

### **Notes**

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Α	13/06/2025	Costing	AM	AW	AW
Rev	Date	Amendment	Dra	Rev	App

Suitable for Information

The Harlington, Fleet SDE02035

Ground Floor Plan - Initial Costing

Option 2	
Drawn	Status
AM	Construction
Reviewed	Date
AW	13/06/2025
Approved	Scale
AW	NTS
02035-SDE- 00-	GF- SK- S- 1201 S2 A

### **Proposed Structural Works**

Box frame steel structure to re-support upper floors of library following removal of existing columns at ground floor.

- Allow for pre-camber of new box frames
- 3no. columns at ground floor to support mezzanine floor over. New footings to each column.
- Allow for underpinning of existing foundations around perimeter of auditorium to support hung mezzanine balconies, to be verified through investigation
- Strengthening of slab to support additional load from stored retractable seating unit
- RC lintels in all new openings 800-1800mm wd. & steel beam lintels in openings exceeding 1800mm.

### Assumptions

- Existing masonry wall surrounding main theatre space can sufficiently support additional loading from mezzanine and technical galleries
- Ground floor slab is insufficient to support new loads from column and thus, new footings are required. This can be verified through further geotechnical testing.
- Existing columns / walls are present within library space and can be reused to support new structure in this space

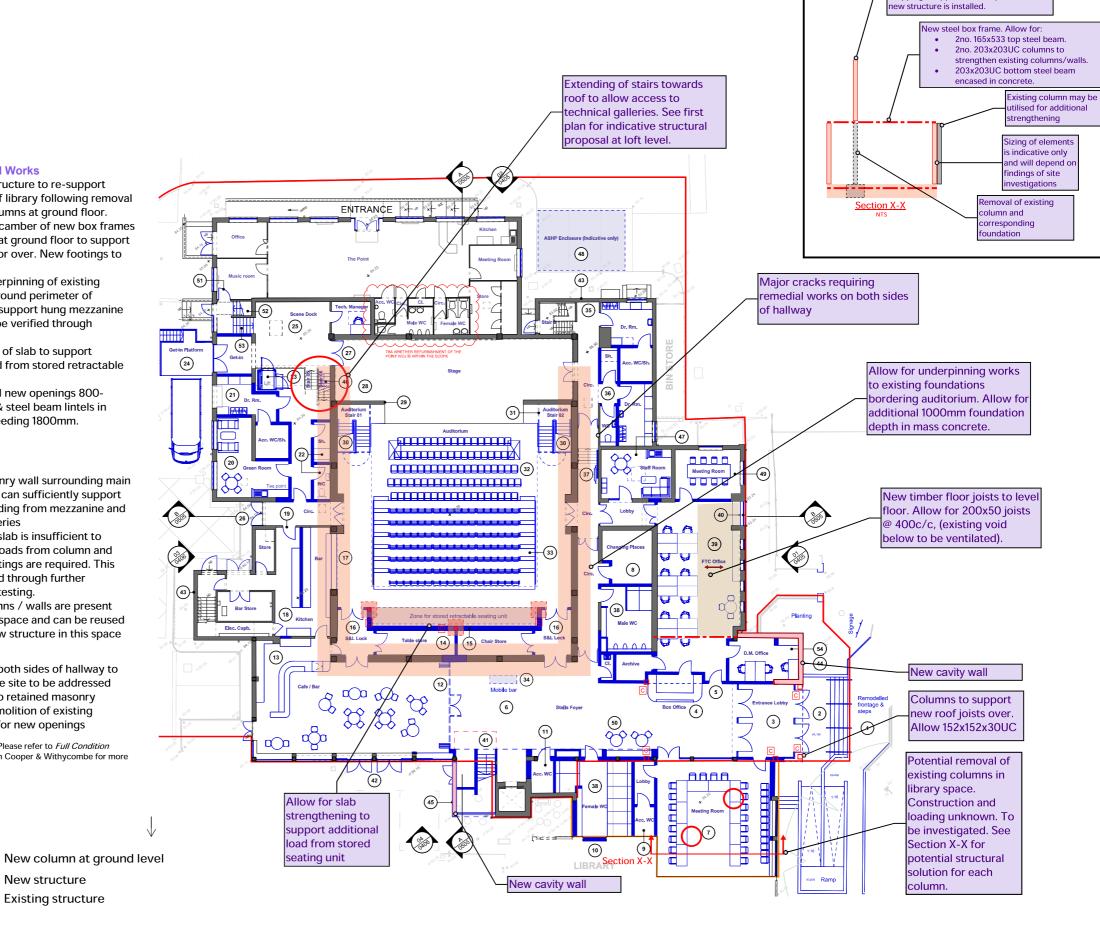
### Remedial works

- · Cracking on both sides of hallway to the east of the site to be addressed
- Make good to retained masonry following demolition of existing masonry i.e. for new openings

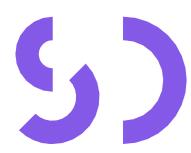
This list is not exhaustive. Please refer to Full Condition Survey, January 2020 from Cooper & Withycombe for more

New structure

Existing structure



Retained column at upper level. Construction and loading unknown ropping of upper floors required until



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Rev	Date	Amendment	Dra	Rev	App

Suitable for Information

The Harlington, Fleet SDE02035

Mezzanine Floor Plan - Initial Costing Option 2

Drawn	Status
AM	Costing
Reviewed	Date
AW	13/06/2025
Approved	Scale
AW	NTS

02035-SDE- 00- M1- SK- S- 1202 S2 A

Steel trimming to form void for new stair extension and support existing roof trusses. Allow 203x203 UC's. Allow for straps across existing ceiling joists to reinstate tie action in roof trusses & new padstones

(13)

5

(3)

Main balcony structure comprising

steel beams. Central steel beam to

254x102x28 UB beams, 100x100x5.0

be hung to steel truss over. Allow for 47x200 joists @ 300c/c,

