



**THFC – Northumberland Terrace
Phase 3 & 804/806 High road
Structural Strategy Report
In support of Planning**

Job Number: 19068-Northern Studios

19142-804/806 High Road

Revision: P04

Date: March 2020

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Document Control

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Rev	P01	Prepared	SM	Checked	EH	Approved	KL	Issued	04/10/19
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Rev	P04	Prepared	SM	Checked	EH	Approved	KL	Issued	12/03/20

1. Introduction and basis of Information

Lyons O'Neill Structural Engineers were appointed by F3 to carry out structural and civil design services for 2 proposed new buildings as part of the Northumberland Terrace development for the Tottenham Hotspur FC. Works includes:

- Linear Building: a new-build four-storey building stretching across an L shape footprint of approximately 116m total length by 10m.
- 804-806 High Street: A proposed change of use for a residential building to café and gallery loadings and for the potential future change of use to office loading. Existing single storey rear extensions will be demolished and replaced with a new double storey extension.

Work in progress stage 2 information of the floor plans have been issued from F3 Architects including a preliminary Revit Model, see Appendix C.

Hydrock were appointed for the M&E design.

This Stage 2 report provides a summary of the status quo with respect to the following:

- Assess and understand the client's brief.
- Request further information required from the client related to structure and civils.
- Carry out structural feasibility considerations.
- Revision of the site and its constraints.

Structural and civil engineering concepts and stage 2 information associated with the project is provided. Key design drivers and intrinsic advantages and disadvantages of different feasible construction methods are highlighted.

This document is to be read in conjunction with all other relevant information produced by the design team.



Figure 1: Site Plan

2. Ground Conditions and Flood Risk

2.1. Geology

Several site investigations for the Northumberland development area project have been carried out. The following reports have been made available to us:

Geotechnics Limited, Volume 1 &2	November 2009	Ref.#PC094002
Geotechnics Limited, Phase 2	July 2010	Ref.#PC104225
Soil Technics	November 2005	Ref.#STB0573H-L01/Rev0
Soil Mechanics	January 1993	Ref.#7508/62
Soil Mechanics	December 1993	Ref. # 7518/63

In general 1-2m of Made Ground is overlying terrace deposits (Kempton Park Gravel) to around 4m to 6m below ground level. The base of the underlying London Clay is at around 22m to 24m below ground level.

2.2. Hydrology

The site investigations recorded groundwater within the layers of the terrace deposits at a depth of approx. 3.0m below the ground level. Since no basement structures are planned within the proposed structural schemes, groundwater issues will not be relevant for the design of the permanent structures. The Environment Agency Flood Map has been reviewed and the site does not lie within any Flood Zones. However, as it is located in a Critical Drainage Area (CDA) on the Haringey SFRA maps Group4_061, a Flood Risk Assessment is required.

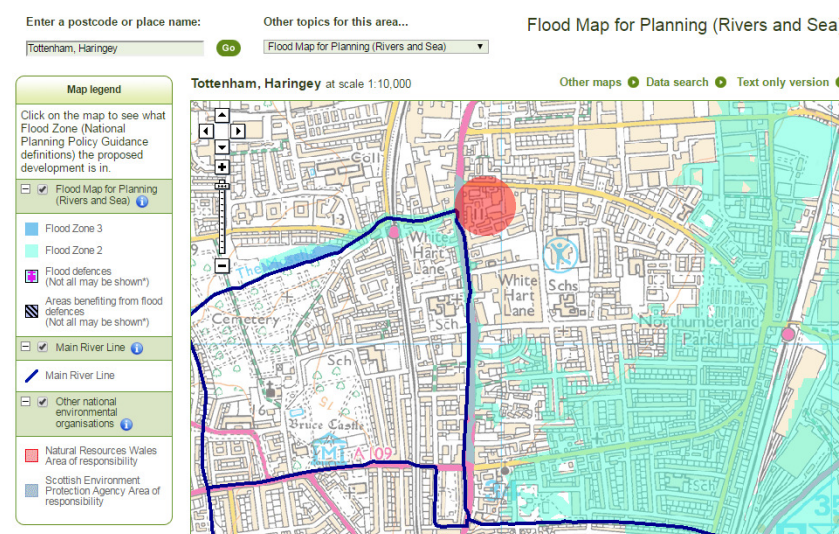


Figure 2 Flood Map extract

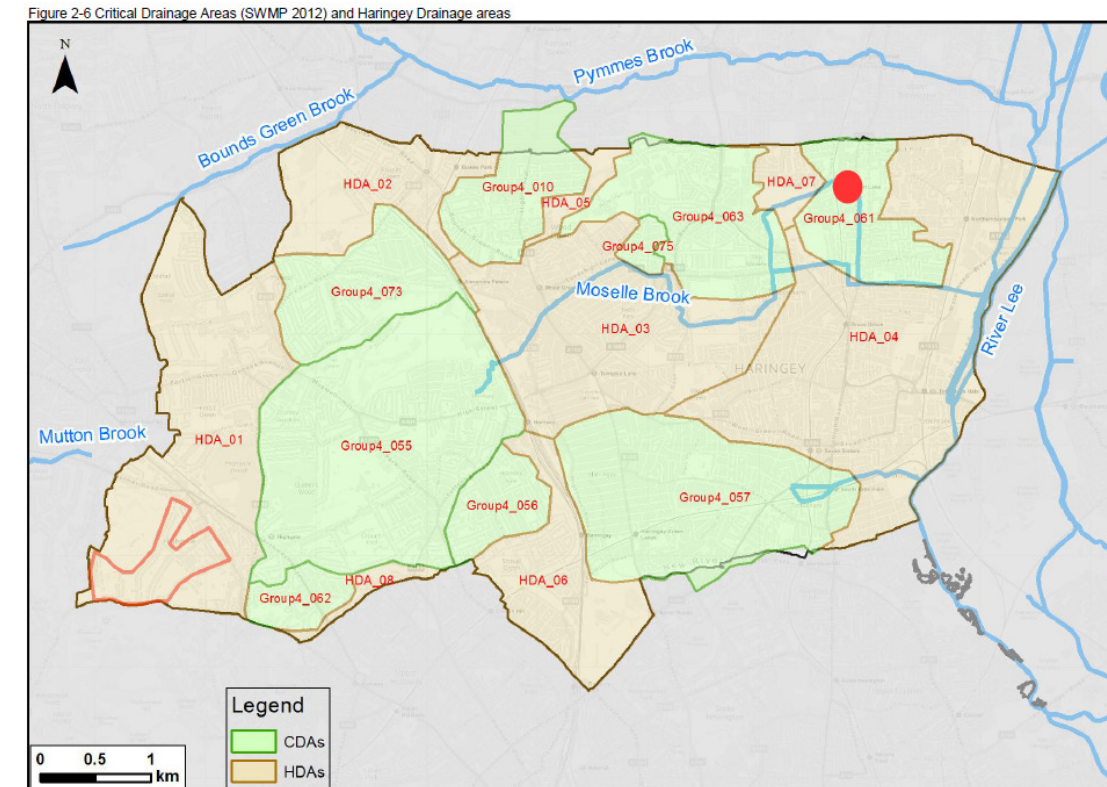


Figure 3: Haringey SFRA map

2.3. Contamination

A site specific Contamination desk study has been carried out by Southern Testing in Jul 16 Report Reference DS 2625 Rev1 for the Paxton Building development. The report concludes there are no historical on site activities which would be the source of contaminants however containments may have migrated from nearby sites. Further intrusive investigation will form part of the detailed site investigation post planning to establish whether this is indeed the case.

