based on the findings and the risk of further movement occurring if no remedial works are undertaken, the best course of action to avoid any further movement on the existing building would be to remove the existing tree and underpin the existing foundation, to ensure the existing foundations are 2.15m below ground level. Any roots found during the excavation of the underpins should be cut and removed to ensure they won't affect the foundations and supported structures in the future.

