



VISUAL STRUCTURAL APPRAISAL

24 CHOLMELEY CRESCENT
LONDON
N6 5HA

FOR
LAUREN SWEET

DATE: MARCH 2023

JOB No 23031

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1.00 INTRODUCTION

A visual structural appraisal has been requested of 24 Cholmeley Crescent prior to purchase of the property.

The property is located in a quiet residential area on the side of the Highgate hill.

The property fronts Cholmeley Crescent.

The property has accommodation at ground and first floor levels.

Mature trees are located in close proximity to the property at the rear.



Figure 1; Ground Floor Plan



Figure 2; First Floor Plan

The external perimeter walls at ground and first floor level have been painted white. There is a pitched roof over the property with red clay tile finish, with projecting chimney stacks to either side of the front elevation.

On the lefthand side of the property, there is an existing two-storey extension, again with accommodation at ground and first floor levels.



Figure 3

To the left of the property is a terrace of four individual car garages with a forecourt on to Cholmeley Crescent.

To the right of the property there is a small paved front garden area with a drop kerb to the footpath to allow car parking on the paving. To the rear of the paved parking area there is a white painted brick garden wall.



Figure 4

To the rear of the property and to the right-hand side of the property, there is a small garden area, generally laid to lawn.

Referring to other properties in Cholmeley Crescent, the appearance of the property is very similar to other properties on the opposite side of the road, although 24 has been altered at some time in the past and painted white.

It would appear that the property originally had the same appearance as 35 Cholmeley Crescent opposite, but has subsequently been extended to the left with render applied to the elevations to mask original detailing.

The property is adjacent to 22 Cholmeley Crescent, located to the right of 24.

There is a small paved front garden area to the property with a laurel hedge at back of footpath.



Figure 5

There is a footpath approximately 2.3m wide to the front of the property.

A street tree is located on the carriageway kerb side of the footpath on the property boundary between 22 and 24.



Figure 6

Further street trees are present on the opposite side of the road within the footpath adjacent to the carriageway and a further street tree is located to the left of the property beyond the terrace of four garages adjacent to the property.

The two-storey extension to the left-hand side of the property has a flat roof which appears to be set below the existing eaves level to the main pitched roof over the original property footprint.



A galvanized steel manhole cover is located slightly to the right of the property right hand flank elevation with a further galvanized steel manhole cover located to the front of the property in front of the two-storey extension at the left-hand side.

A climbing plant, perhaps Virginia Creeper, is present on the front elevation, rising to the left-hand end of the original footprint of the property at the junction with the left-hand extension, and then attached to the building horizontally from the left-hand end of the elevation across to the right, above the central front door entrance.

2.00 EXCLUSIONS

This report is concerned only with the structure of the premises with regard to possible structural defects and remedial works which may be necessary to remedy such defects.

The conclusions of the report are based on those parts of the building which were accessible and visible. Any constructions otherwise obscured were consequently not inspected.

In the absence of the visible manifestation of characteristic defects the report assumes that the original construction does not contain materials hazardous to health. Detailed sampling and laboratory testing will be required to establish this conclusively. At this stage we have not been instructed to carry this out.

The foundations to the property were not exposed or inspected.

The drains serving the property were not inspected.

3.00 SITE FINDINGS

3.01 Paving Externally to Front

The majority of the front garden area is paved with precast concrete slabs.

The slabs are originally pointed although pointing is missing in a large number of instances.

The finished level of the paving is generally slightly uneven.

A rainwater downpipe serving the main roof to the property is located on the right-hand side of the front elevation, discharging in to a gulley set in the paving at the base.



Figure 7

There is a planting area just to the left of the front door entrance.

There is a further area of paving in front of the two-storey extension at the left-hand side of the property.

A further rainwater downpipe is located on the front elevation at the junction between the left-hand end of the original footprint of the property and the left-hand elevation.

The rainwater downpipe discharges horizontally to the left in to a gulley located beneath the door set entrance in to the left-hand extension.



Figure 8

On the left-hand boundary to the front of the property, there is a 215mm thick brick garden wall, approximately 2m tall, painted white.



Figure 9

No significant signs of structural distress were noted to the garden wall.

A vertical joint is present at the junction between the garden wall and the front wall of the house.

The garden wall appears to have been built astride the centre line of the outside face of the extension to the property.

To the right of the property, at the rear of the parking area, there is a further 215mm thick brick garden wall, painted white, again approximately 2m tall.



Figure 10

There is a timber door through the wall to access the rear garden area.

No significant signs of distress were noted to the garden wall to the right of the property.

3.02 Front Elevation Externally

3.02.1 Two-Storey Extension to Left-Hand Side

The two-storey extension to the left-hand side of the property has a 3 bay French door opening at ground floor level and a window of similar width at first floor level. Refer to Figure 8 above.

The front elevation is of white painted pointed brickwork at ground floor level and painted render finish at first floor level.

There is a coping stone at the head of the elevation above the first-floor window.