SHS columns and Macalloy

approved.

threaded tension bars or similar

timber floor joists supported by

(4)

FFL + 1m

FFI + 1 8m

New timber floor to form technical gallery. Allow 47mm wd. x 150dp @ 400c/c supported on 152x89x16UB with new padstones.

(1)-

Allow for 150x75x19PFC fixed

support following demolition of

horizontally to retained

outer leaf of wall

masonry to provide lateral

### **Proposed Structural Works**

- New timber floor joists supported on new steel beam to form technical gallery
- New proscenium beam to support new beams directly above stage
- New padstone / steel spreader beam to support proscenium beam at both ends
- New timber floor joists to form mezzanine to rear of auditorium space supported on steel beams, steel columns & hanger rods
- New roof structure over office space including new courses of masonry to form increase in storey height
- New floor structure and steel framing in multi-purpose studio
- New roof support following cutting of existing trusses to allow for stair extension
- RC lintels in all new openings 800-1800mm wd. & steel beam lintels in openings exceeding 1800mm.

### Assumptions

- Existing masonry wall surrounding main theatre space can sufficiently support additional loading from mezzanine and technical galleries
- Overhead lighting rig within stage area to be supported on steel grillage, not on timber roof joists.

### Remedial works

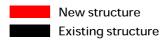
 Make good to retained masonry following demolition of existing masonry i.e. for new openings

This list is not exhaustive. Please refer to Full Condition Survey, January 2020 from Cooper & Withycombe for more



All structural solutions subject to investigations and full design at RIBA Stage 2

> From information provided, imposed loadings of proposed development are not expected to exceed existing imposed loadings



New beams above stage with increased span with new padstones / steel following repositioning of proscenium beam. Stub spreader beams following columns included to account for height difference demolition of existing between beams. Allow for 152x152x23UC beams, supporting masonry piers 100x100x5.0 SHS columns and new padstones along existing masonry wall. New steel columns bearing

onto existing concrete ring

New masonry

for increase in

storey height

peam with baseplate

connections

New beam above proscenium

(11)

'Wrapping' balcony structure comprising timber floor joists supported by steel beams. Steel peams are hung to steel trusses over. Allow for 47x175 joists @ 300c/c, 203x203x46 UC edge beams and Macalloy threaded tension bars or similar approved.

