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Structural Assessment Report of Ravensbury Grove Flats Ravensbury Estate Regeneration For HTA Design LLP

Engineering at its Best



Report For

Scheme No: 11264

HTA Design LLP

Ravensbury Estate
Regeneration

Structural Assessment Report
of Ravensbury Grove Flats

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14th October 2014

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Structural Assessment Report of Ravensbury Grove Flats



1.0 Introduction

- 1.1 This report has been prepared by Tully De'Ath for HTA Design LLP (HTA). It provides an initial structural engineering appraisal of the existing flats along Ravensbury Grove which form part of the Ravensbury Estate. The report is intended to assist with the selection of feasible options for the proposed redevelopment of the site. This follows instructions from Caroline Dove of HTA on the 23rd July 2014 as part of masterplanning services which HTA are providing for the Circle Group, who own the properties on the Estate.
- 1.2 This report covers the flats along Ravensbury Grove as indicated on sketch 11264/SK03 within Appendix A. These are 171-177 Morden Road, 2-18 Ravensbury Grove, 20-26 Ravensbury Grove, 36-50 Ravensbury Grove and 64-70 Ravensbury Grove.
- 1.3 The observations and comments made in this report are based on the following:
- External observations during four visits to site on; 14th August 2014, 28th August 2014, 11th September 2014 and 23rd September 2014;
 - Internal observations of two residential units on 14th August and 11th September 2014;
 - Site and plot layout plans provided by HTA;
 - HTA Feasibility Study –Rev B, ref: CAG-REM-AR-001, dated 10th September 2012;
- 1.4 Observations were possible from ground level to most of the external elevations, with the exception of the rear of 64-70 Ravensbury Grove.
- 1.5 The internal visual observations were undertaken to the following areas:
- 14 Ravensbury Grove – a second floor flat with access to roof space.
 - 40 Ravensbury Grove – a ground floor single storey flat
 - The community hall which is located in 2-18 Ravensbury Grove Building (Block 2)
- 1.6 No opening up works or other investigations have been carried out at this stage.
- 1.7 During the four site visits, the weather was generally mild and overcast with some occasional showers. The visit on the 14th August was an exception to this when there was a heavy downpour in the afternoon.
- 1.8 A summary of the observations made is provided on the sketches contained within appendix B.
- 1.9 Photographs of the existing buildings taken during site visits are provided within appendix C.



2.0 Historical Context

- 2.1 Ravensbury Estate measures approximately 4.42ha and is located in South London between the town centres of Mitcham and Morden.
- 2.2 The Estate consists of both traditional construction, masonry buildings and non-traditional prefabricated reinforced concrete houses.
- 2.3 Historical records indicate the estate was constructed in its current form in the 1950's. Prior to this, records indicate that the site was undeveloped as open fields with two parallel engineered waterways running across the site, which appear to have been linked with the industrial mills on the site periphery. These waterways were later realigned into a single waterway across the site. Since development in the 1950's, there are no longer signs of the watercourses on the Estate.
- 2.4 The flats to which this report relates form five blocks along Ravensbury Grove as noted on sketch no. 11264/SK03. This sketch indicates the building locations and block references.