A series of cracks were noted through the painted render finish at first floor level as follows:

- Running out from left hand end of first floor window head
- Similar crack below at level of transom
- Similar crack below approximately 300mm above sill level

- Line of diagonal crack running down from 300mm below left-hand end of first floor window sill
- Vertical crack from window sill down to ground floor window head on line of second mullion in from left
- Similar horizontal cracking to right hand side of first floor window
- Further minor diagonal cracks below right-hand end of first floor window sill

3.02.2 Front Elevation to Left of Bay Window

The ground floor elevation is recessed back in to the property by approximately 600mm forming a semi recessed porch area at ground floor level. (See Fig 3).

There is a large full height glazed panel and adjacent front door opening, both contained within the original masonry arch above the opening.

Referring to other similar properties on the opposite side of the road, it would appear that the front door and full height glazed arrangement is a relatively recent alteration contained within the original masonry arch to the building as originally constructed.

There is a beam casing which will contain a beam running over at first floor level carrying the first-floor front elevation to the property above the entrance door.



Figure 11

The front elevation at first floor level above the beam is finished with white painted render. Cracking was noted to the render finish as follows:

- crack running horizontally to the left of the first-floor window sill.



Figure 12

- Crack, twice forked, running out from the right-hand end of the first-floor window sill.



Figure 13

- Vertical crack running vertically down from first floor window sill to top of beam casing at base of first floor elevation.



Figure 14

3.02.3 Bay Window Elevation

A bay window is located to the right-hand side of the elevation at ground and first floor level with a large projecting pitched roof over.



Figure 15

The footprint of the bay and the configuration of the roof above is identical to 35 Cholmeley Crescent on the opposite side of the road.

The bay window has white painted brickwork below ground floor window sill level, and white painted render above ground floor window head up to underside of first floor window sill.

It is likely that the render has been applied to mask the original decorative finish arrangement to the original bay, still visible at 35 Cholmeley Crescent on the opposite side of the road.

The following cracking was noted to the front elevations of the bay.

- Crack at junction between left-hand splayed wall to bay and white painted facing brick main elevation.
- Vertical crack on front wall to bay at left-hand side at junction with left-hand splayed wall, running from first floor window sill down to ground floor window head.
- Similar cracking noted to right-hand side of front wall to bay at first floor level at junction with right-hand splayed wall.



Figure 16

There is a large horizontal soffit to the projecting overhanging roof above the bay which is supported by a gallows bracket timber arrangement to the left and to the right-hand sides.



Figure 17

The gallows bracket arrangement is identical to gallows bracket arrangements to properties nearby.

No significant signs of structural distress were noted to the projecting roof overhang or to the facing brickwork to the left- and right-hand sides of the bay window.

3.03 Left-Hand Elevation

The lower ground floor storey of the left-hand elevation is a party wall with the adjacent terrace of garages.



Figure 18

Above, at first floor level, the side wall to the property is finished with pebble dash render painted white.

There is a coping stone at the head of the elevation.

There is an air vent grill located in the side elevation just below first floor ceiling level.

A flashing appears to be present at the base of the elevation, flashing in to the roof to the terrace of garages.

3.04 Right-Hand Elevation

The right-hand elevation is again of white painted pebble dash render finish.



Figure 19

The surface of the pebble dash render is rough compared to that on the left-hand elevation.

There is a smooth painted render band at the base of the elevation.

There are two chimney stacks that rise up above roof eaves level on the right-hand side elevation, again finished with white painted pebble dash render.

The chimneys are identical in appearance to chimneys to adjacent properties and properties to the opposite side of the road.



Figure 20

Cracking was noted to the rear section of the right-hand flank wall.



Figure 21

- Crack from ground level located approximately 1m to rear of steps down to ground level from French door in side elevation, with the crack rising up to the underside level of the boiler flue before appearing to peter out.



Figure 22

The surface of the render appears to have been cement filled previously, suggesting that the crack may have occurred previously and been refilled and then subsequently reappeared.

A series of four air bricks is located in the right-hand elevation to the rear of the boiler flue at ground floor storey level.

The rough finish pebble dash render appears to have been placed over the top of original facing brickwork features above the French door opening on the right-hand side of the property.

Other smooth surfaced patches of render were apparent in the overall rough cast appearance of the render attributable to historic cracking having been repaired prior to the most recent cycle of redecoration.

3.05 Rear Garden Areas Externally

To the right of the property at the rear, there is a paved terrace area set approximately 450mm below ground floor level.



Figure 23

A patio falls towards the rear of the property and wraps across the rear elevation of the property with a width of approximately 1.5m.



Figure 24

The patio area is set approximately 150mm below the paved parking area to the right-hand side of the property to the rear of the garden wall.

A further area of garden laid to lawn is set approximately 300mm below the paved terrace area to the right-hand side of the property and to the rear elevation.

The soft landscaped garden area is mainly laid to lawn and is accessed via steps at the left-hand side and the right-hand side of the garden.

Mature shrub and hedge planting is present to the rear of the lawn area on the property boundary with further mature tree planting to the right of the property at the rear of the lawn.

Further mature trees are present in the other rear gardens to the properties to the rear of the rear garden and also to the left of the rear garden.

The patio area to the rear of the property extends across to the rear of the two-storey extension at the left-hand side with steps up to a French door opening in to the rear of the two-storey extension.

There is a considerable slope on the paved terraced areas from front to rear.

Across the rear elevation the terrace is 3 slabs wide.

