TREE PRESERVATION ORDER: TPO No 1 1982 (T7 Oak) 42 Stonegate, PE12 6AH

TREE T3 Oak of MWA Arboricultural Report

Works - Remove

Reason: The above tree is considered to be responsible for root induced clay shrinkage subsidence damage to 42 Stonegate, Cowbit, Spalding, Lincolnshire, PE12 6AH.

Investigations in to the damage have been conducted and the following information/evidence obtained:

1. Engineering opinion is that damage is due to clay shrinkage subsidence. Details of the damage are included in the Crawford Technical report submitted.

2. Foundations are bearing on to clay.

3. The clay subsoil has a low to medium volume change potential (NHBC Guidelines) susceptible to undergoing volumetric change in relation to changes in soil moisture.

4. Roots were observed to a depth of 2.0m bgl in TP/BH1 at the property frontage, and recovered samples have been positively identified (using anatomical analysis) as probably Quercus spp. but possibly Castanea spp. Given the absence of any nearby Castanea species, the Quercus spp. roots will emanate from T3 Oak confirming its influence on the soils below the foundations.

5. Level monitoring for the period 03.10.19 to 26.01.21 has recorded a pattern of movement indicative of the effects of seasonal soil drying by the subject tree below foundation level. The uplift phase of the building can only be attributable to an expanding clay soil from a desiccated (shrunken) state due to the soil drying effects of the implicated oak.

6. Drains are not considered to be a factor. Drains can be further discounted by reference to the level monitoring data.

7. T1 and T2 of MWA Arboricultural Report were removed in March 2020.

8. No recent structural alterations or building works have been carried out. The property has not been underpinned.

9. A root barrier has been considered as an alternative to tree removal and may be viable. The cost of a deep barrier is currently estimated to be £30k (Crawfords).

10. The evidence confirms that on the balance of probabilities the subject tree is a material cause of the subsidence damage.

11. Superstructure repairs and decorations are currently estimated to be £35k should the tree works be undertaken. Costs for underpinning in the event the tree works do not proceed are currently estimated to be £50k.

12. Replacement planting of standard size trees will be funded by insurers subject to planting location – to be agreed with the LA.

SUBSIDENCE CHECK LIST

- A description of the property, including a description of the damage and the crack pattern, the date that the damage first occurred/was noted, details of any previous underpinning or building work, the geological strata for the site identified from the geological map.
  Technical Report and Site Investigation Report provided
- Details of vegetation in the vicinity and its management since discovery of the damage. Include a plan showing the vegetation and affected building.
  MWA Arboricultural Report provided
- Measurement of the extent and distribution of vertical movement using level monitoring. Where level monitoring is not possible, state why and provide crack monitoring data. Data provided must be sufficient to show a pattern of movement consistent with the presence of the implicated tree(s)
  Level Monitoring provided
- A profile of a trial/bore hole dug to identify foundation type and depth and soil characteristics.
  Site Investigation Report provided
- The sub-soil characteristics including soil type (particularly that on which the foundations rest), liquid limit, plastic limit and plasticity index
  Site Investigation Report provided
- The location and identification of roots found. Where identification is inconclusive, DNA testing should be carried out.
  Site Investigation Report provided
- Proposals and estimated costs of options to repair the damage.
  Addendum Technical Report / repair costs provided