3.0 Description of the Existing Structure

- 3.1 The five buildings forming the Ravensbury Grove flats appear to be of similar construction. They are all two storey brick faced buildings, with tiled pitched roofs. Where observed, the dwellings are arranged as single storey ground floor flats with single storey first floor flats over. Each of the plots have their own private balcony/terrace area on the front elevations at ground and first floor level respectively. (See photograph C1).
- 3.2 The flat blocks are generally occupied as residential dwellings with the exception of Block 2 (2-18 Ravensbury Grove) which also houses the Estate's Community Hall. The Community Hall is single storey and projects externally from the main line of the building on the front elevation. The projected section has a flat roof which appears to have a felt finish. Rainwater pipes pass through though the flat roof and run internally within the Community Hall. Photograph C11 illustrates the Community Hall flat roof.
- 3.3 Access to the ground and first floor flats is from the rear of the buildings. Where observed the ground and first floor flats have private entrances, both at ground floor level.
- 3.4 The structure appears to be of load bearing masonry construction with the elevations and main internal party and corridor walls probably forming the main load bearing element. These support a timber roof and solid first floor structure. The overall stability of such buildings comes from the cellular nature of the structure.
- 3.5 The external brickworks walls are stretcher bonded and appear to be of cavity wall construction. Air bricks in the elevations at both ground and first floor levels support this view. Party walls between properties also appear solid.
- 3.6 The internal partitions viewed are a combination of solid blockwork walls and timber stud walls. Where the internal walls are found to be solid these may be load bearing. Locations of some of these walls appear to be consistent at both ground and first floor level.
- 3.7 The floor structure within the ground floor unit appears solid. This could be a solid ground bearing concrete slab, although this has not been confirmed.
- 3.8 The first floor structure also appears solid within the residential flat visited. This is probably of concrete construction although the form of this construction is not clear.



- 3.9 The hall is a much larger open space than those observed within the residential unit, which could be formed using steel beam elements within the first floor construction, although not confirmed.
- 3.10 The main roofs are all pitched and gable ended. The roof above 14 Ravensbury Grove was carpentered, consisting of rafters extending down from a ridge plate to the front and rear external walls. Timber purlins provide additional support to the rafters and are supported by the masonry gable ends. There are also timber braces to provide stability to the roof structure. Sketch no. 11264/S07 and photographs C6 to C10 illustrate the timber roof arrangement.
- 3.11 The local geology map indicates the natural ground conditions on the site comprise Alluvium across most of the site overlying River Terrace Deposits. These superficial deposits are underlain by the London Clay Formation. It is expected that the flat blocks are constructed on shallow concrete spread foundations, provided the depth of made ground is not significant and the natural ground is firm. Trial pits would be required to confirm this.



4.0 Observations Regarding the Conditions of the Existing Structure

- 4.1 Set out below is a summary of the observations made in relation to the condition of the existing structure. Sketches 11264/SK05 to 11264/SK08 indicate approximate locations of these observations.
- 4.2 The following observations were made externally:
- i. The guttering and eaves boards of Blocks 2 to 5 have paint peeling in some locations.
 - ii. Vegetation was observed on the roof and guttering of Block 2. Vegetation was also observed to the side elevation of Block 4. (See photograph C12).
 - iii. Cracking was observed in Block 3's first floor terrace. These vary from about 1mm and 6mm in width and run horizontally along the front of the terrace close to the slab soffit. The cracking does not appear recent. There is a gully that projects through the terrace slab and connects into the adjacent down pipe. It is also noted that there are no obvious drip details on the external edge of and of the terrace soffits viewed.
 - iv. Cracking was observed externally in the mortar joints above the terrace window of 14 Ravensbury Grove within flat Block 2. These vary between 1mm and 3mm in width and appear not to be recent. (See photographs C4 and C5). No cracking or signs of movement were evident internally.
- 4.3 There were no obvious visual signs of deterioration of the structure internally where observed.



5.0 Discussion on the Existing Condition of the Ravensbury Grove Flats and Their Proposed Redevelopment

- 5.1 The five buildings forming the Ravensbury Grove Flats appear to be in an average condition for their age and type.
- 5.2 The issues which tend to effect the condition of buildings of this type relate to the effects of water ingress. If allowed to enter the building structure it can affect the condition of embedded timbers through beetle infestation or decay, and can cause deterioration of concrete structures – especially if reinforcement is allowed to corrode. To extend the useful life of such buildings, it is therefore important to have an effective maintenance regime in place to keep the external finishes in good



order and to limit the potential for water ingress. Having noted some internal rain water pipes, these can also be a source of water ingress into the structure if not maintained properly.