At the rear right hand end of the elevation, there is almost no open joint between the paved terrace and the base of the render skirt to the rear elevation.



Figure 25

At the rear left hand end of the terrace area, there is a significant open joint, perhaps 15-20mm wide, suggesting that the paved terrace area has moved laterally away, downslope from the rear elevation of the property at this end.



Figure 26

There are two steps up to the French door opening in the rear elevation to the lounge formed in brickwork with paving slabs over.

There is a large open joint between the back face of the steps and the face of the rear elevation again suggesting that the terrace structure and the step structure have together moved horizontally away from the rear elevation to the property.



Figure 27

3.06 Rear Elevation Externally

The rear elevation of the property is again finished in rough cast pebble dash render which appears to have been applied over original facing brickwork so that the render projects as arch features above the window and French door openings in the rear elevation at ground floor level.



Figure 28

A patch repair to the pebble dash render is located beneath the left-hand side of the ground floor window sill of the window on the left-hand side.



Figure 29

A vertical crack is present through the pebble dash render running down from the right hand of the pair of mullions to the window to the left-hand side of the elevation, the crack extending from window sill level at ground floor level down to the base of the elevation.

Some patch repairs, unpainted, to the pebble dash render are located at the right-hand end of the ground floor window sill to the left-hand window, and also to infill what was probably an old flue opening in the rear wall from the kitchen.

Further patches of smooth finished render were apparent in the generally rough cast appearance of the render suggesting that cracking may have occurred to the render finish in the past, with repairs potentially having been undertaken, all prior to the most recent cycle of redecoration.

The structural opening containing the French doors towards the right-hand end of the elevation at ground floor level is misaligned so that the right-hand end of the opening has dropped considerably compared to the left-hand end.



Figure 30

Assuming the paved terrace area across the rear elevation to be relatively horizontal, the drop appears to be of the order of 45mm or so from end to end of the opening.

No significant open cracking was noted through the pebble dash render finish to the rear elevation around the perimeter of the French door opening.

The rear elevation to the two-storey extension to the left of the property is finished with white painted pebble dash render with a much smoother appearance than the rough cast render finish to the main house.



Figure 31

A short section, perhaps 2m long, of the original left hand side wall to the property, is visible in the rear garden, finished with white painted rough cast pebble dash render.

3.07 Roofs Externally

The roofs are finished with red clay tiles and rolled hip tiles.

A detailed inspection of the roof coverings was not undertaken.

The pitched roofs run down to an eaves detail around the perimeter of the footprint of the original house with rafters extending down as cantilevers to a fascia board and with a gutter fixed to the fascia board.

The gutter around the rear elevation appears to run with falls towards the front of the property with water discharging in to the rainwater hoppers at the front.

There is a single rainwater downpipe to the rear of the two-storey extension on the left-hand side draining the main roof and discharging directly to drain within the paving at the base of the elevation.



Figure 32

A chimney is located to the left-hand side of the original pitched roof to the property now located on the line of the wall between the original footprint to the property and the extension to the left-hand side.

The chimney is similar in appearance to other chimneys on similar properties adjacent and across the road.

3.08 Roof Space Internally

The original pitched timber roof construction is wholly visible within the loft space.



Figure 33

The loft is accessed via a hatch in the communal hallway at first floor level.

The first-floor ceiling is formed by timber joists generally spanning from side to side between which rockwool fibreglass insulation has been placed.

The loft is not generally boarded.

The pitched roof is supported by timber rafters which support close boarding.

The rafters are supported by ridge timbers, and valley hip timbers, together with a mid-span purlin around the full perimeter of the pitched roofs.

The purlins are supported by diagonal purlin props taken back on to the lines of partition walls below.

A glazed roof light is visible in the floor of the loft below 2 Velux windows which are located on the left-hand roof slope overlooking the single storey extension.

Water tanks are located within the loft space towards front and rear of the loft.

3.09 First Floor Level Internally

Room references are shown in plan in Figure 2 above

3.09.1 Front Bedroom 1

The bedroom projects in to the front bay window at first floor level.



Figure 34

The floor is carpeted, walls, ceilings, and woodwork all painted white.

Ceiling covings are present around the perimeter of the room, appearing to be original.

Cracking was noted in the room as follows:

- Diagonal crack running down from mitre joint in ceiling coving to front right of bay window when viewed internally, petering out before reaching bay recess.



Figure 35

- Further crack running vertically up from right hand side of head of bay recess.

3.09.2 Ensuite to Bedroom 1

Floor is tiled, walls are tiled up to chest height with remainder of walls, ceilings, timberwork all painted white.



Figure 36

Cracking was noted at the junction between outside wall to right hand side of property and rear wall to bathroom.

3.09.3 Shower Room Accessed from Corridor

There is a shower room immediately outside the door to the bedroom that projects in to the bay window. Walls and ceiling are tiled white.

No significant open cracking noted within shower room, although the tiled finishes are dilapidated.

3.09.4 Rear Bedroom 2

The room is fitted and finished in a similar fashion to the first bedroom.



Figure 37

Cracking was noted in the room as follows:

- Open crack at junction between ceiling and head of cornice to rear wall to room.
- Crack noted generally at junction between head of cornice and ceiling to left-hand wall and front wall to room.

