217098

October 2017

STRUCTURAL FEASIBILTY REPORT

For

RESIDENTIAL CONVERSION

At

THE OLD MALT HOUSE
ST JOHN'S ROAD
BANBURY

For

MORRISON PROPERTY CONSULTANTS TLD

ENGINUITY
ENGINEERING INGENUITY

Suite 12 Borough House Marlborough Road Banbury OX16 5TH T 01295 279719 F 01295 278977 E ingenuity@ianharban.com W www.ianharban.com

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1.0 Summary

This report considers the Structural Feasibility of converting The Old Malt House St John's Road Banbury from Office Accommodation into Residential Apartments as defined on the Architects Drawings.

It will be necessary to introduce timber floor structures at the new third floor and second floor level and these will be supported on steel support frames bolted to the existing timber trusses.

The existing timber trusses will need additional support to carry the additional load and this can be achieved using the additional beams bolted to the existing concrete floor structure at first floor level.

The ground floor steel structure and first floor planks are all modern construction and the alterations to these are of low impact to the historic fabric of the building.

2.0 Instructions and Limitations

2.1 Instructions were received from you requesting a Structural Feasibility Report on the proposal to convert The Old Malt House St John's Road Banbury into residential accommodation, namely apartments. We understand the report is required to supplement a Planning Application.

2.2 Our report is based on currently available Architect's drawings. This report has been prepared to assess the structural feasibility of the scheme only and should not in any way be taken as a report on the condition of the structure of the existing building.

2.3 This report is prepared for the information, benefit and use of Morrison Property Consultants Ltd only and any liability of Ian Harban Consulting Engineers to any third party, whether in contract or in tort, is specifically excluded. Any third party finding themselves in possession of this report may not rely upon it without first obtaining the written authority of Ian Harban Consulting Engineers.

2.4 RHS refers to the right hand side of the building when viewed from the road.

2.5 LHS refers to the left hand side of the building when viewed from the road.

3.0 Description, History and Proposals

3.1 The building is rectangular on plan and we assume constructed originally as a Malt House. In more recent times the building has been used as offices and it is now proposed to convert to Apartments.

3.2 Currently the building has a modern 20th C concrete plank floor supported on a steel frame at first floor with a large open timber roof structure, although partially obscured by a suspended ceiling.

3.3 It is proposed to form a new second floor level close to eaves level with a partial third floor at each side of the building. A central circulation area will be formed with staircases up through the building. Car Parking as predominantly existing will be maintained and is currently tarmac covered.

4.0 Site

4.1 Existing Structures

4.1.1 The existing building is predominantly a load bearing masonry construction, for the perimeter and part of the interior of the building with a modern steel and concrete plank first floor insert. A more historic steel frame also is evident at first floor to the RHS two bays of the building.

4.1.2 The second floor to the RHS of the building is timber construction between existing trusses.

4.1.3 There appears to have a been a more modern intervention to the middle and LHS of the building along a central spine, where modern steel beams support the mid span of the trusses.

4.2 Access

4.2.1 The current site access from the St John's Road and this will be maintained during construction.

4.3 Geotechnical

4.3.1 There is no evidence of structurally significant movement to the building. It was originally used as a Malt House which would have had higher imposed floor loads than required for residential use.

5.0 Structural Proposal and Construction Methods

5.1 Structural Proposals

5.1.1 The drawings in Appendix A show the proposed concept structural layout and construction proposals with respect to the formation of the new upper floors and modifications to the modern first floors structure.

5.1.2 It is proposed to install a partial third floor at each side of the building. This floor will be timber construction, proposed to be built off steel channels bolted either side of the trusses. In this area it is also necessary to remove a timber lateral restraint strut to the truss members, but the introduction of the floor diaphragm will act as a replacement to this element.

5.1.3 The second floor is also constructed in timber and will be at the level of the existing trusses. These trusses span from external wall to a central support location. However, in order to support the additional loads from the upper floors additional supports will be required at quarter points. It will also be necessary to raise a strut within the truss to achieve head height. The quarter support points can be accommodated within the new walls or where these do not coincide a steel channel will be bolted either side of the existing trusses as a transfer beam to allow columns to be positioned in walls.

5.1.4 In order to form the openings at first floor level for the staircases it will be necessary to cut the planks and provide new steel work to support the newly formed slab edges. This steel will be incorporated into the existing steel frame and where necessary supported on new columns onto new foundations. Localised sections of floor infill will be required, which may be concrete at this level.