- 5.3 From the observations carried out, there are a few issues which suggest water ingress may be affecting the structure locally. These relate to the eaves boarding and guttering where vegetation has been allowed to take hold. Over time, roots from vegetation will extend in to the building fabric further, encouraging water ingress to occur. It is therefore important that the guttering is cleared and any damage to the finishes made good.
- 5.4 The cracking on the first floor terrace appears to be related to water ingress too. It is located on the outer edge of the terrace structure where it is vulnerable to higher concentrations of surface water after rainfall. This has partly been exacerbated by the lack of a drip detail on the soffit of the terrace structure. It appears water ingress has caused some corrosion of embedded reinforcement and this has resulted in the concrete expanding and cracking. The cracks do not appear to be structurally significant at present but concrete repairs would be necessary to prevent the cracking becoming more extensive over time.
- 5.5 The cracking seen at the window head on 14 Ravensbury Grove may be suggestive of very slight thermal movement along the length of the building. The movement is not significant structurally and the opened up joints should be made good.
- 5.6 Whilst very few observations relating to the condition of the structure have been seen, only two of the properties have been visited internally – where much of the structure is hidden behind finishes. It is therefore possible that other defects exist which have not been seen.
- 5.7 If the intention is to retain these properties as part of the proposed redevelopment of the Ravensbury Estate, a thorough structural engineering appraisal is recommended to provide a more detailed understanding of how the existing building is constructed, and its condition. This will need to involve visits to all the internal flats and roof spaces and investigations in to the existing structure. These would consist of opening up works, trial pit investigations and specialist concrete testing. It should be recognised that the buildings are already about 60 years old. Any proposal to refurbish them and extend their useful life would need to consider at least a further 30 years of use and so the implications for the structure over such a time frame would need to be more clearly understood.



6.0 Conclusions and Recommendations

- 6.1 The Ravensbury Grove flat appear load bearing masonry structures with solid ground and upper floors and timber roofs.
- 6.2 The five buildings appear to be in a reasonable condition for their age and type of construction. This view is however only based on limited observations of the structures.
- 6.3 There are a few examples observed to suggest that water ingress may be affecting the structure locally. If it is intended to extend the useful life of the buildings, it is important that a maintenance regime is put in place to restore affected areas and limit potential for future water ingress which could result in accelerated deterioration of the structure. Based upon observations to date, concrete repairs would be required to some of the external roof terraces.
- 6.4 If the intention is to retain these properties as part of the proposed redevelopment of the Ravensbury Estate, a more thorough structural engineering appraisal is recommended to provide a more detailed understanding of how the existing building is constructed, and its condition.