Built-in wardrobes obscure the wall to the right-hand side, external elevation to the bedroom.

3.09.5 Bathroom Accessed from Hallway

A bathroom is located between bedroom 1 and bedroom 2 on the right-hand side.



Figure 38

The floor is tiled, walls are also tiled to chest height and also to ceiling height above the bath.

3.09.6 Bedroom 3

The room is fitted and finished in a similar fashion to the previous bedrooms.



Figure 39

The floor to the bedroom has a noticeable slope downwards from right-hand side to left-hand side, corresponding to foundation movement previously noted in the rear external elevation around the French door opening in the rear wall.

The window set in the rear wall is misaligned so that the left-hand end of the window sill is considerably lower than the right-hand end, as is the window head.



Figure 40

It appears that the whole of the wall has dropped on the left-hand side when viewed internally in relation to the right.

A vertical crack was noted to the right-hand side of the right-hand end of the window sill to the window opening.

Open cracking was noted at head of cornice in rear wall at junction with ceiling across rear elevation with further cracking noted at the junction between cornice and ceiling at junction with right-hand wall to room.

A straight crack was noted running from front to rear of the bedroom on the line of the ceiling spotlights to the right-hand side of the room, most probably corresponding to a joint line in plasterboard sheeting.

3.09.7 Office

The office is fitted and finished in a similar fashion to the bedrooms previously noted.



Figure 41

Cracking was noted as follows:

- Crack at junction between top of cornice to front wall and junction with ceiling
- Similar intermittent cracking at junction between cornice and ceiling to right hand side of room and to left hand side of room, and to rear of room at junction with ceiling
- Diagonal crack rising up from top right of door head out on to hallway.



Figure 42

3.09.8 Communal Hallway at First Floor Level

The communal hallway at first floor level is located centrally within the footprint of the original building. There is a glazed roof light above the stairwell previously noted in the loft.



Figure 43

- A straight crack was noted in the ceiling running from side to side halfway across the hallway, corresponding to joints in plasterboard sheets.
- A diagonal crack was noted running out from the perimeter of the rooflight towards the front wall of the hallway.



Figure 44

- Cracking noted to mitre joints to ceiling cornice and at junctions between ceiling cornice and ceiling.
- Vertical crack rising up from top left of door head in to bedroom 3, the crack peters out before reaching ceiling cornice level.
- Diagonal crack running up from top left of door head in to office, petering out before reaching ceiling cornice.
- Further diagonal crack noted running down from ceiling cornice above centre of door opening through to office, petering out before reaching door head.

3.09.9 Rear Bedroom 4 in Extension

It is noted that the floor level at first floor level within the rear extension is 2 steps down from the floor level within the main footprint of the original house.



Figure 45

The floor is finished with laminate timber, walls, ceilings, timberwork all painted white.



Figure 46

Cracking was noted as follows:

- Crack running up from top right of door opening out to hallway at front of bedroom, petering out before reaching ceiling level.
- Crack noted in external left-hand wall to bedroom, approximately 1m from front of room, running from ceiling level to floor level.
- Cracking noted around window opening in rear wall through plaster finishes.

3.09.10 Bathroom to Front of Bedroom 4

A small bathroom is present with tiled floor and walls and a plastered ceiling painted white.



Figure 47

There is a roof light in the ceiling up through the flat roof to the extension.

- Fine lines of jointing between paper sheets in left-hand side wall to right-hand side of toilet cistern and open joints to paper at junction with ceiling.

3.09.11 Bedroom 5

The room is finished in a similar fashion to the rear bedroom.



Figure 48

Cracking was noted as follows:

- Crack at junction between left-hand outside wall and ceiling, running from front to rear of room.

3.09.12 Stairwell Containing Spiral Stair Running Down to Ground Floor Level

The stairwell is finished in a similar fashion to other rooms at first floor level.

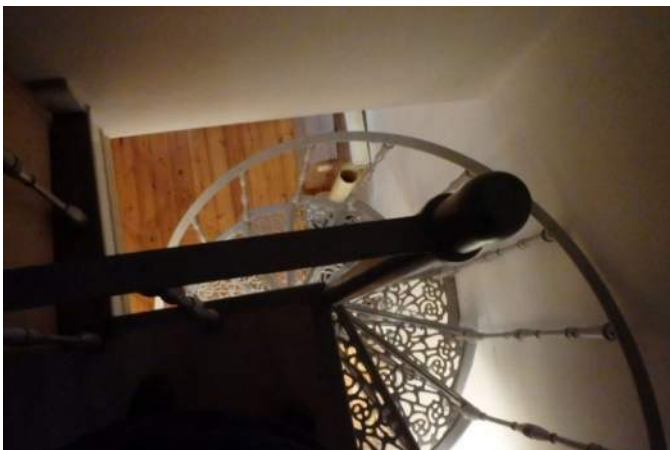


Figure 49

- Open jointing noted at junction between left-hand side wall to extension and partition wall between front bedroom and stairwell.

3.10 Ground Floor Level Internally

Room references are shown in plan in Figure 1 above

3.10.1 Kitchen

The floor is finished with ceramic tiling. Walls, ceilings, woodwork, painted white.