5.2 Construction Methodology

5.2.1 The proposed structural works are such that a competent contractor wold be able to undertake the work without special precautions over and above normal propping and supporting measurers.

5.2.2 Third Floor

5.2.2.1 Take dimensions of trusses and check alignment to allow steel to be fabricated to fit and for ordering of any shims necessary to ensure a tight fit.
5.2.2.2 Bolt steels to trusses incorporating any adhesives deemed necessary.
5.2.2.3 Insert timber joists and floor deck.

5.2.3 Second Floor

5.2.3.1 Raise timber strut to detail shown in Appendix A.
5.2.3.2 Insert new support columns and make alterations to steel at first floor and ground floor to provide support.
5.2.3.3 Insert new timber joists between trusses.
5.2.3.4 New walkway bridges will be formed in timber and supported off existing trusses and loadbearing lift shaft.

5.2.4 First Floor

5.2.4.1 Expose edges of existing slab to existing stairwell and adapt to form bearing for new floor.
5.2.4.2 Shutter underside and fix reinforcement and cast concrete.
5.2.4.3 Cast new foundations to stairwell and lift shat and erect new steel supports.
5.2.4.4 Dry pack steel to existing concrete and then cut out stair wells and lift shaft.

5.2 Construction Good Practice.

5.3.1 Local parking is limited and therefore site operatives should use the public transport connections if possible.

5.3.2 Demolition and excavation dust on site will be controlled by the watering of work at ground floor level. Inlets to the drainage system will be protected with filters bunded with sandbags to prevent slurry runoff entering the system.

5.3.3 The Contractor will adhere to, and respect any restrictions on working hours or the enforcement of silent periods throughout the day, which may be imposed by the Local Authority, Contract Documents or the Party Wall requirements.

5.3.3 All waste Substances from the site shall be disposed of offsite, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. Recycling is to be undertaken wherever appropriate. All vehicles leaving site carrying potentially dust-generating demolition or construction waste are to be completely sheeted with tarpaulin or netting, in good condition.

5.3.4 The site is to be securely horded along the boundary to the public highway. The hording is to be designed by the contractor's Charted Civil or Structural engineer to resist appropriate wind loadings as defined by 8S6399: 2.

5.3.5 Welfare facilities will not be placed on the public highway.

5.3.6 All live emergency exits and access routes on site will be maintained at all times.

6.0 Effects of Proposed Works

6.1 Neighbouring Structures

6.1.1 There are no perceived risks to neighbouring properties, all works are remote. Party Wall Notices are unlikely to be required.

6.2 Existing Listed Building

6.2.1 The proposals have been developed in way which minimises any intervention to the Listed Building. All existing trusses shall remain in place and any new works would be removable in the future without detriment to the historic fabric of the building.