2.4. Ground Conditions Constraints Summary

The main constraints on the design arising from the ground conditions are:

- Kempton Park Gravel present above Clay and Harwich Formation.
- Site not affected by flood risk but in a Critical drainage area.
- Therefore although the Kempton Park Gravel is a suitable infiltration media the ground conditions are not suitable for disposal of surface water from the site.

2.5. UXO-Assessment

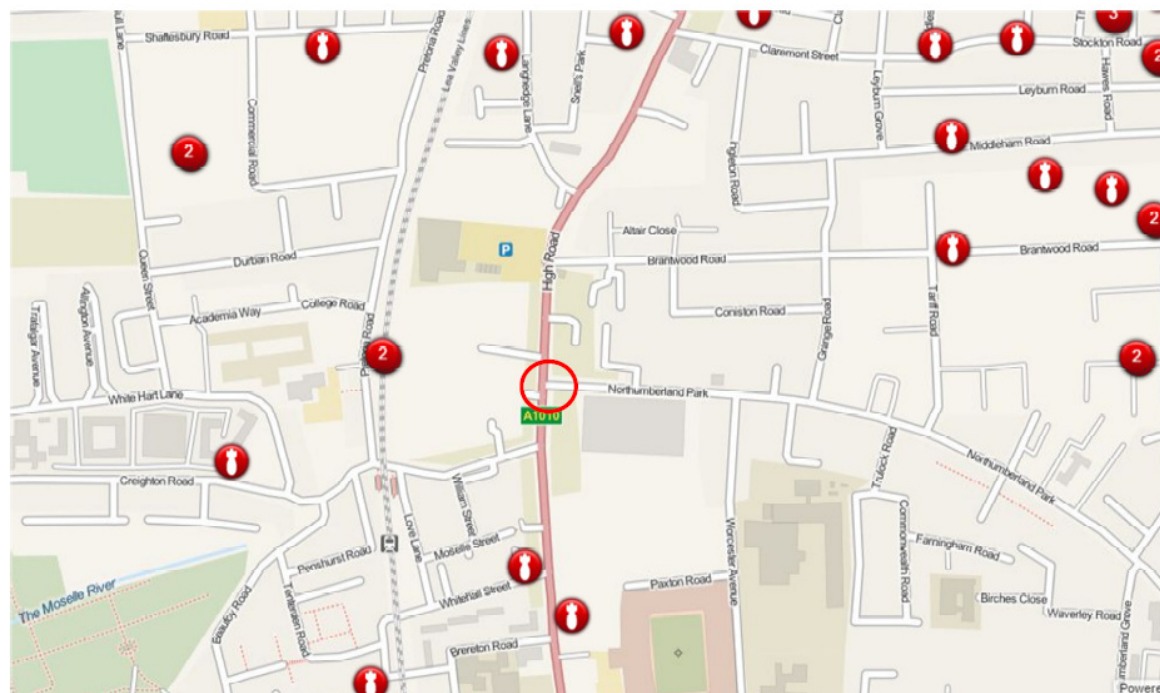
See separate report: BAE Systems Environmental – Risk Assessment for German Air-dropped UXO

Report Reference: A1075-00-R1-3, April 2015

2.6. Bomb Blast Map

The Bomb Sight map, shown is for the period between October 7 1940 and June 6 1941, indicates that the nearest high explosive bomb recorded was incident on Pretoria Road, approximately 150m to west of the site.

No bombs are indicated to have fallen any closer than this to the site, though this map is not exhaustive and there may well be other records that indicate that the site itself was hit.



World War 2 Bomb Damage Map

3. Existing Structure and Below Ground Drainage

3.1. Site

The site is located within the Borough of Haringey. The proposed construction works are part of the Northern Terrace Masterplan thus within the Northumberland Development Project.



Figure 4: Aerial view of site

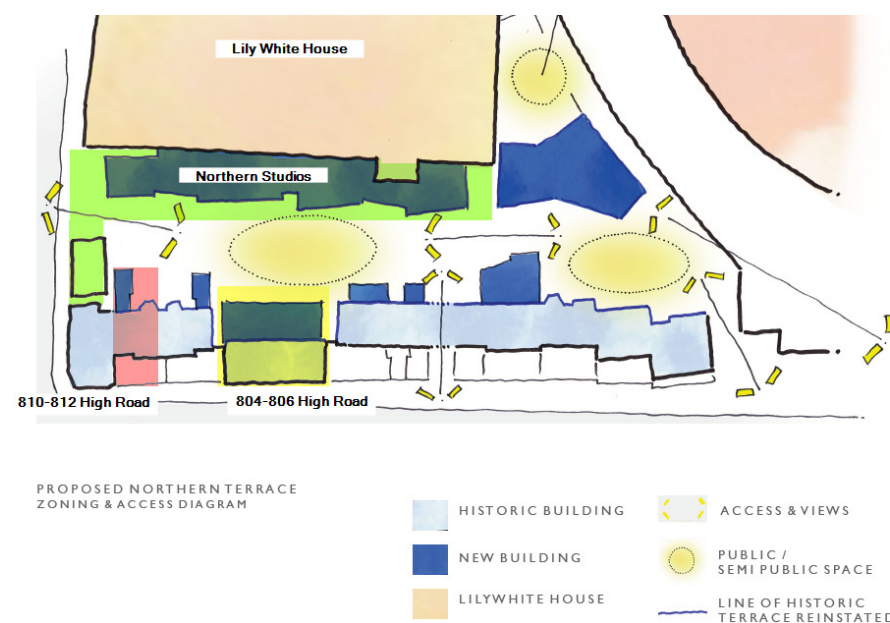


Figure 5: Northumberland Terrace Masterplan from F3 Architect

3.2. Existing Structures

Lilywhite House

On the east boundary to the proposed Linear Building lies the Lilywhite House. It was built in 2013. A steel frame structure consisting of five stories and spreading over a footprint of about 87m x 130m.

The building rests on piled foundations with pile caps containing 350 & 600 mm diameter CFA piles. Besides local shafts, there is no basement underlying the building complex.

The ground floor FFL on the provided plans is marked at 11.750m and the TOF in general at 11.300m.

A set of “as built” drawings as part of the Lilywhite House Q&M files were handed to us to reference the existing structure.

Current strategy is to build adjacent to the existing façade of Lilywhite House in order to maximise the floor area for the new building. To achieve this an existing steel frame built to support a green wall along this side will need to be demolished and coordination will be required due to existing foundations.

Paxton Building

On the South boundary to the proposed Linear Building lies the Paxton Building. It was built in 2018. A steel frame structure with composite deck floors consisting of four stories and spreading over a footprint of about 1200m².

There is no underlying basement planned for this building.

The building rests on piled raft foundations with 400 mm diameter CFA piles.

A set of “as built” drawings and a Revit Model is available.

Existing Sub-station

An existing sub-station is currently within the footprint of the proposed building. This will be re-used in current location with intention of build above it. Coordination will be required between the existing foundations/services routes of the substation and proposed foundations for the new building. In addition all the structural elements in proximity to the substation will need to meet the fire resistance requirements.

3.3. Existing Below Ground Drainage and Constraints Summary

At this stage a utilities drawing has been used to understand how the existing drainage network is functioning. It appears that the foul water of the existing buildings along High Road is draining to the front (High Road side) and the surface water is draining to the rear.