Figure 50

Cracking was noted as follows:

- Dry lined panel on right-hand side external wall with open jointing at junction between dry lined panel and wall and ceiling.
- Intermittent cracking at junction between wall and ceiling to front of room.

There is a glazed door out to the central hallway area.

The framing to the glazed door opening appears to be historically misaligned with the left-hand end being lower than the right-hand end.

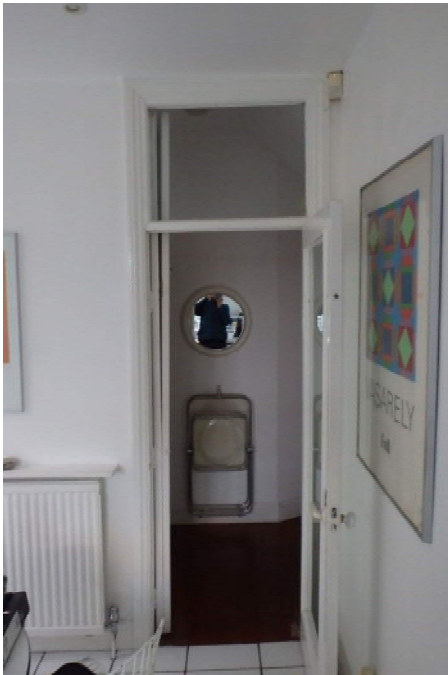


Figure 51

The door does not close in the existing frame.

3.10.2 Dining Room

The lounge is finished with varnished floorboarding. Walls are painted yellow. Ceiling is painted white as are items of timberwork.

There is a noticeable slope in the floor down to the left-hand side rear corner of the room.



Figure 52

Cracking was noted as follows:

- Vertical crack through paper finish above French door opening in rear elevation just to left of centre of opening running up to ceiling cornice level.
- Open jointing at junction between cornice and rear wall ceiling paper, not clear whether or not a crack.
- Diagonal crack through ceiling towards front of room above door opening through to central hallway area.

3.10.3 Reception Room

Floor finished similarly to rear lounge. Walls, ceilings, timberwork all painted white.



Figure 53

Cracking was noted as follows:

- Crack noted running through ceiling cornice to left-hand side of bay window when viewed from inside, running across to left-hand partition wall.
- Similar crack noted running through ceiling cornice to right-hand side of bay window when viewed from internally, running across diagonally to right-hand side of partition wall to room.
- Crack in ceiling, just to left of central lighting track when viewed from front.

- Crack running up from top left of door opening through to central hallway area, most likely on line of paper joint.
- Filled crack in bay window on left-hand side above double socket, running up to ground floor sill.
- Open joint at head of skirting to right-hand side wall when viewed from front to rear of chimney breast.
- Series of horizontal cracks through painted paper curved finish at rear corner of room

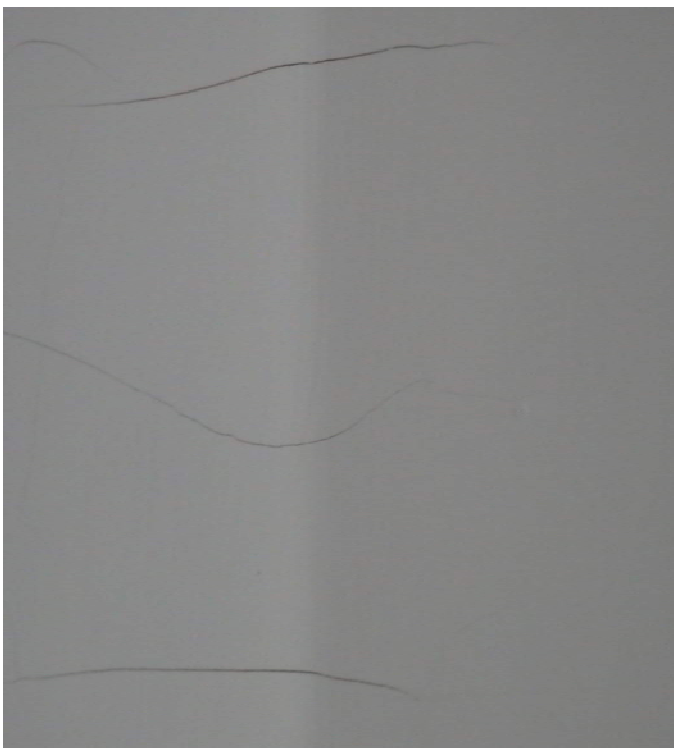


Figure 54

3.10.4 Communal Hallway Inside Main Entrance

The floor is finished with varnished boarding. Walls, ceiling all timberwork painted white.



Figure 55

Cracking was noted as follows:

- Crack at junction between ceiling cornice and ceiling intermittently around perimeter of room.
- Straight crack running from front to rear of room, commencing above front door opening slightly to the left of centre, and running across to central stairwell opening up to first floor level.
- Open crack running across ceiling on line of partition wall between hallway and reception, extending to rear up to face of stair opening up to first floor level.



Figure 56



Figure 57

- Open crack running out from left-hand end of stairwell towards left-hand extension from corner of stairwell opening.



Figure 58

3.10.5 Utility Room at Ground Floor Level to Rear of Kitchen

Floor is tiled. Wall above worktop is tiled. Other walls and ceiling are painted white.