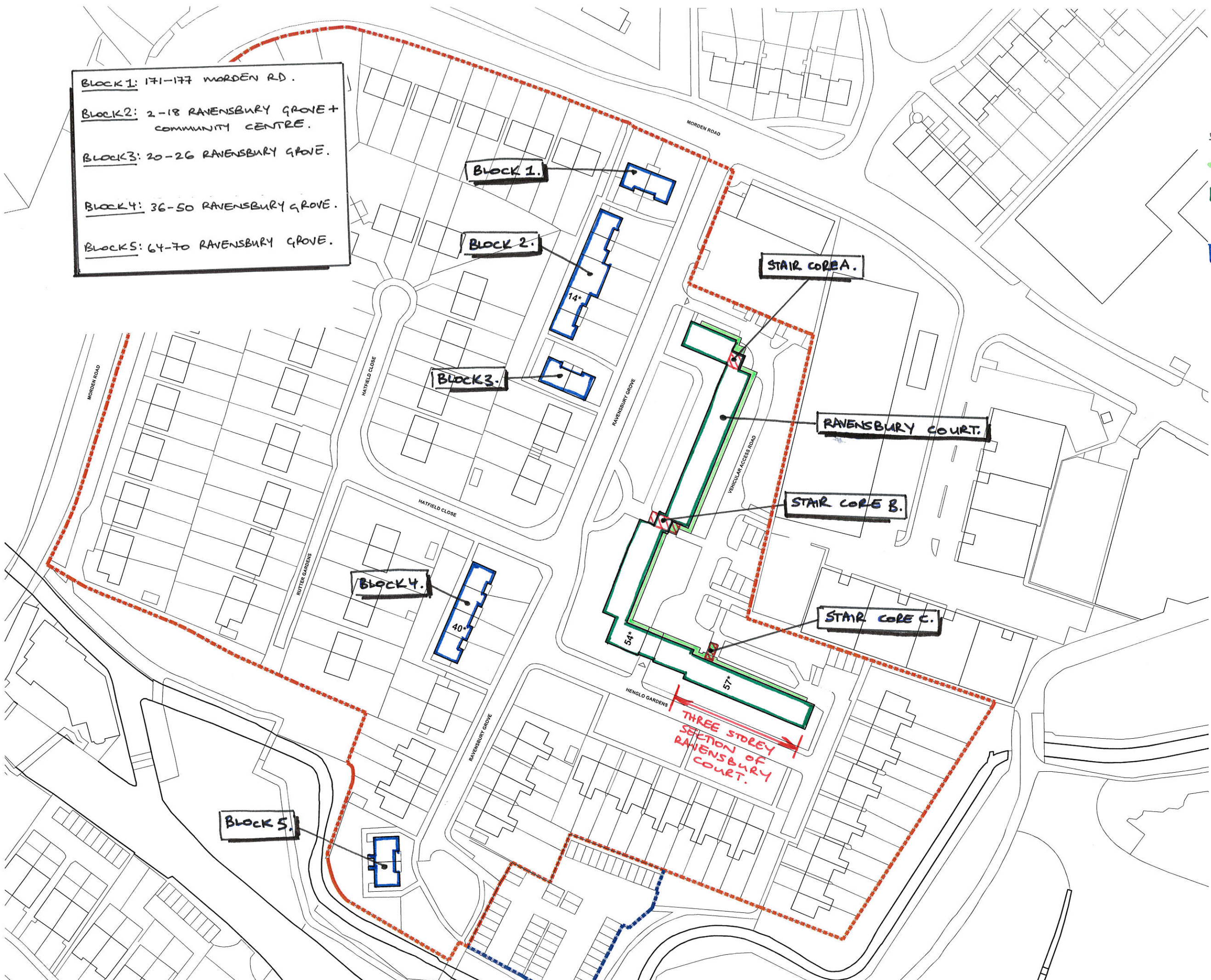
Appendix A – Location Plan

BLOCK 1: 171-177 MORDEN RD.
BLOCK 2: 2-18 RAVENSBURY GROVE + COMMUNITY CENTRE.
BLOCK 3: 20-26 RAVENSBURY GROVE.
BLOCK 4: 36-50 RAVENSBURY GROVE.
BLOCKS: 64-70 RAVENSBURY GROVE.

General Notes

1. Drawing produced from survey drawings provided by HTA.
 2. Refer to dwg. no. '11264/SK03' to '11264/SK06' for summary of external observations to Ravensbury Court and Ravensbury Grove Flats.
 3. Drawings for illustrative purposes only. To be used in conjunction with Tully De'Ath Structural Engineering Reports on the Existing Condition of Ravensbury Grove Flats and Ravensbury Court, both dated: October 2014.
 4. Ravensbury Court generally four stories. Three stories where noted.
- 57* Indicates unit number and approximate location where access was gained to property for visual inspection.

- Indicates external walkway to Ravensbury Court at second floor level.
- APPROXIMATE OUTLINE OF RAVENSBURY COURT BUILDING.
- APPROXIMATE OUTLINE OF RAVENSBURY GROVE FLATS BUILDINGS.



REV. DATE	DESCRIPTION	BY	CHK'D



TITLE:
Ravensbury Court & Ravensbury Grove Flats Location Plan.

PROJECT:
Ravensbury Estate

SCALE: 1:500@A1 DATE: 10/14 DRAWING: TP CHK'D:
 JOB NO. DRG. NO. REV.
 11264 SK03





Appendix B – Summary of External and Internal Observations

General Notes

1. Plans produced from survey drawings provided by HTA.
2. Drawing to be read in conjunction with dwg. no. '11264/SK03' for location plan and Tully De'Ath report titled 'Structural Assessment of Ravensbury Grove Flats', dated October 2014.
3. Locations of observations marked are approximate only.
4. Observations are based upon visual walk around surveys of the buildings and hence are not necessarily limited to those noted on this drawing.