New roof structure following removal of columns at ground evel. Allow for 203x203x46UC beams and 47x200 @ 300c/c joists.

New columns and beams to

support new roof. Allow for

152x89x16UB beams and

152x152x30UC columns. Allow 47x150 timber roof ioists @ 400c/c. New steel frames on either side of studio to support columns over. Allow for

203x203x46UCs for beams and columns New steel floor

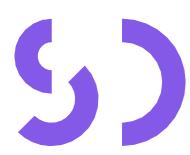
305x165x40UBs. New masonry

beams supporting existing slab. Allow

New steel floor beams following removal of columns under. Refer to Section X-X on GF plan for more information

9

4th Floor, 1 Throgmorton Avenue London, EC2N 2JJ sd-engineers.com 020 8144 8900



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Α	13/06/2025	Costing	AM AW AW
Rev	Date	Amendment	Dra Rev App

S2 Suitable for Information	
The Harlington, Fleet	

## Roof Plan - Initial Costing

Drawn	Status
AM	Information
Reviewed	Date
AW	13/06/2025
Approved	Scale
AW	NTS

02035-SDE- 00- RF- SK- S- 1203 S2 A
Project Orig Vol Lev Typ Rol No Status Rev

Proposed Structural Works
• Removal of existing jo

- Removal of existing joists & replacement with new 75wd x 250dp. C24 timber joists @ 300c/c
- Removal of existing laminated timber roof beams with replacement with new steel trusses of 1.0m depth
- Removal of existing timber posts supporting timber roof beams and replacement with new steel posts.
- New short spanning steel beams above auditorium space to support new overhead lighting rig system
- New steel trimming out at eaves level to form void for upward extension of existing stairs
- New localised roof structures in wraparound buildings