Cracking was noted as follows:

- Fine cracking on timber jointing to partition adjacent to door opening out to communal hallway.

3.10.6 Rear Utility Room

A small kitchen is present in the rear of the side extension.



Figure 59

The floor is finished with varnished floorboards.

Kitchen work units around perimeter of room on left-hand side.

Walls and ceiling are painted white.

Cracking was noted as follows:

- Open jointing above and to the side of rear French door opening, most likely on lines of paper joints to finishes.
- Damp staining noted in the ceiling and right-hand side wall above the French door opening out to the rear.

3.10.7 Reception Room 2

The front area is finished in a similar fashion to that noted at the rear.

The space contains a spiral stair up to first floor level.



Figure 60

Cracking was noted as follows:

- Intermittent open joint at junction between right-hand side wall (original side wall to main house) and ceiling.
- Line of previously filled vertical crack in left-hand external wall approximately 1m to front of spiral stair. Crack not currently open.
- Intermittent open joint at junction between ceiling and front wall to space.
- Vertical cracking noted to left-hand external wall adjacent to base of spiral stair, crack running from floor to ceiling.

There is a projecting boxing on the left-hand side wall to the rear of the spiral stair with some damp staining noted on the front face of the boxing and to the rear of the boxing.

Further patch staining noted to right-hand side of right-hand side wall to space, just to front of door through to communal hallway in main part of house.



4.00 CONCLUSIONS

1. It is concluded that the property has been affected by differential foundation movement.

A phase 1 desktop study has been completed and initial boreholes have also been completed to investigate existing ground conditions at planning stage.

A copy of the initial borehole logs are attached to this appraisal as Appendix B.

The borehole has revealed that the site is underlined by a significant depth of made ground, extending to 2.54 m below ground at the borehole location.

Beneath the made ground is a soft to firm clay, believed to be the London Clay formation.

It is likely that the reworked nature of the made ground and the highly shrinkable nature of the underlying London Clay are the key triggers to the differential foundation movement noted in the property.

2. A review of other available information relating to the adjacent property, number 26 Cholmeley Crescent identifies that the site of number 24 is in close proximity to original natural drainage streams that fed the headwaters of Cholmeley Brook, a tributary to the river Moselle, converging in the vicinity of number 24 and number 26 Cholmeley Crescent.

It is possible that there are natural watercourses running in the vicinity of number 24 and that the soil characteristics may be less stiff than might be expected to be encountered at this location.

3. The property is surrounded by mature trees in a shrinkable clay soil and in the made ground.

It is also clear from cracking to the most recent decorative finishes, that cracking has occurred to the property recently.

4. It is immediately apparent when the property is viewed from the rear garden, from the rear lounge internally, and also from the bedroom above the rear lounge at first floor level, that the rear left-hand corner of the original footprint of the house has dropped by approximately 45mm.

The differential foundation movement is clearly visible in misaligned sill and heads to openings and also in the finished floor levels when the floor is viewed from the corner of the room.

5. The magnitude of the differential settlement and subsidence is such that underpinning of the house will be required, particularly noting the ongoing nature of the cracking noted in the report above.



The presence of the trees, made ground and highly shrinkable soil would result in very deep pins. The site investigation has revealed made ground to a depth of 2.54m with London Clay beneath. Underpinning would need to extend to at least 3m below ground, possibly deeper, subject to the results of the phase 2 geotechnical site investigation which would include the construction of a borehole to 25m depth and full geotechnical testing to confirm the characteristics of the underlying soils.

It should also be noted that even when underpinning has been completed, there can be no guarantee that tree root activity will not continue to shrink the soil with the roots extending down the face of pins to the lower levels and causing further shrinkage of the soil below the pins.

The scope of underpinning required is such that serious consideration should be given to the reconstruction of the property on adequate foundations.

We also note that buildings that have been previously underpinned in accordance with NHBC depth requirements are still susceptible to foundation movement from further tree root growth which tends to extend down to the lower level of the new pin where moist soils are found.

Our practice has been involved on two projects in the past, to review properties that have been previously underpinned in accordance with NHBC requirements, but that have continued to suffer from ongoing subsidence.

In both instances further, deeper, tree root action at the base of the deeper pinned foundations was found to be the cause of further shrinkage of the subsoils, to a greater depth than originally existed.

For this reason, we would always recommend that an alternative piled foundations solution would be more appropriate if this is ever achievable.

6. It is concluded that the property was constructed in a similar time period to other detached properties on the street.

It is clear that the property has been altered at some time in the past to remove the original Edwardian feature work and to mask the elevations in a white finish.

7. The glazed door opening out from the kitchen at the rear to the hallway has a misalignment, suggesting that the property has suffered at this location also from historic foundation movement.
8. Other open cracking has been noted above at various locations within the property.
9. The rear patio paved terrace has a significant slope downwards towards the rear. The patio structure has subsided, particularly towards the rear left-hand corner and moved horizontally away from the footprint of the original house.



10. Cracking was noted to the render finish on the front elevation above the front door opening.

The most likely cause of the cracking to the white painted rendered finish is flexure within the beam supporting the elevation and possible foundation movement.

11. It is not clear whether the large hallway lobby area at ground floor level is part of the original footprint of the property or whether it is configured differently to the original footprint of the property.