INDICATES BALCONY / TERRACE LOCATIONS.

GENERAL OBSERVATIONS.
 • GUTTERING & GABLE BOARDS TO BLOCKS 4&5 HAVE AREAS OF PAINT PEELING.

VEGETATION GROWING ON FULL HEIGHT OF ELEVATION

BLOCK 4.

40*

54*

HENGLO GARDENS

RAVENSBURY GROVE

RUTTER GARDENS

NO ACCESS GAINED DURING SITE VISITS TO VISUALLY INSPECT REAR ELEVATION.

BLOCKS.

REV	DATE	DESCRIPTION	BY	CHK'D

HTA

TITLE: Summary of External Observations to Ravensbury Grove Flats - Sht 2.

PROJECT: Ravensbury Estate

SCALE	DATE	DRAWN	CHK'D
1:200&A1	10/14	TP	
JOB NO.	ORG NO.	REV.	
11264	SK06		

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PROPERTY DETAILS

AREAS

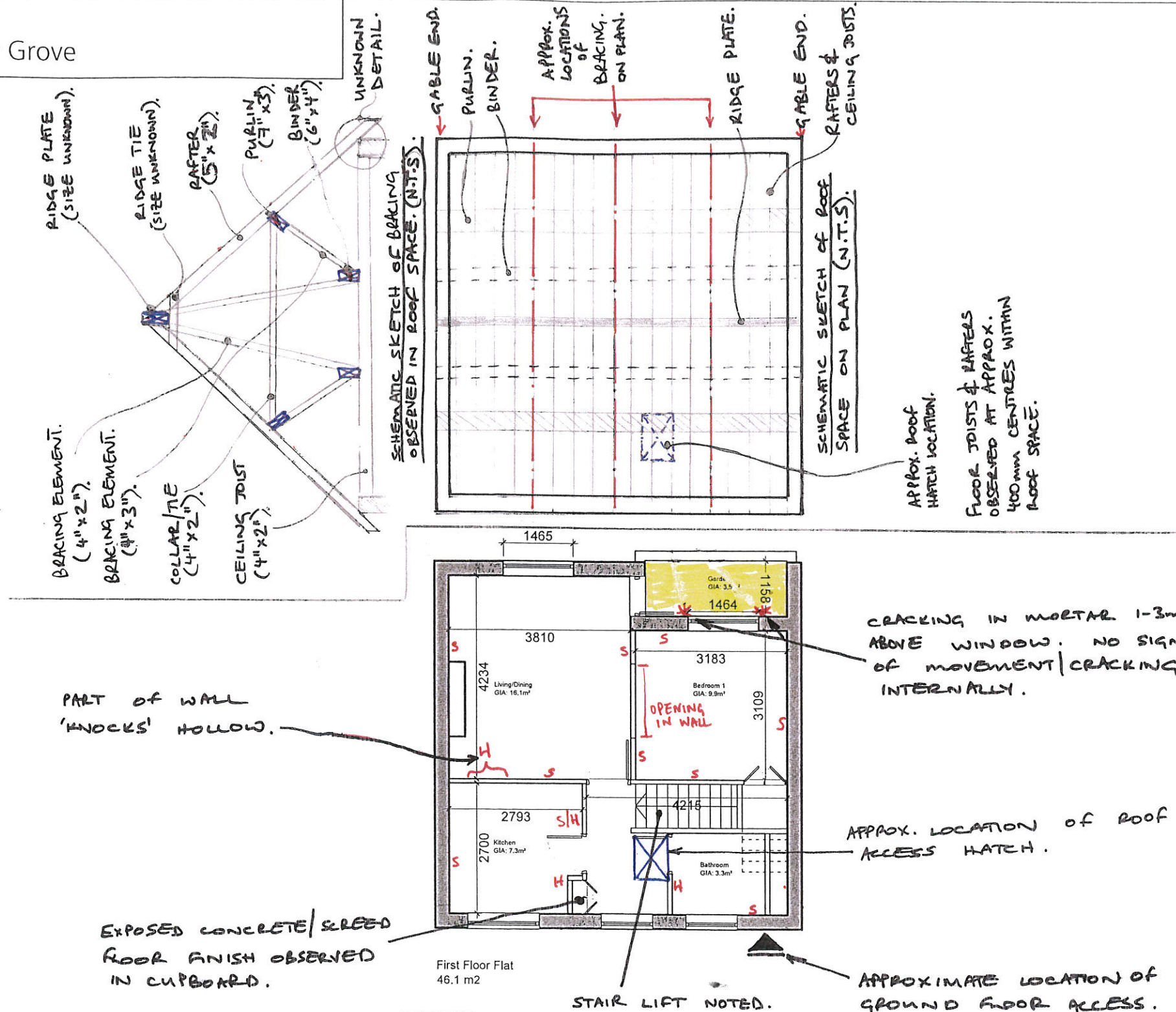
Flat Total - 46.1m²
Balcony Total - 3.5m²