APPENDIX A

Drawings

217098 SK01 Ground Floor

217098 SK02 First Floor

217098 SK03 Second Floor

217098 SK04 Third Floor

217098 SK05 Section

217098 D01 Detail

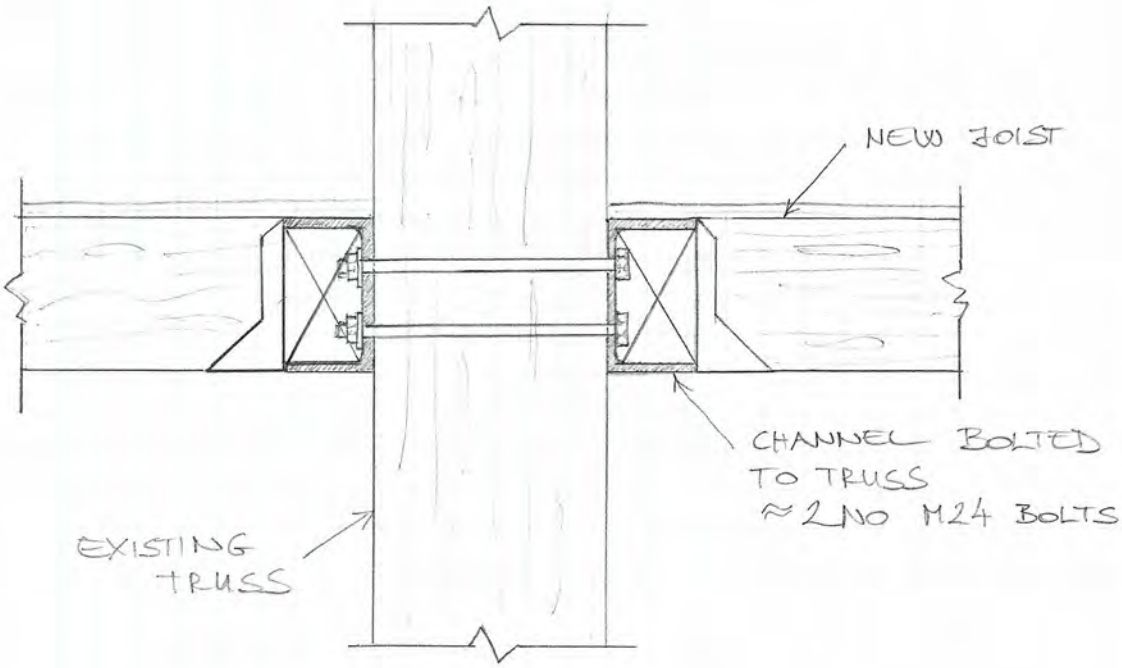
217098 D02 Detail

217098 D03 Detail

217098 D04 Detail

217098 D05 Detail

Job Name	THE OLD MALT HOUSE, BANBURY		
Date	18/10/2017	By	Scale
Job Number	217098	Sheet Number D01	Rev



D01 CHANNELS BOLTED TO TRUSS AT THIRD FLOOR LEVEL

Suite 12 Borough House Marlborough Road Banbury OX16 5TH T 01295 279719 F 01295 278977 E ingenuity@ianharban.com W www.ianharban.com

Job Name	THE OLD MALT HOUSE, BANBURY	
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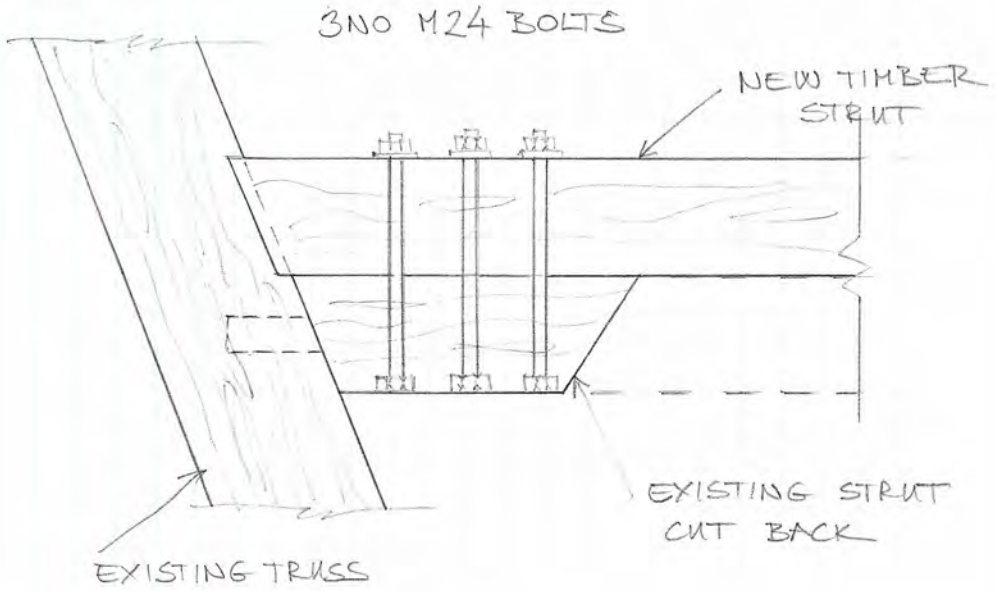
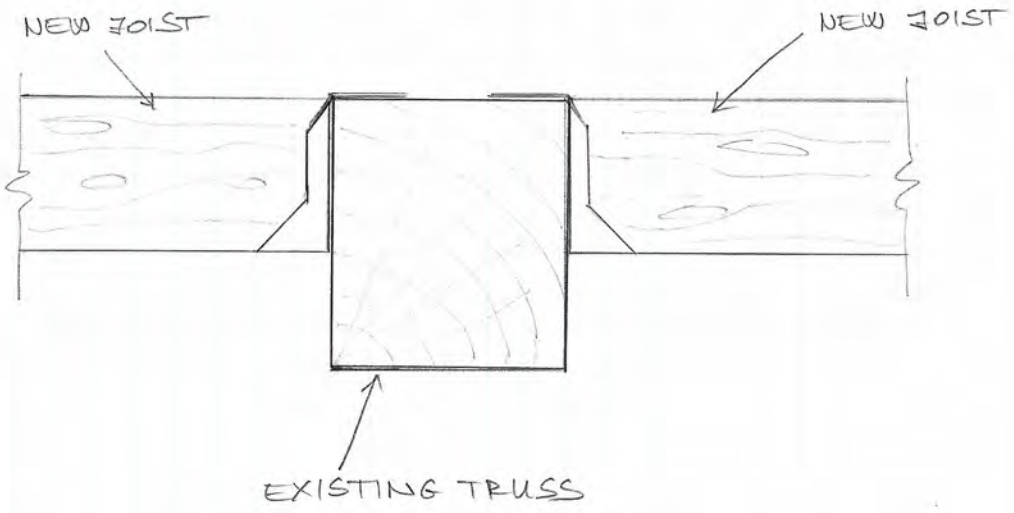
Job Number 217098	Sheet Number D02	Rev