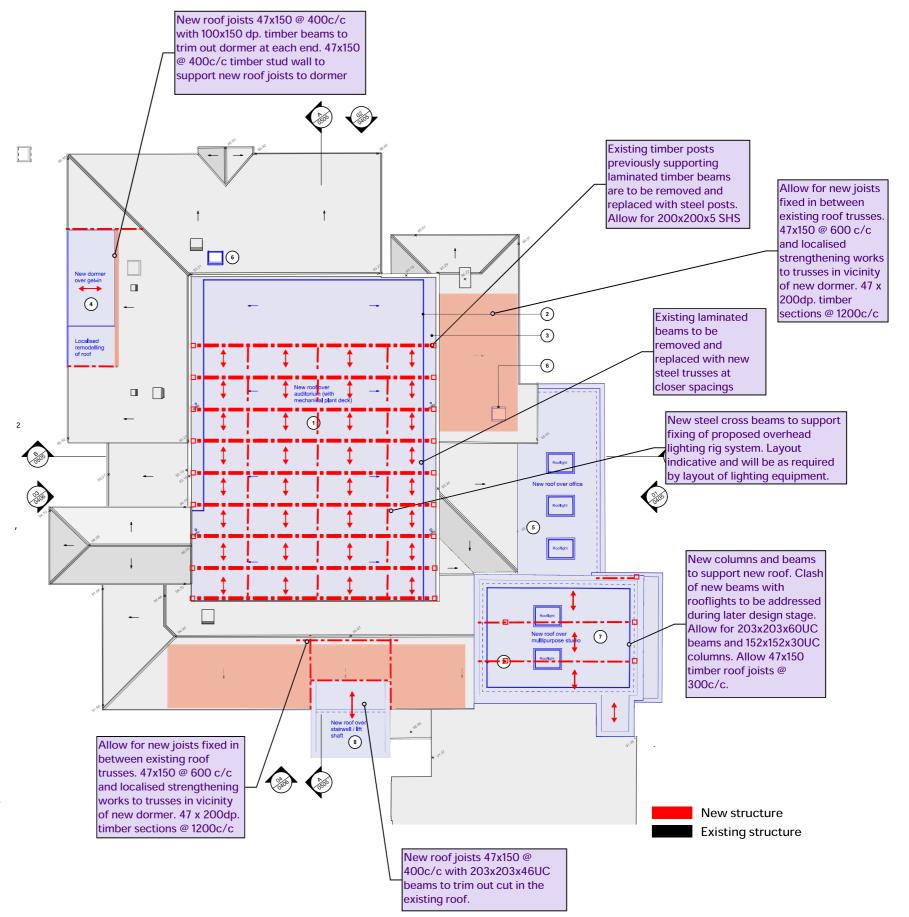
### Assumptions

- New plant is contained within roof area directly above auditorium space i.e. no plant is proposed to be located in roof area above stage area
- Plant loading assumed to be 1.50kN/m (dead)
- Roof joists designed for 6mm deflection limit as per requirements for plant equipment
- Loadings for the proposed overhead lighting rig have been extracted from Structural Loading - Initial Information April 2025 from CharcoalBlue. Layout & positioning of fixings have been assumed.
- Overhead lighting rig within stage area to be supported on steel grillage, not on timber roof joists.
- Existing woodwall slabs are sufficient to support new insulation layer such that new structure/strengthening is not required.
- Where loads are deemed light, existing concrete columns are assumed to be able to support new structural elements
- Existing concrete ring beam around auditorium space is sufficient to take additional loads from new columns supporting new trusses

### Remedial works

 Remedial works to woodwool slabs to allow installation of new insulation over

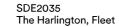
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4th Floor, 1 Throgmorton Avenue London, EC2N 2JJ sd-engineers.com 020 8144 8900



# Next Steps



Date 20/06/2025



1

# Refining the proposals

It is intended that the information provided in this report will allow for the refinement of the architectural proposals to produce a 'best-fit' scheme. Subsequently, an efficient structural solution can be developed further in which the architectural proposals can be considered holistically instead of piecemeal.

2

# Intrusive structural investigations

As outlined in structural drawings presented in this report, several assumptions had to be made in the absence of information on the existing condition and construction of the existing structure. While the conditions survey prepared by Cooper & Withycombe provided some information in regard to the existing structure, more detail investigations are required to better understand the design parameters which will govern the structural design in the later stages of this project. Intrusive investigations anticipated based on the current proposals are as follows:

- Trial pits internally to confirm the foundations to the auditorium and ground slab build up
- Concrete testing and rebar survey for the perimeter concrete columns and ring beam
- Access to trussed rafter roofs and survey of structural arrangement to inform modifications
- Opening up of the library 'under croft' structure and current external wall structural arrangement to inform column removal and modification here

3

# Wider project team consultations

The architectural criteria have been a key driving force in the preparation and evaluation of the various structural schemes. However, it is appreciated that other disciplines of the project design will also have implications on the structure and should be accounted for as early as possible. In particular, for a project of this scale and function, M&E and fire requirements are likely to play a key role in the development of the structural design. Consequently, interdisciplinary coordination is vital in the next stage.

# Appendix A

# The Harlington, Fleet

# Auditorium Roof Strengthening Options

SD Engineers Project Referenc

**SDE2035** 

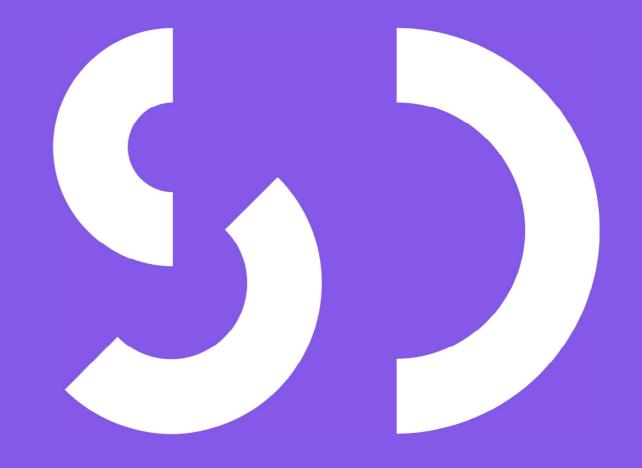
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**Revision Number** 

A

Document Reference





# Introduction