HOUSE TYPE

1 bed 2 person
1 storey flat
GLA Requirement - 50m²

PRIVATE AMENITY

1 bed 2 person
Merton Requirement - 20m²
*(10m² per habitable room for flats/maisonettes this area includes private and communal open space)
GLA Requirement - 5m²



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NOTE:
DRAWINGS PRODUCED FROM LAYOUT DRAWINGS PROVIDED BY HTA.

NOTE:
DRAWING TO BE READ IN CONJUNCTION WITH TULLY DE'ATH REPORT: 'STRUCTURAL ASSESSMENT OF RAVENSBURY GROVE FLATS'.

S - INDICATES WALL 'KNOCKS' SOLID.
H - INDICATES WALL 'KNOCKS' HOLLOW.

NOTE:
TULLY DE'ATH SKETCHES ARE NOT TO SCALE FOR ILLUSTRATIVE PURPOSES ONLY.

■ - INDICATES EXTERNAL TERRACE/BALCONY AREA.

FILE: INTERNAL OBSERVATIONS TO 14 RAVENSBURY GROVE.
PROJECT: RAVENSBURY ESTATE.
SCALE: N.T.S. DATE: 10/14 DRAWN: TP CHK'D:
JOB NO. 11264 DRG NO. SK 07 REV.

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PROPERTY DETAILS

AREAS

Flat Total - 43.9m²
 Balcony Total - 5.3m²

HOUSE TYPE

1 bed 2 person
 1 storey flat
 GLA Requirement - 50m²

PRIVATE AMENITY

1 bed 2 person
 Merton Requirement - 20m²
 *(10m² per habitable room for flats/maisonettes this area includes private and communal open space)
 GLA Requirement - 5m²

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NOTE:
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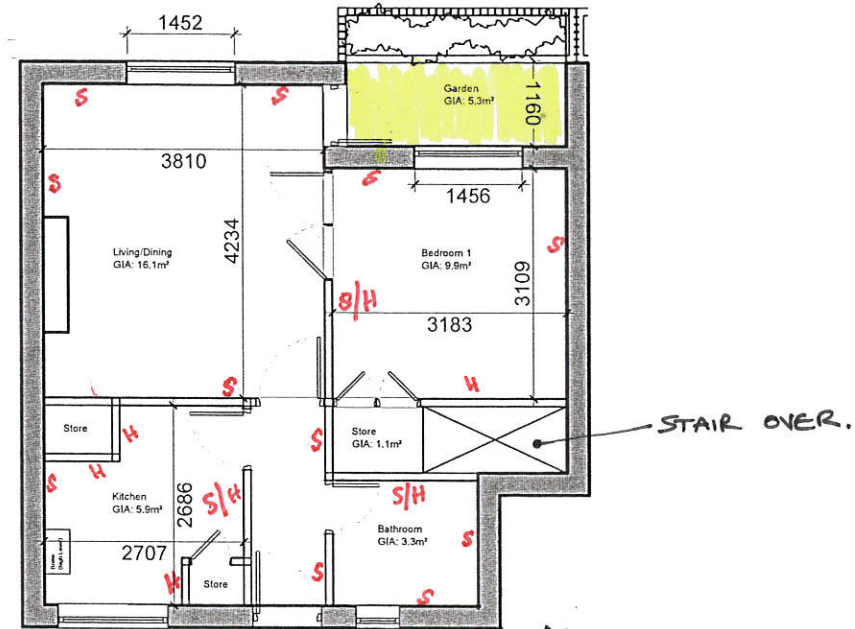
NOTE:
 DRAWING TO BE READ IN CONJUNCTION WITH TULLY DE'ATH REPORT 'STRUCTURAL ASSESSMENT OF RAVENSBURY GROVE FLATS'.