D02 RAISING STRUT WITHIN EXISTING TRUSS

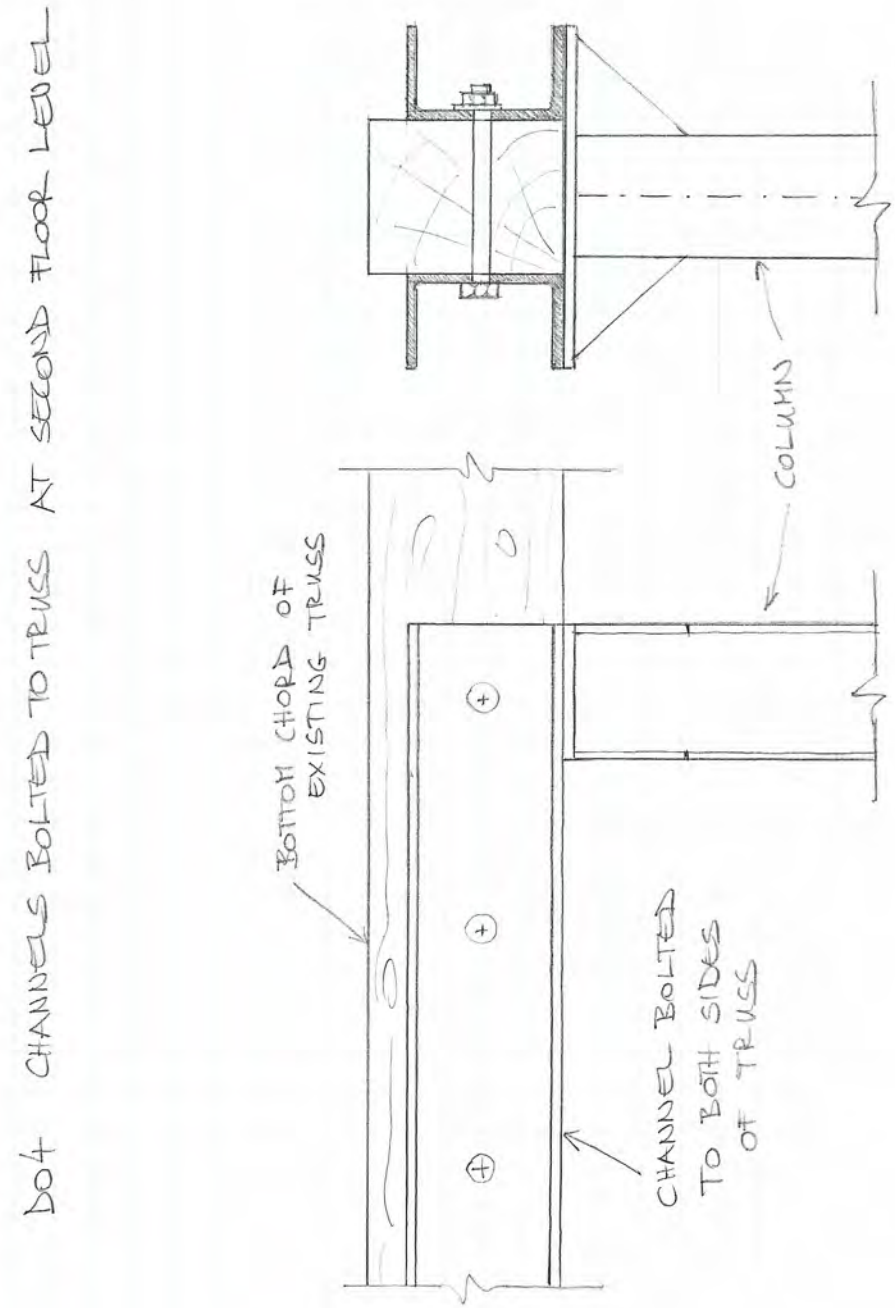
Job Name	THE OLD MALT HOUSE, BANBURY	
Date 19/10/2017	By	Scale
Job Number 217	Sheet Number D03	Rev