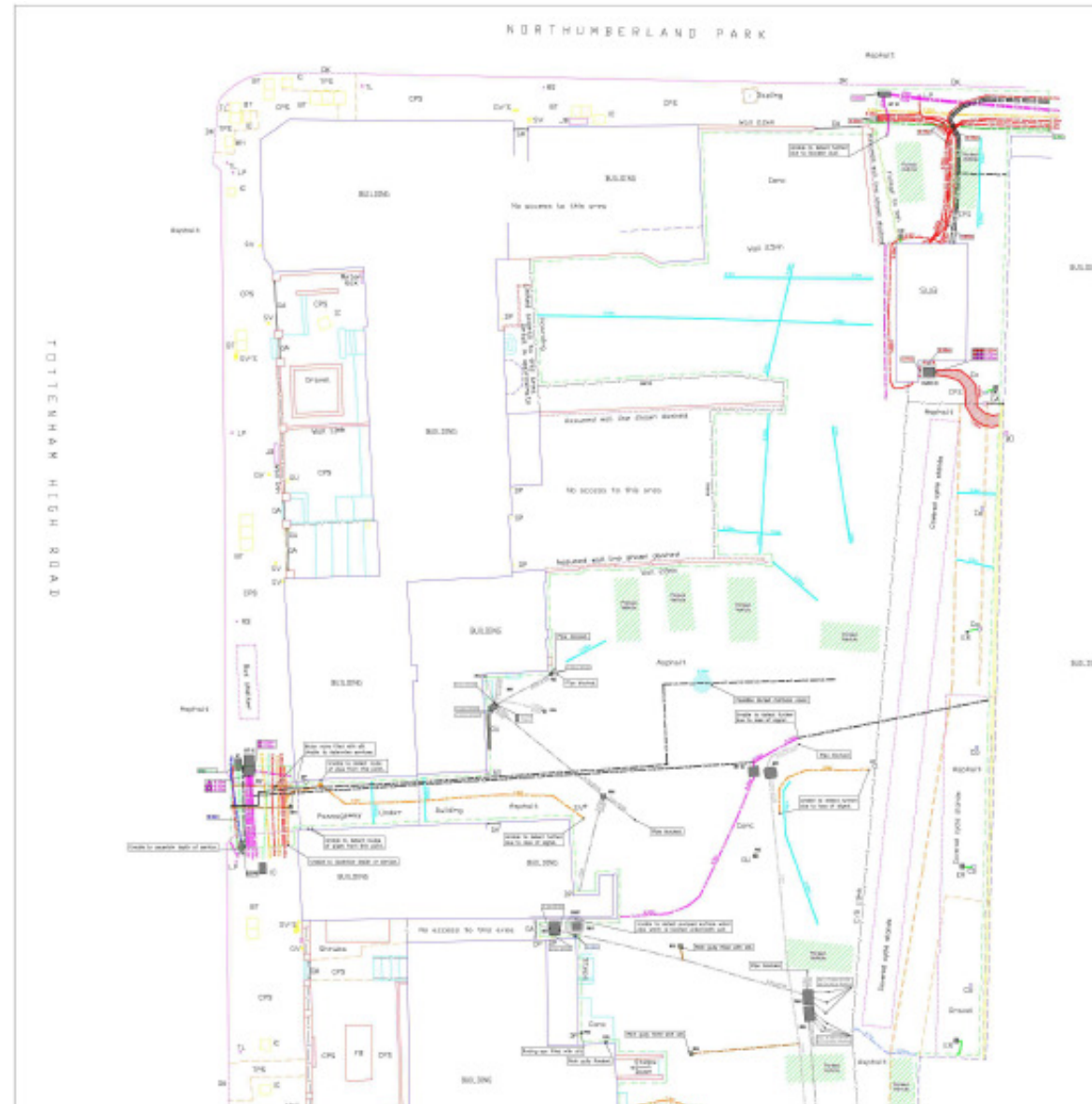


Figure 6: Extract utilities drawing

Refer to Lyons O'Neill Drainage Strategy Report for further information.

3.4. Site Access Options

The main site entrance is assumed from the unnamed road off High Road to the South of the site adjacent to the Paxton Building. This might be the main delivery path as it serves the possibly largest site storage area.

On the west side of the site there is a further entrance/exit directly from High Road with limited space to manoeuvre and vehicle access.

The site logistics space around the proposed building is limited, given the proximity of the rear of the terrace.

The proposal of a modular or panelised system should be checked early on by a potential subcontractor against area for site storage, craneage, site welfare and deliveries.

The site will need to be fully hoarded off all around.

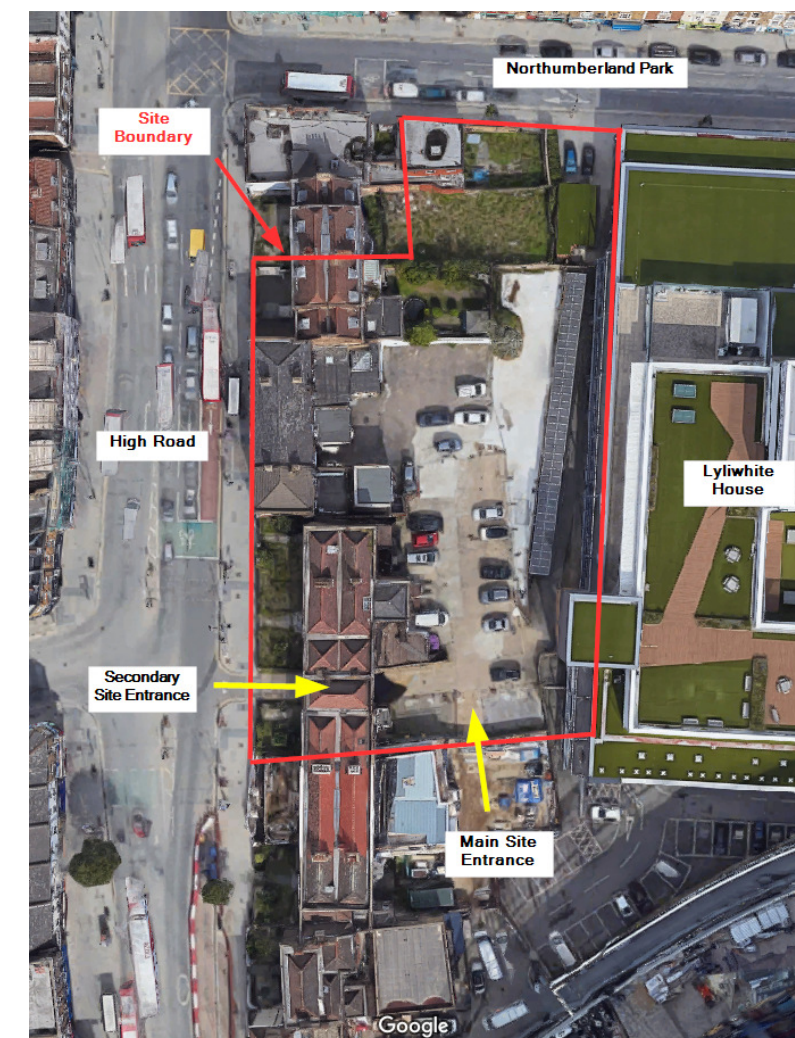


Figure 7: Site Entrance

3.5. Demolition of existing buildings

The existing rear buildings of 804-806 and 814 High Road, as highlighted in the picture below, will be demolished.