NO ADVERSE SIGNS OF DAMAGE/ DETERIORATION INTERNALLY.

FLOOR FEELS SOLID IN ALL ROOMS.

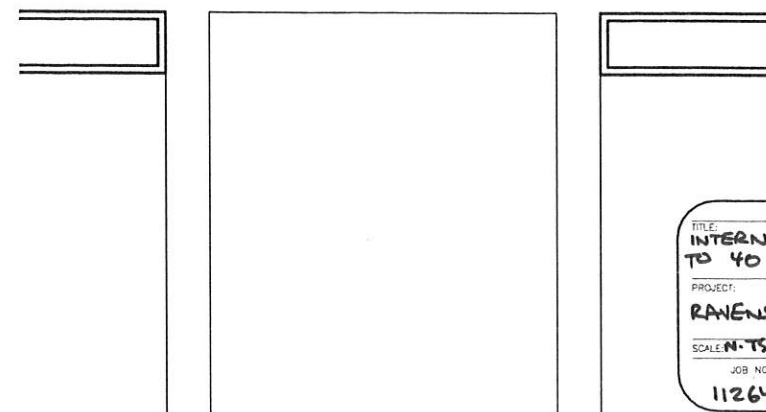
S - INDICATES WALL 'KNOCKS' SOLID.
H - INDICATES WALL 'KNOCKS' HOLLOW.

■ INDICATES EXTERNAL TERRACE/BALCONY AREA.



Ground Floor Flat
 43.9 m²
 ACCESS

APPROX. LOCATION OF ENTRANCE TO ADJACENT FLAT.



FILE: INTERNAL OBSERVATIONS TO 40 RAVENSBURY GROVE.
 PROJECT: RAVENSBURY ESTATE
 SCALE: N.T.S. DATE: 10/14 DRAWN: TP CHK'D:
 JOB NO. 11264 DRG NO. SK 08 REV.

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Ground Floor Flat Plan 40 Ravensbury Grove
 Scale 1:100 @ A3

FOR INFORMATION
 Circle Housing - Merton Priority Ravensbury, Merton
 Existing Property
 40 Ravensbury Grove

Drawing number: CAG-REM-00-105
 scale: 1:100
 originated by: ECH
 project number: CAG - REM



Appendix C – Site Photographs



Photograph C1 – 171-177 Morden Road



Photograph C2 –Ravensbury Grove Flat's Block- Air Brick at Ground Level



Photograph C3 – 1-6mm Horizontal Crack in Terrace Soffit



Photograph C4 – 1-3mm Crack in Mortar Above Window on 14 Ravensbury Grove External Terrace



Photograph C5 – 1-3mm Crack Above Window on 14 Ravensbury Grove 's External Terrace



Photograph C6 – Purlin Support on Masonry Gable



Photograph C7 - 14 Ravensbury Grove Roof Space



Photograph C8 - 14 Ravensbury Grove Roof Space



Photograph C9 – 14 Ravensbury Grove Roof Detail



Photograph C10 – 14 Ravensbury Grove Roof Space



Photograph C11 – 2-18 Ravensbury Grove and Community Hall



Photograph C12 – Vegetation to Side of Block 4 and Peeling of Paint to Eaves Board

Feasibility Research

EIA, Flood Risk &
Transportation
Assessment

Urban Planning and
Design

Integrated Transport
Solutions

Infrastructure
Development

Structural Design

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