D03 TIMBER FLOOR JOIST DETAIL

Job Name	THE OLD MALT HOUSE, BANBURY		
Date	20/10/2017	By	Scale
Job Number	217098	Sheet Number D04	Rev

D04 CHANNELS BOLTED TO TRUSS AT SECOND FLOOR LEVEL



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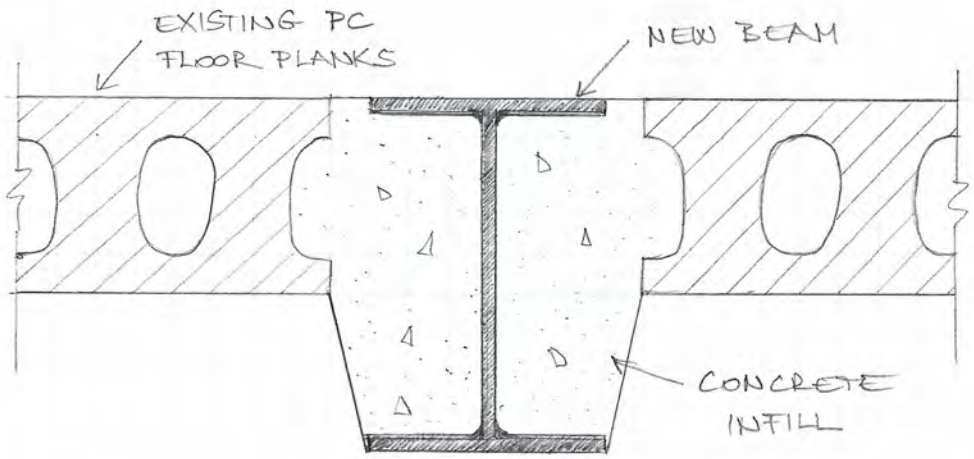
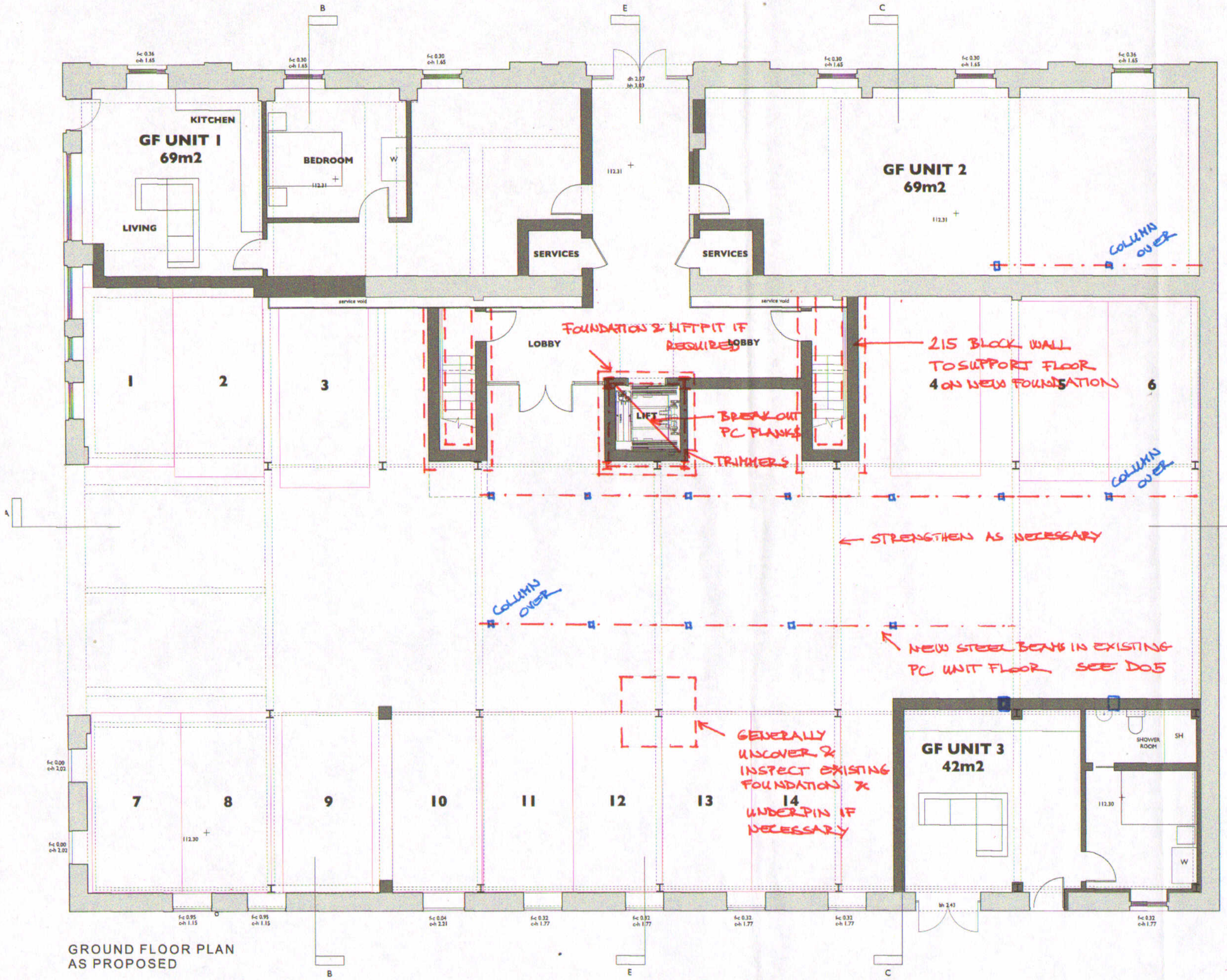