Two significant open cracks were noted in the ceiling of the hallway in the vicinity of the stair opening up to first floor level.

The ceiling, when viewed from stair height so that the ceiling is at eye level, appears to be misaligned.

It is not immediately clear what the misalignment of the ceiling is attributed to.

12. It is noted that partitioning surrounds the hallway at first floor level and that the partitioning is supported in some manner by the structure within the first floor itself, with no projecting downstand beams or other trimmers visible to the stairwell opening.

It is probable that the cracking noted to the ceiling is attributable to overstressing and deflection settlement of the structural trimming arrangement around the stairwell opening in the centre of the property.

13. The drains to the property have not been inspected.

A CCTV Survey has been commissioned to identify the condition and layout of the drains serving the property.



5.00 RECOMMENDATIONS

- The property has been affected by significant subsidence and differential foundation movement, which is ongoing.

It is also noted that underlying watercourses may run in the vicinity of the house and that the house is surrounded by mature trees, bedded into the highly shrinkable clay soil that the house rests on.

The magnitude of the subsidence settlement to the fabric of the house, and the presence of live cracks throughout the house, is such that deep underpinning would be required to stabilise the property. Deep underpinning will be seriously disruptive and also extremely costly and time-consuming.

We therefore recommend that serious consideration should be given to rebuilding the property if budgetary constraints allow. This would allow for a more robust solution for dealing with the existing poor ground conditions and shrinkable clay soil.

- We would recommend that the insurance history of the property is obtained.

Enquiries should be made to ensure that the building has had subsidence insurance in the past and that subsidence insurance can be obtained for the existing building moving forward.

- It is also noted that there are suspected significant structural defects in the existing structural framing fabric around the stairwell at 1st floor level.

Investigation work should be undertaken to expose the existing 1st floor structure to establish how the structure is supported within the floor depth, and by what load bearing walls below.

If consideration cannot be given to construction of a new dwelling, it is probable that strengthening of the existing structure may be required to ensure that cracking does not occur in the future to the 1st floor structure.

Rectification of the misalignment of doors and windows would require taking out and replacement of existing lintels over openings and reconfiguration of window sills.

- Similarly, investigation work should be undertaken at ground floor level to confirm the existing ground floor support structural arrangements and existing wall foundation details.
- An initial phase 1 geotechnical site investigation has been completed.

A detailed phase 2 geotechnical site investigation should be commissioned to confirm existing ground conditions, potential for desiccation of the soil at foundation level and



below, and an allowable bearing pressure so that the adequacy of the existing structure can be verified.

The phase 2 site investigation report will also provide parameters for the design of new foundations for a new dwelling should that be the agreed decision.



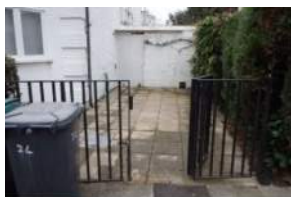
APPENDIX A
PHOTOGRAPHS



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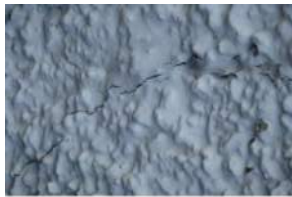
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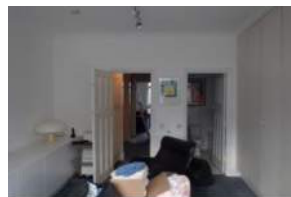
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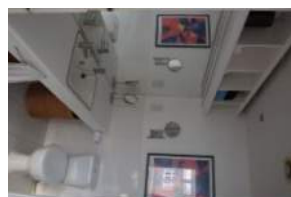
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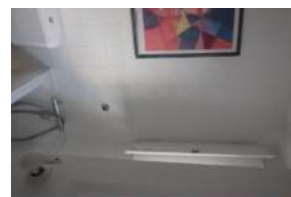
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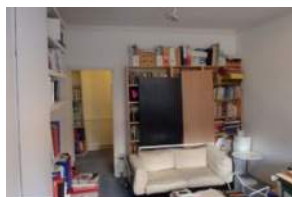
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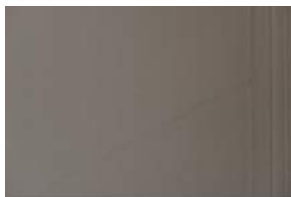
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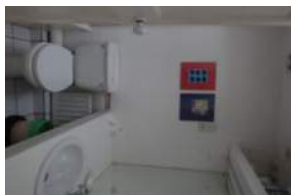
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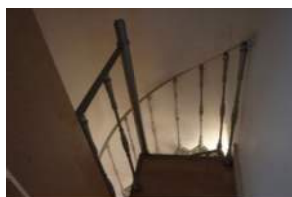
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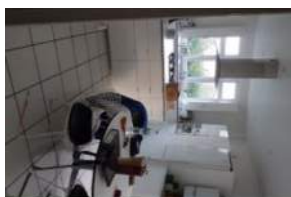
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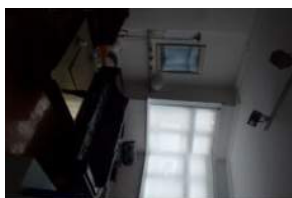
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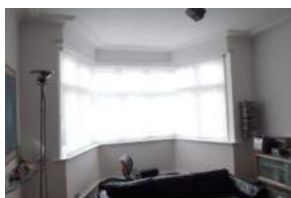
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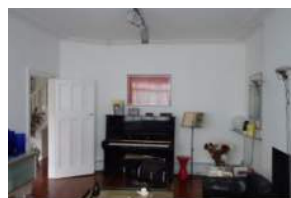
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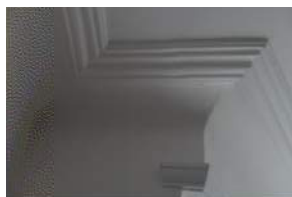
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APPENDIX B