Figure 8: Plan of demolished buildings

At present there are no information on the existing structure. However, we assume that the break off of the existing building will have no impact on the surrounding structures.

Care should be taken in the demolition of the rear buildings of 804-806 High Road in order to not damage the remaining structure. All relevant protections should form part of the demolition method statement to be prepared by the demolition contractor.



Figure 9: Rear Buildings of 814 High Road



Figure 10: Rear Buildings of 804-806 High Road

4. Proposed Structure

4.1. Linear Building

The proposal consists of a four-storey building with the following main features:

- Stability RC cores and braced frame.
- Ground floor: Approx. 10m x 12m column free spaces.
- First and second floor: Open plan space to suit any future usage of the building.
- Third Floor: Building steps in by 1.5m forming mansard storey.
- Typical grid/spans proposed at about 3.7m in building length direction. Across the width a floor grid at about 10m span except at braced frame location.
- Preliminary elevations are showing brickwork cladding up to 3rd floor level and a schematic cladding arrangement up to roof level.
- A 1.1m high parapet is present along the all perimeter of the building.
- It should be noted that the column free space and steps in the building require transfer structures.

A steel frame with composite metal deck floors has been proposed as the structural option. A brief description of the structure can be found in the following pages to be read in conjunction with Stage 2 scheme drawings, see Appendix A.

4.1.1. Loading general assumptions

Load	Floors	Roof
Superimposed Dead Loads	1.5kN/m ² *	1.5kN/m ² *
Live Loads	4kN/m ² ** (Light Industrial use)	0.6kN/m ² (Maintenance access only)
Façade	10kN/m	

*Loads excluding the self-weight of the structure.

** Include an additional 1kN/m² to allow for partitions.

We understand that as the end user is not yet confirmed, there may be instances that the design imposed load for occupants would be higher than the assumed figures above. We would suggest proceeding on the basis that these users are accommodated on the ground floor.

If light industrial uses are to be accommodated on upper floors, stiffening of the superstructure would be required, either by reducing beam spacing or introducing intermediate support. However, the general principles of the structural arrangement would remain as described above.

4.1.2. Proposed Structure-Braced Steel Frame with Metal Deck floors



A flush soffit solution is proposed using 350mm deep USFB beams with 300mm deep metal deck floors supported on the bottom flange.

Stability & Propping

RC cores will be used for lateral stability along with braced frames. A braced frame requires the structure to be built from the braced bay locations out. If built from one end this may result in temporary bracing being required. To erect the envelope the diaphragm action of the floor will have to be achieved as the structure will accept lateral loads. The composite deck will require the concrete to be completed.

Robustness

The structure will be Class 2A for disproportionate collapse and provision will be achieved by adequate vertical ties. The use of a steel frame means this will be easily achieved through normal steelwork connections and the tying of the composite deck will complete the provision. Steelwork will require painting against corrosion and a maintenance programme will be required for the paint once it exceeds its design life.

Fire Protection

Steelwork has little or no integral fire protection. Any fire protection required will need to be applied through an externally applied finish or intumescent paint system. The composite deck floor will require fire bars and the deck thickness may be affected by the resistance required.

Buildability

The site logistics plan has yet to be produced but it is assumed there will be little storage space on the site. Access to the site is good and the maximum length of any structural element is between 6m and 10m. Steel is commonly accepted to be a fast method of construction, speed of construction is subjective so we leave to comment for the Main Contractor.

Long lead items

The composite deck solution is a very commonplace system and so is easy to source at shorter notice.

Sustainability

Structure forms a constituent part to the embodied energy within a building however this needs to be read in conjunction with the environmental strategy of the building. Steel and concrete both have a relatively high embodied energy in their production. In many cases it is possible to justify higher embodied energy if there is some other benefit such as thermal mass or flexibility with the structure. The steel industry points to the ability to recycle the material and there is merit in the fact that the bolted connections mean it is easy to deconstruct.

4.2.804-806 High Road

The architectural proposal consists of the refurbishment of the existing original buildings of 804-806 High Road, and a new two-storey extension with the following main features:

- Ground floor of extension: An assembly and leisure event space with curtain walling around the rear façade, opening out onto the external landscaping.
- First floor of extension: balcony audience seating and dining, with large void over ground floor.
- Roof: Terrace, with planting space around the perimeter, to be used as multifunctional space.
- Typical grid/spans proposed at about 4m in building length direction. Across the width a floor grid at about 8m span.
- The internal spaces of the existing buildings will accommodate, kitchen, bar, toilets, lift and ancillary spaces to the event space. As what is proposed will be different from the current domestic usage of the building refurbishment works will be required.

Similarly to the linear building, a steel frame with metal deck floors has been proposed. A brief description for each option can be found in the following pages to be read in conjunction with Stage 2 scheme drawings, see Appendix B.

4.2.1. Loading general assumptions

Load	Floors	Roof	Roof (Planting space)
Superimposed Dead Loads	1.5kN/m ² *	0.75kN/m ² *	10.75kN/m ² *
Live Loads	5kN/m ² (Dance Halls)	5kN/m ² (Dance Halls)	0.6kN/m ² (Maintenance access only)
Façade	5kN/m		

*Loads excluding the self-weight of the structure.

4.2.2. Proposed Structure-Braced Steel Frame with Metal Deck floors



Composite deck can generally span circa 3-4m, propping during construction might be required for longer span or secondary beams to break up the slab. A single span deck with single span slab solution is proposed spanning between 500mm deep steel beam.

Stability & Propping

Stability frames will be used for the lateral stability of the rear extension. A braced frame requires the structure to be built from the braced bay locations out. If built from one end this may result in temporary bracing being required. To erect the envelope the diaphragm action of the floor will have to be achieved as the structure will accept lateral loads. The composite deck will require the concrete to be completed.

Robustness

The structure will be Class 2A for disproportionate collapse and provision will be achieved by adequate vertical ties. The use of a steel frame means this will be easily achieved through normal steelwork connections and the tying of the composite deck will complete the provision. Steelwork will require painting against corrosion and a maintenance programme will be required for the paint once it exceeds its design life.

Fire Protection

Steelwork has little or no integral fire protection. Any fire protection required will need to be applied through an externally applied finish or intumescent paint system. The composite deck floor will require fire bars and the deck thickness may be affected by the resistance required.

4.3. Stairs, Landings and Secondary elements

Stairs and landings can be formed of any desired structural material and will most likely follow the chosen super structure. Pre-fabricated elements need longer lead times and are less accommodating of late changes.

Secondary elements, such as- envelope supports, riser enclosures, trimmers etc. are not shown at the concept design stage and appropriate cost allowance should be made.

4.4. Service integration strategy

Generally it is the intention that horizontal services will be running underneath the steel beams in the USFB options, or underneath the steel of the deeper UB options.

Horizontal services in the ground will run underneath the ground floor slab and will rise through discrete vertical holes. Where they connect to the slab or pass through ground beams they should be fitted with flexible connections to avoid failing due to ground movement.

The vertical service runs in the building will pass through allocated risers. Care should be taken where these are located adjacent to shear walls not to “cut off” a possible load distribution to the vertical stability element.