D05 NEW BEAM IN EXISTING UNIT FLOOR



GROUND FLOOR PLAN
AS PROPOSED

FOUNDATION & FIRST FLOOR STRUCTURAL LAYOUT SHOWN ON GROUND FLOOR ARCH. PLAN

DO NOT SCALE THIS DRAWING USE DIMENSIONS ONLY

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217098-SK01 GROUND FLOOR

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PLANNING APPLICATION N° 1			
PLANNING APPLICATION N° 2			
PLANNING CONSENT			
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LISTED BLDG CONSENT			
DAC APPROVAL			
BLDG CONTROL APPLICATION			
BLDG CONTROL APPROVAL			
TENDER DOCUMENT			
CONTRACT DOCUMENT			

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PROJECT
The Old Malt House
Banbury

TITLE
Ground Floor Plan
As Proposed

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DRAWING N°
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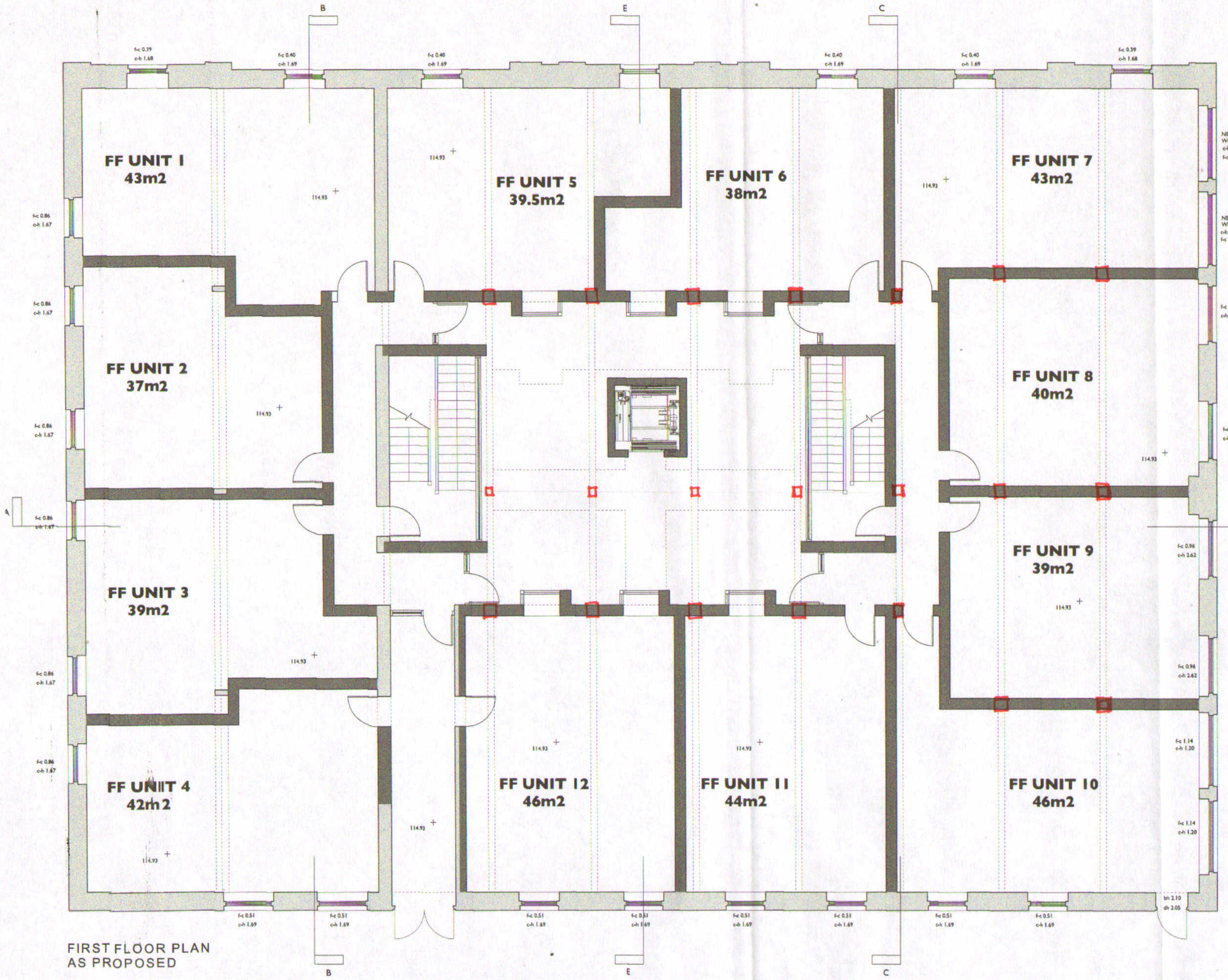
Acanthus Clews architects
Acanthus House
57 Hightown Road
Banbury · Oxfordshire
OX16 9BE
Tel: 01295 702600
Fax: 01295 702601
architects@acanthusclews.co.uk
www.acanthusclews.co.uk



FIRST FLOOR PLAN
AS PROPOSED

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Acanthus Clews architects
Acanthus House
57 Hightown Road
Banbury • Oxfordshire
OX16 9BE
Tel: 01295 702600
Fax: 01295 702601
architects@acanthusclews.co.uk
www.acanthusclews.co.uk

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CHANNELS BOLTED TO TRUSS SEE D04

217098 - SK03 SECOND FLOOR

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18/10/2017

B E C

TERR. TERR. TERR. TERR. TERR.

h=1100mm WARDROBE CBD

LIVING ROOM

new new

SF UNIT 1