AP GEOTECHNICS BOREHOLE LOGS



Plan 	Remarks Borehole advanced by hand auger Borehole dry and backfilled with arisings		
	Scale (approx) 1:20	Logged By ljs	Figure No. 5725.HA1



Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				(0.56)	MADE GROUND: Fragments of concrete, tile, flint, brick, ash and stone in a matrix of silt and sand sized particles		
					(0.36)	MADE GROUND: Compact dark brown fragments of coarse flint, brick, concrete, stone, coal and indurated clay		
0.92	D2				0.92	Terminated at 0.92m		

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N6 5HA

Site Plan

Scale unknown

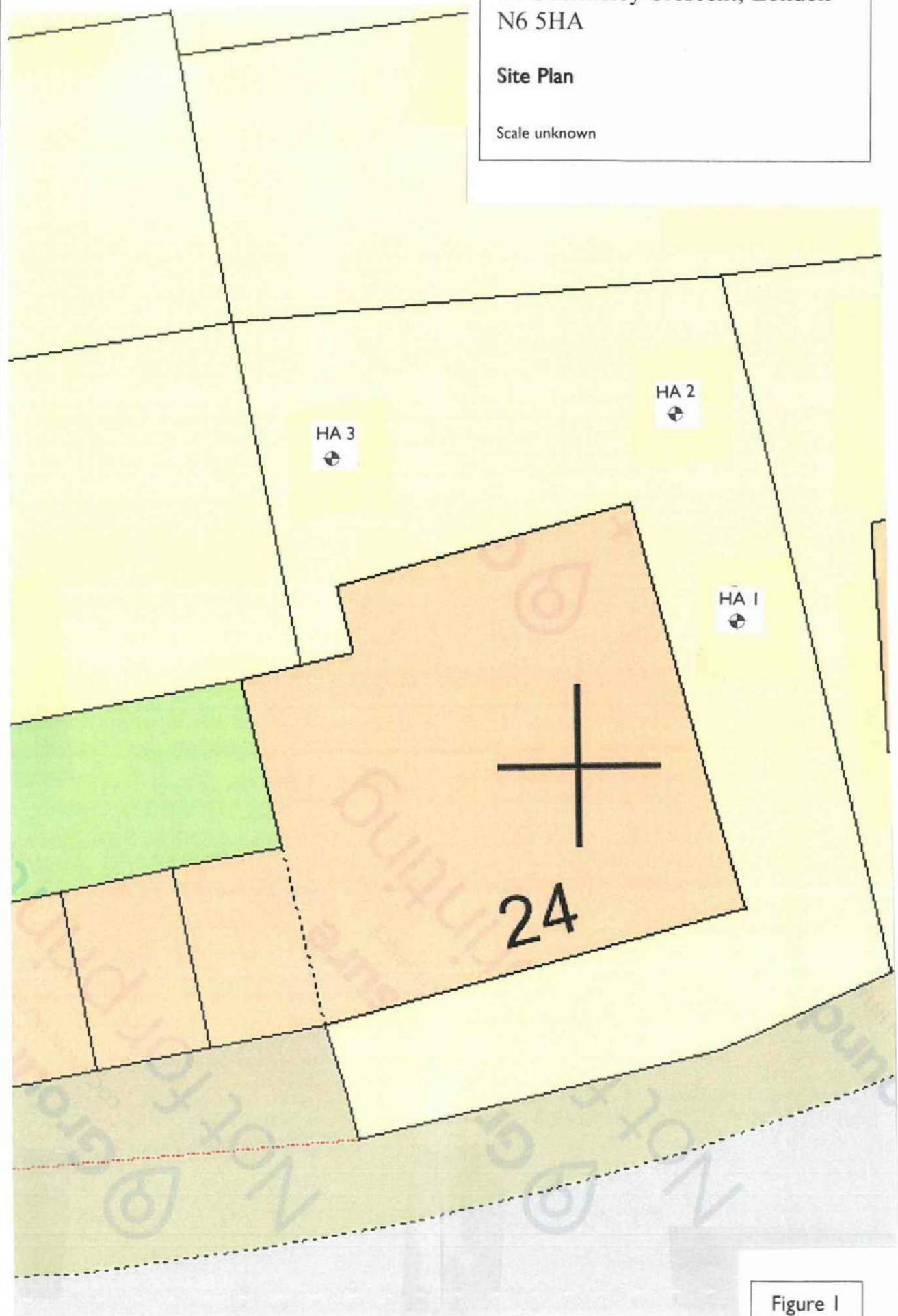


Figure 1