

Arboricultural Impact Assessment (AIA)

Proposed Development: Building Encroachment into RPAs by 20%

Location: 18 Squires Close, Crawley Down.

Prepared for:

Standard: BS5837:2012 Trees in Relation to Design, Demolition and Construction

1. Executive Summary

The proposed development results in a 20% incursion into the Root Protection Areas (RPAs) of two trees on site. This level of encroachment is moderate and manageable, provided that appropriate mitigation, engineering solutions, and construction controls are implemented. No tree requires removal solely due to the encroachment, but precautionary protection measures are essential to avoid long-term decline.

2. Site Overview

The site contains four Category B2 Cypress spp trees. RPAs have been calculated according to BS5837:2012 using stem diameter measurements at 1.5m above ground level the trees are of minimal amenity value and are poor specimens. No engineering proposals have yet been received and it is not known as yet if the foundations of the existing garage are adequate to sustain the addition of the proposed first floor.

3. Trees Affected by RPA Encroachment

Below is a structured assessment of the trees impacted by the proposed building footprint.

Tree Impact Summary

- **2 Trees affected** — approximately 20% RPA encroachment

Both tree's RPA has been overlapped by the proposed building footprint due to foundation placement and access requirements.

4. Assessment of Impacts

4.1 Direct Below-Ground Impacts

- A 20% RPA encroachment may affect fine feeder roots, reducing water and nutrient uptake.
- Potential loss of structural roots if excavation is not controlled.
- Soil compaction risk from construction traffic.

4.2 Above-Ground Impacts

Construction access may require temporary exclusion zones.

Some crown pruning is required to facilitate construction

4.3 Long-Term Tree Health Risks

- Reduced vitality over 5–10 years if roots are severed.
- Increased susceptibility to drought stress.
- Potential asymmetrical root plate stability issues (low risk at 20%).

5. Mitigation Measures

Mitigation is essential to ensure tree retention without unacceptable risk.

5.1 Special Engineering Solutions

- **No-dig foundations** such as:
 - Pile and beam foundations
 - Mini-piles or screw piles
 - Suspended slabs
- Use of porous sub-base to maintain soil aeration.

5.2 Construction Controls

- Install tree protection fencing to BS5837 before any works begin.
- Use hand-digging or air-spade excavation within RPAs.
- No storage of materials, chemicals, or spoil within RPAs.

5.3 Soil and Root Protection

- Apply mulch layer (50–100mm) to improve moisture retention.
- Root pruning must be supervised by a qualified arboriculturist.

5.4 Monitoring

- George Frame will be available for:
 - Pre-commencement meeting
 - Root inspection during excavation
 - Monthly site visits
 - Final sign-off report

6. Professional Judgement

A 20% RPA encroachment is within the tolerable threshold for many species under BS5837, provided mitigation is robust. The trees can be retained safely with minimal long-term impact if the recommended engineering and protection measures are followed.

7. Conclusion

The proposed development is compatible with tree retention, but only with strict adherence to the mitigation strategy outlined above. The encroachment level requires careful management but does not necessitate tree removal or major redesign.