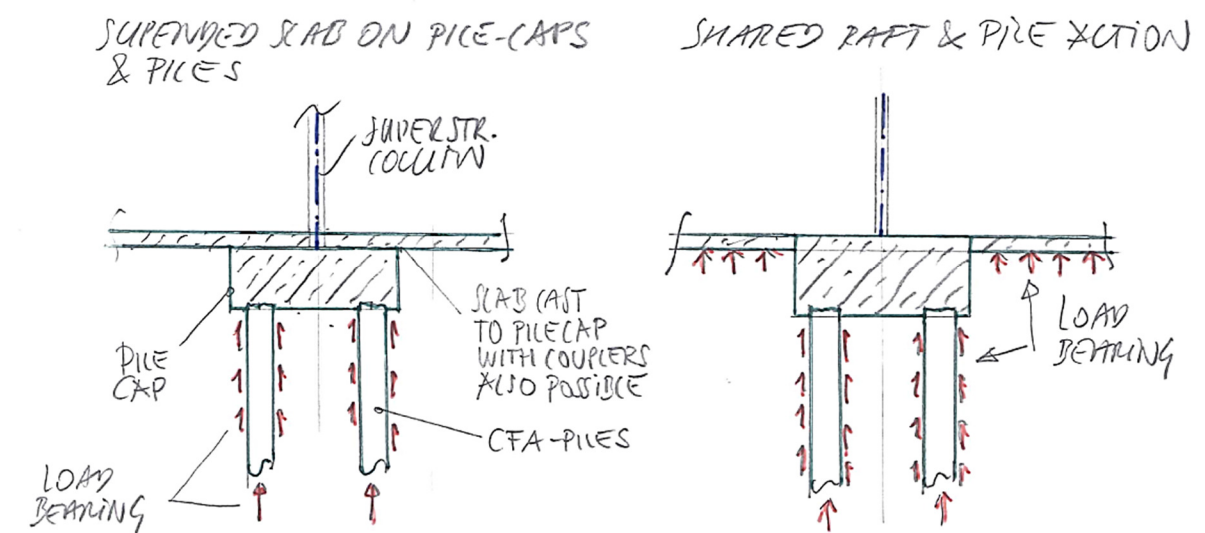
4.5. Foundations

Based on the geotechnical information received a suspended piled raft solution seems to be appropriate at this stage. A shallow foundation concept would be very speculative at the moment.

A typical CFA piled solution where pile caps under columns lie below the suspended slab is generally considered feasible.

Given the possibility of the presence of suitable loadbearing gravels within the superficial deposits a combination of a ground bearing raft and piled solution might be achievable.

The floor slab will be cast on top of previously cast pile caps being suspended or partially ground bearing if ground conditions are proven to be sufficient.



5. Temporary Works

In accordance with our responsibilities as a designer under the CDM regulations our general strategy for construction of the structure has been to minimise the amount of temporary works and complex transfer structures.

The Contractor shall be responsible for the design, fabrication, erection and removal of all temporary works, and shall when requested provide details of his proposals prior to the commencement of the works.

Significant or unusual hazards within the design which we have been unable to remove include the following:

Work in excavations, principally pile caps and lift pits: sufficient temporary shoring should be provided where necessary, with most excavation assumed to be carried out using mechanical excavators. Detailed checks for buried services will also be necessary prior to any excavation work.

Working at height: Sockets and eyes for simple man safe and temporary balustrade connection should be provided as appropriate.

6. Design Parameters

6.1. Codes / Standards

The structural design of the new buildings will be completed to the current suite of Eurocode Standards; with the UK National Annexes key documents are summarized below in Table 1.

Document	Description	National annex Reference
BS EN 1990:2002+A1:2005	Eurocode 0: Basis of structural design	NA to BS EN 1990-1-1 2005
BS EN 1991 - Part 1: 2002 Part 3: 2003 Part 4: 2003 Part 6: 2006 Part 7: 2006	Eurocode 1: Actions on structures Imposed Loads on Structures Snow Loads on Structures Wind Loads on Structures Actions on Structures During Execution Accidental Actions	NA to BS EN 1991-1-1 2002 NA to BS EN 1991-1-3 2003 NA to BS EN 1991-1-4 2005 NA to BS EN 1991-1-6:2005 NA to BS EN 1991-1-7:2006
BS EN 1992 - Part 1: 2004 Part 3: 2006	Eurocode 2: Concrete Design General Rules for Buildings Liquid Retaining and Containing Structures	NA to BS EN 1992-1-1:2004 NA to BS EN 1992-3:2006
BS EN 1991 - 1 - Part 1: 2005 Part 8: 2005	Eurocode 3: Steel Design General Rules for Buildings Design of Joints	NA to BS EN 1993-1-1:2005 NA to BS EN 1993-1-8:2005
BS EN 1997 Part 1: 2004	Eurocode 7: Geotechnical Design General Rules	NA to BS EN 1997-1:2004
BS 8500-1/2 :2002	Concrete Specification	
BS 8002	Earth Retaining Structures	
BS 8102	Protection of Structures Against Ground and Water	

Table 1: Summary of key Document

6.2. Deflections

The deflection limits in accordance to the current Eurocode Standard recommendations and thresholds will be followed unless other information will be submitted from the client.

The deflection limits for a simply supported beam in accordance with the current suite of Eurocode Standards are as follows:

Timber

Beams under characteristic dead and imposed load	Span/250
Cantilevering Beams under characteristic dead and imposed load	Span/125
Beams under characteristic imposed live load	Span/360
Cantilevering Beams under characteristic imposed load	Span/180

Steelwork

Beams under characteristic dead and imposed load	Span/250
Cantilevering Beams under characteristic dead and imposed load	Span/125
Beams under characteristic imposed live load	Span/360
Cantilevering Beams under characteristic imposed load	Span/180

Horizontal Deflections

Horizontal deflections of Buildings	Storey Height/300
-------------------------------------	-------------------

6.3. Vibrations

Vibration is checked using the natural frequency limits for steel.

The natural frequency limit of a structure is closely linked to the function of the room it is supporting. The Eurocodes does not give a clear limit for each type of structure, instead it gives a range and is open for interpretation. Lyons O'Neill have assumed the following natural frequency limits:

- Steel structures supporting -4Hz

7. Legal classification New Buildings

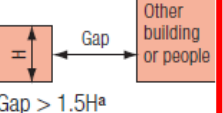
With respect to BSEN1990 the building can be classified as **CC2**:

Table B1 - Definition of consequences classes

Consequences Class	Description	Examples of buildings and civil engineering works
CC3	High consequence for loss of human life, or economic, social or environmental consequences very great	Grandstands, public buildings where consequences of failure are high (e.g. a concert hall)
CC2	Medium consequence for loss of human life, economic, social or environmental consequences considerable	Residential and office buildings, public buildings where consequences of failure are medium (e.g. an office building)
CC1	Low consequence for loss of human life, and economic, social or environmental consequences small or negligible	Agricultural buildings where people do not normally enter (e.g. storage buildings), greenhouses

Further with respect to BS EN 1991-1-7 the building can be categorised as **2A-type**:

Table 4.1 Building classes based on building type, number of storeys and occupancy

Building type	Building Class			
	1	2A	2B	3
Agricultural	All			
Buildings into which people rarely go				
Houses	1 – 4	5 (single occupancy)	6+ ^b	
Hotels, flats and other residential buildings		1 – 4	5 – 15	16+
Offices		1 – 4	5 – 15	16+
Retail		1 – 3 and < 2000m ² (1000m ² in EN) floor area per storey	4 – 15 and < 2000m ² (no area limit in EN) floor area per storey	16+ or > 2000m ² floor area per storey
Buildings to which public are admitted		1 – 2 and < 2000m ² floor area per storey	< 5000m ² floor area per storey	> 5000m ² floor area per storey (significant numbers in EN)
Educational		1	2 – 15	16+
Car parks			1 – 6	7+
Hospitals			1 – 3	4+
Industrial		1 – 3 and not containing hazardous substances/ processes		4 or containing hazardous substances/ processes
Grandstands (stadia in EN)				> 5000 spectators

Notes

^a H is height of building being considered. For buildings not meeting this requirement, treat as a building from the most appropriate use, often industrial.