38m2

SF UNIT 4
44m2

SF UNIT 5
44m2

SF UNIT 6
40m2

SMART GLASS BED SPACE SHOWER ROOM SH LIVING ROOM

COLUMN UNDER

TIMBER JOISTS

EXISTING LOW LEVEL WINDOW

f-c 0.73
c-h 1.66

NEW WINDOW

SF UNIT 2
43m2

VOID VOID VOID

TIMBER BEAMS

SF UNIT 3
56m2

GALLERY

SF UNIT 8
37m2

KITCHEN

SF UNIT 7
39m2

D03

TERR. TERR. TERR. TERR.

CHANNELS BOLTED TO TRUSS SEE D04

STRUCTURE @ FLOOR LEVEL

SECOND FLOOR PLAN
AS PROPOSED

DRAWING ISSUE STATUS	REVISION N°	DATE	SIGNED
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PLANNING APPLICATION N° 2			
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LISTED BLDG CONSENT			
DAC APPROVAL			
BLDG CONTROL APPLICATION			
BLDG CONTROL APPROVAL			
TENDER DOCUMENT			
CONTRACT DOCUMENT			

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PROJECT
The Old Malt House
Banbury

TITLE
Second Floor Plan
As Proposed

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Acanthus Clews architects
Acanthus House
57 Hightown Road
Banbury • Oxfordshire
OX16 9BE
Tel: 01295 702600
Fax: 01295 702601
architects@acanthusclews.co.uk
www.acanthusclews.co.uk

THIRD FLOOR PLAN
AS PROPOSED

STRUCTURE @ FLOOR LEVEL

CHANNEL BOLTED TO TRUSS
@ 1No M24 BOLTS SEE D01

STRUT WITHIN TRUSS RAISED
SEE D02

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Revision Date

217098-SK04 THIRD FLOOR

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18/10/2017

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DAC APPROVAL			
BLDG CONTROL APPLICATION			
BLDG CONTROL APPROVAL			
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CONTRACT DOCUMENT			