^b Any building of 6 storeys (even if nominally single occupancy, is better assigned to Class 2B).

^c This table re-arranges the listing in Table 11 of AD-A^{4.3}

The design working life for the building has been defined for 50 years. (NA to BS EN 1990)

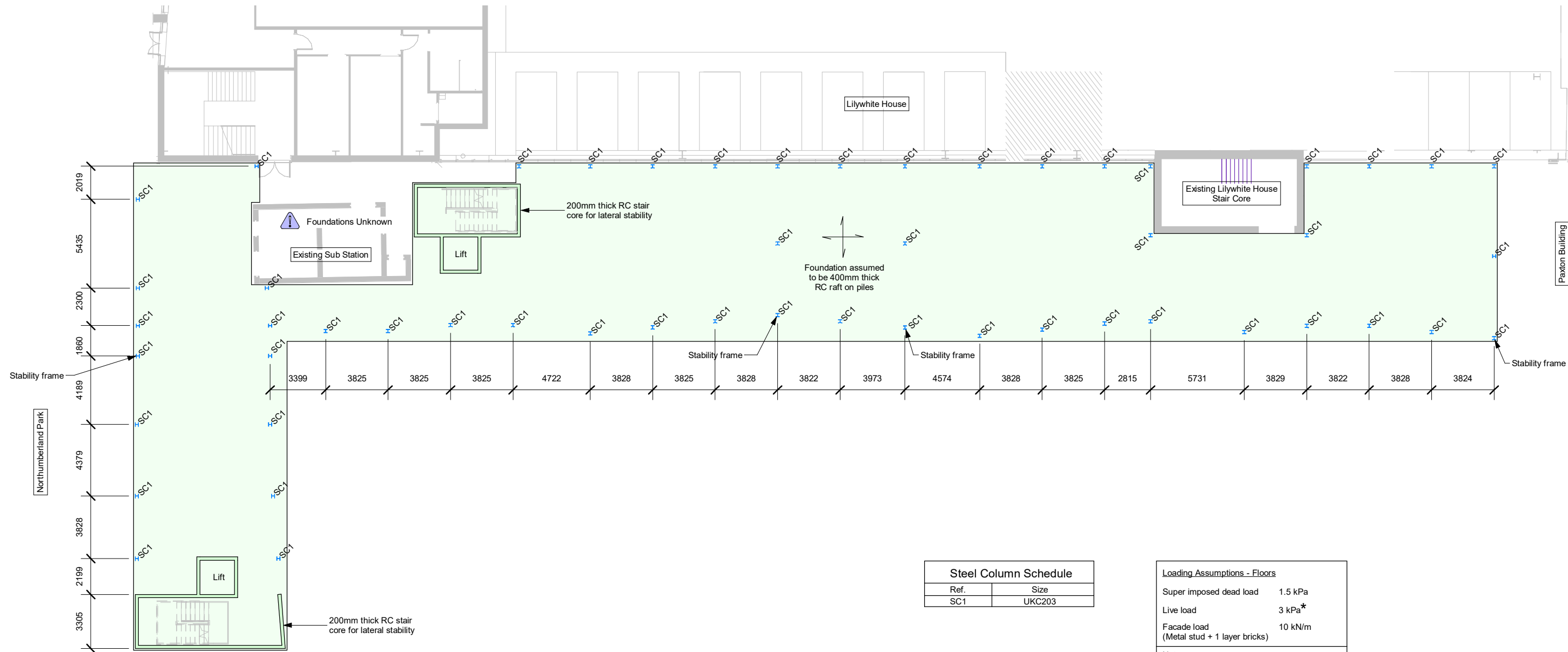
Table NA.2.1 — Indicative design working Life

Design working life category	Indicative design working life (years)	Examples
1	10	Temporary structures ^a
2	10 to 30	Replaceable structural parts, e.g. gantry girders, bearing
3	15 to 25	Agricultural and similar structures
4	50	Building structures and other common structures, not listed elsewhere in this table
5	120	Monumental building structures, highway and railway bridges, and other civil engineering structures

^a Structures or parts of structures that can be dismantled with a view of being re-used should not be considered as temporary.

Appendix A

Linear Building Proposed Drawings



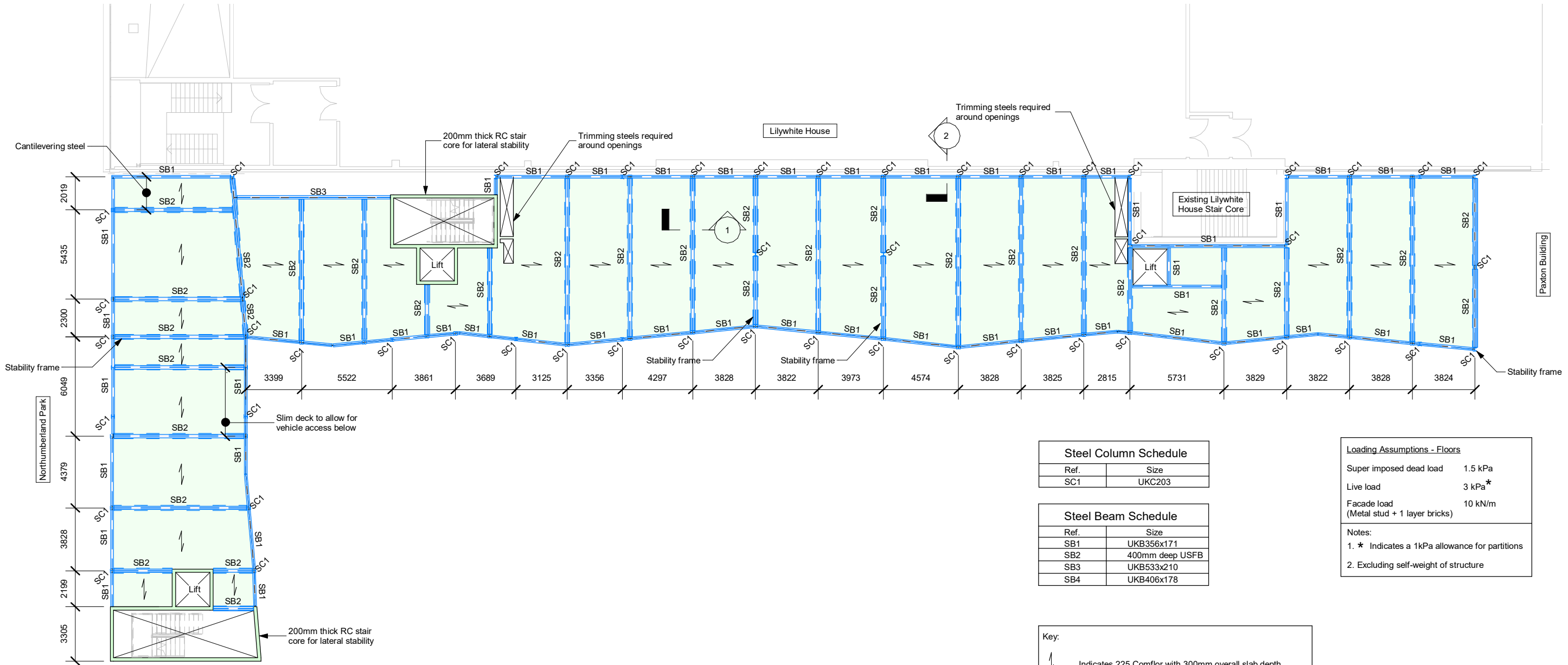
Steel Column Schedule	
Ref.	Size
SC1	UKC203