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PROJECT
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TITLE
Third Floor Plan
As Proposed

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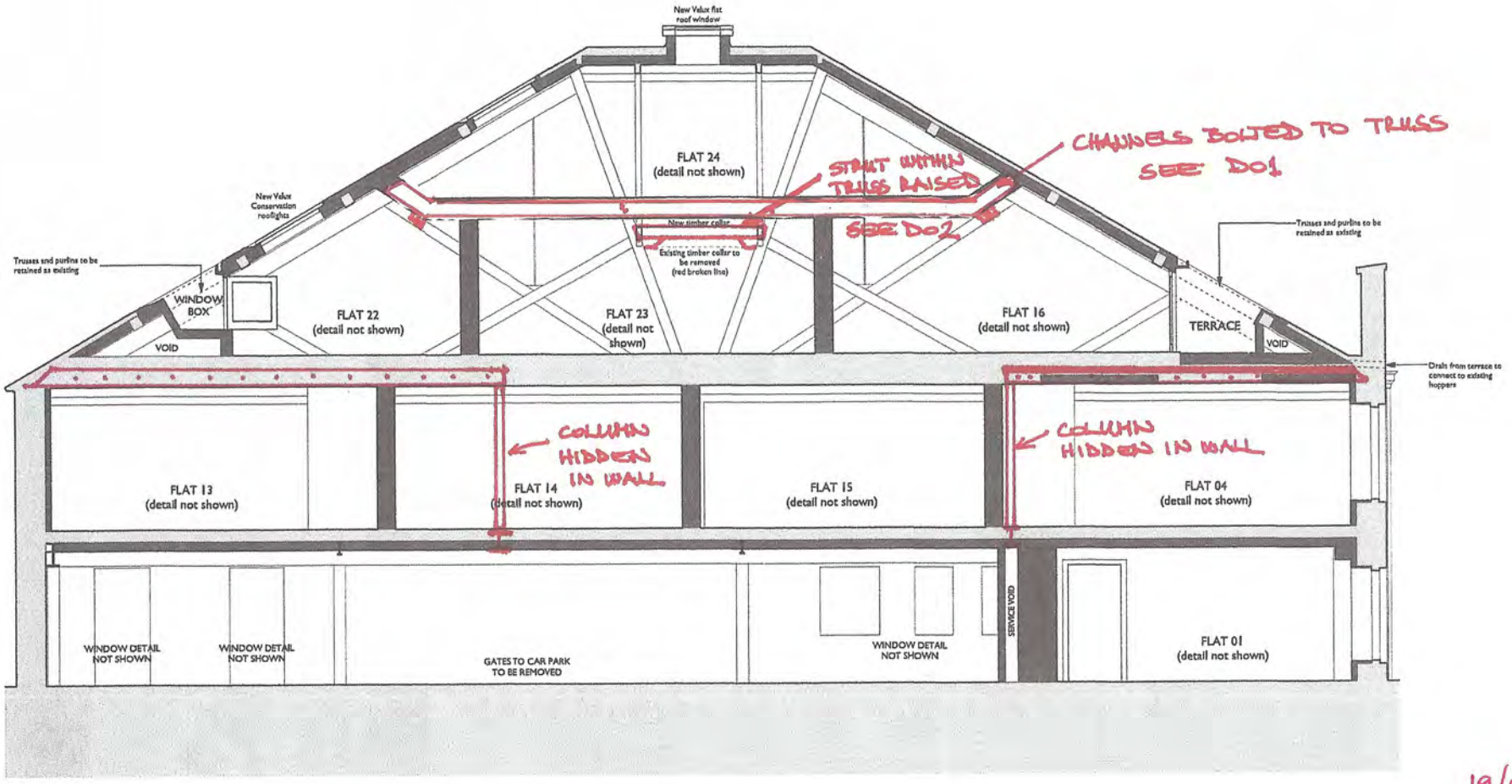
Acanthus Clews architects
Acanthus House
57 Hightown Road
Banbury • Oxfordshire
OX16 9BE
Tel: 01295 702600
Fax: 01295 702601
architects@acanthusclews.co.uk
www.acanthusclews.co.uk

217098 – SK05 SECTION WITH PROPOSED STRUCTURE



SECTION B-B
AS PROPOSED

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