Loading Assumptions - Floors	
Super imposed dead load	1.5 kPa
Live load	3 kPa*
Facade load (Metal stud + 1 layer bricks)	10 kN/m
Notes:	
1. * Indicates a 1kPa allowance for partitions	
2. Excluding self-weight of structure	

Ground Floor GA

1 : 250

General Notes 1. This drawing is to be read in conjunction with all relevant Architect's and engineers drawings and specifications. 2. This drawing is only to be scaled from for the purposes of estimating and approximate sizing only. If exact dimensions are relied upon, written dimensions supercede any scaled dimension. Overall setting out is to Architect's details and this drawing therefore should be read in conjunction with their information. 3. All waterproofing, drainage, levels and finishes by others. 4. All temporary works by others. 5. Fire protection to Architect's details. 6. All dimensions are in mm unless noted otherwise. 7. All levels are in m unless noted otherwise	Stage 2 - Concept Design Status	P01 Issued for stage 2 Rev Comments	24/02/20 Date	SM Checked	 5 Maidstone Mews 72-76 Borough High Street London SE1 1GN +44 (20) 7223 7222 info@lyonsoneill.co.uk lyonsoneill.co.uk	Project THFC Northern Studios	LON Project No. - 19068
						Scale @ A3 As indicated	Date Feb '20
						Subject Ground Floor GA	By SK
						Drawing No. 19068-LON-V1-00-DR-S-1000	Checked SM Rev P01

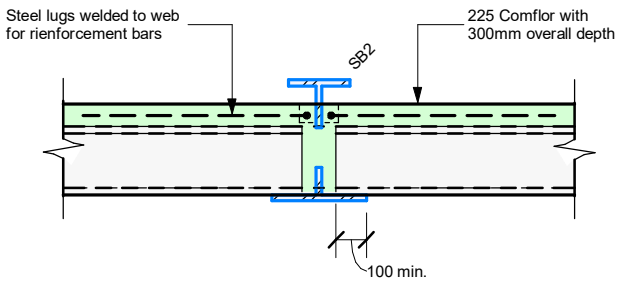


Steel Column Schedule	
Ref.	Size
SC1	UKC203

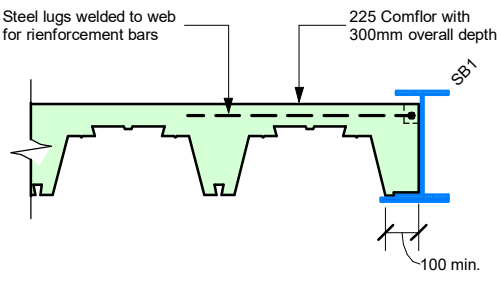
Steel Beam Schedule	
Ref.	Size
SB1	UKB356x171
SB2	400mm deep USFB
SB3	UKB533x210
SB4	UKB406x178

Loading Assumptions - Floors	
Super imposed dead load	1.5 kPa
Live load	3 kPa*
Facade load (Metal stud + 1 layer bricks)	10 kN/m
Notes: 1. * Indicates a 1kPa allowance for partitions 2. Excluding self-weight of structure	

Key:	
	Indicates 225 Comflor with 300mm overall slab depth
	Indicates 50x200mm deep C24 timber joist @ 400mm c/c



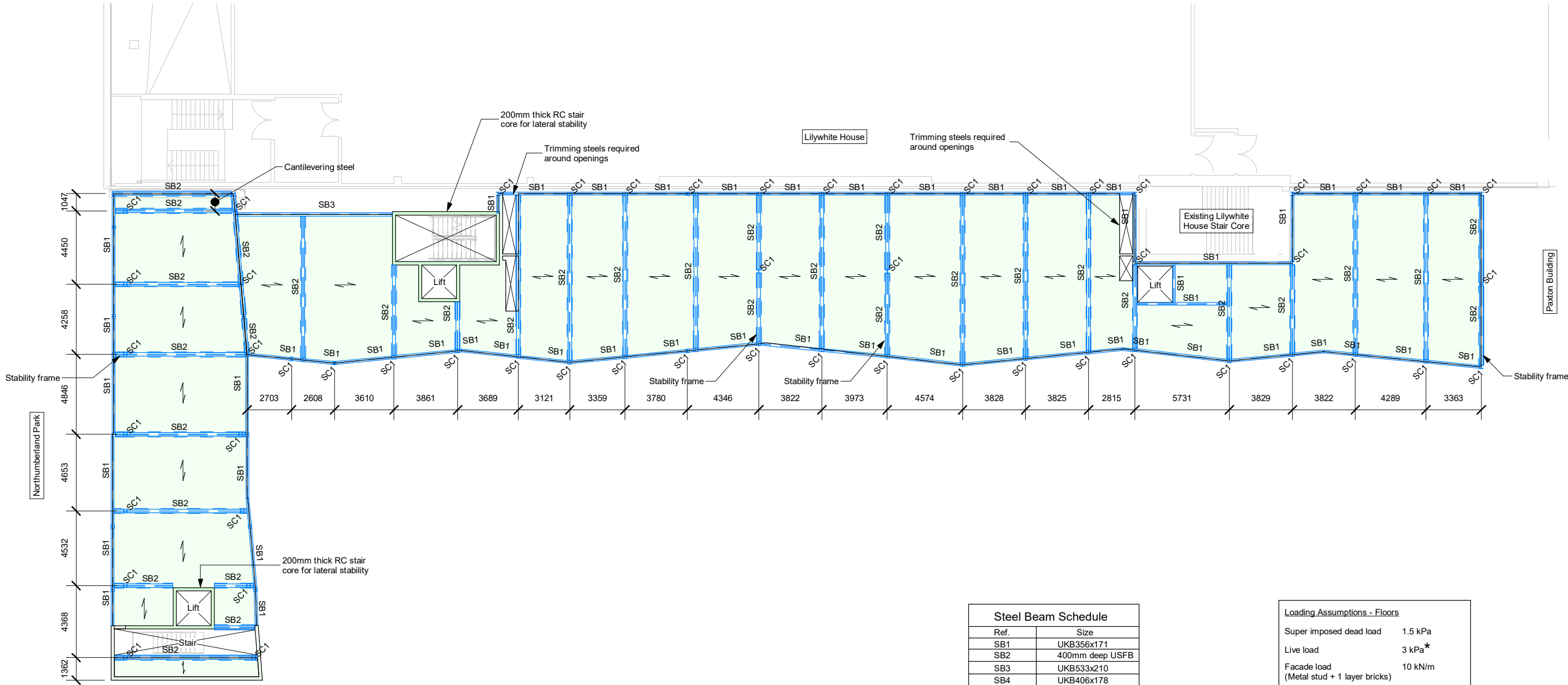
1- Typical Internal Detail
1 : 25



2- Typical Edge Detail
1 : 25

First Floor GA
1 : 250

General Notes 1. This drawing is to be read in conjunction with all relevant Architect's and engineers drawings and specifications. 2. This drawing is only to be scaled from for the purposes of estimating and approximate sizing only. If exact dimensions are relied upon, written dimensions supercede any scaled dimension. Overall setting out is to Architect's details and this drawing therefore should be read in conjunction with their information. 3. All waterproofing, drainage, levels and finishes by others. 4. All temporary works by others. 5. Fire protection to Architect's details. 6. All dimensions are in mm unless noted otherwise. 7. All levels are in m unless noted otherwise	Stage 2 - Concept Design Status	P01 Issued for stage 2 Rev Comments	24/02/20 Date	SM Checked	 5 Maidstone Mews 72-76 Borough High Street London SE1 1GN +44 (20) 7223 7222 info@lyonsoneill.co.uk lyonsoneill.co.uk	Project THFC Northern Studios	LON Project No. - 19068
						Scale @ A3 As indicated	Date Feb '20
						By SK	Checked SM
						Subject First Floor GA	Rev 19068-LON-V1-01-DR-S-1100 P01



Steel Beam Schedule	
Ref.	Size
SB1	UKB356x171
SB2	400mm deep USFB
SB3	UKB533x210
SB4	UKB406x178

Steel Column Schedule	
Ref.	Size
SC1	UKC203

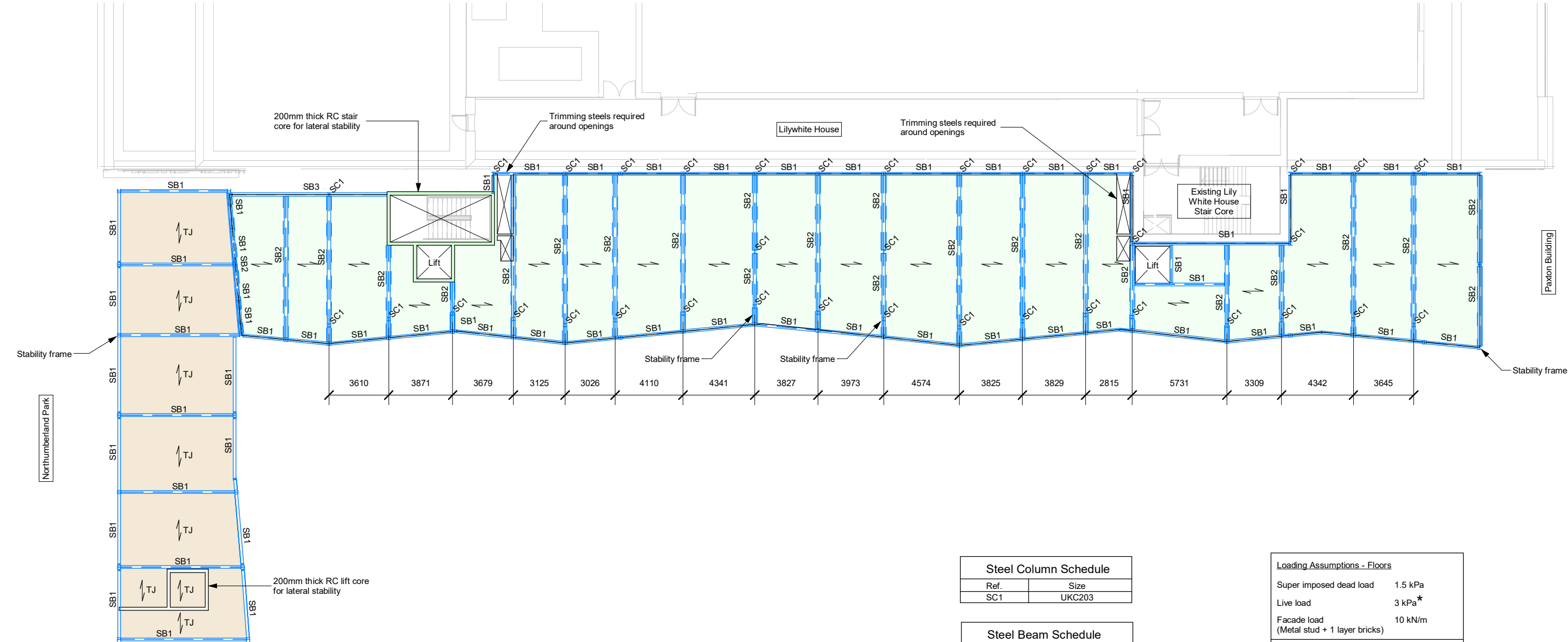
Loading Assumptions - Floors	
Super imposed dead load	1.5 kPa
Live load	3 kPa*
Facade load (Metal stud + 1 layer bricks)	10 kN/m
Notes:	
1. * Indicates a 1kPa allowance for partitions	
2. Excluding self-weight of structure	

Key:	
	Indicates 225 Comflor with 300mm overall slab depth
	Indicates 50x200mm deep C24 timber joist @ 400mm c/c

Second Floor GA

1 : 250

General Notes 1. This drawing is to be read in conjunction with all relevant Architect's and engineers drawings and specifications. 2. This drawing is only to be scaled from for the purposes of estimating and approximate sizing only. If exact dimensions are relied upon, written dimensions supercede any scaled dimension. Overall setting out is to Architect's details and this drawing therefore should be read in conjunction with their information. 3. All waterproofing, drainage, levels and finishes by others. 4. All temporary works by others. 5. Fire protection to Architect's details. 6. All dimensions are in mm unless noted otherwise. 7. All levels are in m unless noted otherwise Status	P01 Issued for stage 2 Rev Comments			24/02/20 Date	SM Checked	Lyons O'Neill Structural Engineers 5 Maidstone Mews 72-76 Borough High Street London SE1 1GN +44 (20) 7223 7222 info@lyonsoneill.co.uk lyonsoneill.co.uk	Project THFC Northern Studios	LON Project No. - 19068 Scale @ A3 As indicated	Date Feb '20	Subject Second Floor GA	By SK	Checked SM	Drawing No. 19068-LON-V1-02-DR-S-1200	Rev P01
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Steel Column Schedule	
Ref.	Size
SC1	UKC203

Steel Beam Schedule	
Ref.	Size
SB1	UKB356x171
SB2	400mm deep USFB
SB3	UKB533x210
SB4	UKB406x178

Key:	
	Indicates 225 Comflor with 300mm overall slab depth
	Indicates 50x200mm deep C24 timber joist @ 400mm c/c

Loading Assumptions - Floors	
Super imposed dead load	1.5 kPa
Live load	3 kPa*
Facade load (Metal stud + 1 layer bricks)	10 kN/m
Notes:	
1. * Indicates a 1kPa allowance for partitions	
2. Excluding self-weight of structure	

Loading Assumptions - Roof	
Super imposed dead load	1.5kPa
Live load (No access except maintenance)	0.6kPa
Notes:	
1. Excluding self-weight of structure	

Third Floor GA

1 : 250

General Notes 1. This drawing is to be read in conjunction with all relevant Architect's and engineers drawings and specifications. 2. This drawing is only to be scaled from for the purposes of estimating and approximate sizing only. If exact dimensions are relied upon, written dimensions supercede any scaled dimension. Overall setting out is to Architect's details and this drawing therefore should be read in conjunction with their information. 3. All waterproofing, drainage, levels and finishes by others. 4. All temporary works by others. 5. Fire protection to Architect's details. 6. All dimensions are in mm unless noted otherwise. 7. All levels are in m unless noted otherwise																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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