

# Structural Strategy

## Clarendon Centre, Oxford

December 2020

Doc Ref: 5140-WAL-ZZ-SW-RP-S-7004  
Rev01

**LOTHBURY**  
Investment  
Management

Client  
Lothbury  
Investment  
Management Ltd



Architect  
MCA  
54a High  
Pavement  
Nottingham



Engineer  
Walsh  
32 Lafone Street  
London  
SE1 2LX



THIS PAGE IS INTENTIONALLY LEFT BLANK

## Structural Strategy

# Clarendon Shopping Centre, Oxford

Walsh have prepared this report in accordance with the instruction of our client, Lothbury Investment Management.

The report is for the sole and specific use of the client, and Walsh shall not be responsible for any use of this report or its contents for any purpose other than that for which it was prepared and provided. Should the Client require to pass copies of this report to other parties for information, then no professional liability or warranty shall be extended to other parties by Walsh in this connection without the explicit agreement thereto by Walsh.

Revision	Date	Notes	Prepared by	Checked by	Approved by
P01	16/12/20	First Issue	SP		

# Contents

<b>1. Introduction.....</b>	<b>15</b>
<b>2. Site Description.....</b>	<b>15</b>
<b>3. Phasing.....</b>	<b>15</b>
<b>4. Existing Site Analysis .....</b>	<b>16</b>
4. 1. Existing storey heights .....	16
4. 2. Existing Structure.....	16
<b>5. Proposed Masterplan .....</b>	<b>17</b>
5. 1. Refurbishment vs. Newbuild.....	17
5. 1. 1. Refurbishment.....	18
5. 1. 2. Newbuild.....	18

## 1. Introduction

Walsh Associates have been appointed by Lothbury Investment Management, as consultant Structural and Civil Engineers for Clarendon Shopping Centre, Oxford. The purpose of this report is to discuss the various phases of the development with regards to existing and proposed structures, along with outlining the structural strategy to assist with the masterplan application.

## 2. Site Description

Clarendon Shopping Centre is situated in the heart of Oxford City centre. Situated to the southeast of the site is the 23m high Carfax belltower, which is the tallest building in the vicinity of the shopping centre and once formed part of a 12th century church. The site is bound by Cornmarket Street to the East, Queen Street to the South and Frewin Court to the North. Shoe Lane mall, Cornmarket Mall and Queen Street Mall currently provide the shopping centre's main thoroughfares and it is intended to maintain these main routes as part of the proposed masterplan.

The site was originally occupied during medieval times by a pub and hotel structures, prior to their demolition in 1957 to make way for an office building; Clarendon House and a Woolworths store. The shopping centre structure has since undergone numerous structural alterations to accommodate various retailers such as Littlewoods, Gap, Zara, H&M and TK Maxx.

A geotechnical site investigation by Soil Consultants Ltd carried out in 1999 indicated that the site stratigraphy comprises a moderately thick made ground layer overlying River Terrace Deposits which overlies Oxford Clay.

## 3. Phasing

The masterplan is proposed to be constructed within 3 different phases, as summarised below;

- Phase 1
  - Refurbishment of the H&M structure.
  - Part-demolition of the shopping centre to form half of the New Square
  - Demolition of existing shopping centre facing Queen Street and construction of new piled 5-storey RC frame
  
- Phase 2
  - Part-demolition of shopping centre North of Barclays Bank and in the area forming the New Square and new frame construction for student accommodation adjacent to the Barclays Bank Building.
  - Refurbishment of the retained TK Maxx (former Clarendon House) frame for student accommodation and offices
  
- Phase 3
  - Demolition of existing shopping centre.
  - Construction of new 5-storey frame and single storey basement for Offices.

## 4. Existing Site Analysis

### 4.1. Existing storey heights

The existing shopping centre varies between 1 – 5 storeys in height. The former Clarendon House structure to the North of the site is the taller part of the building, with the southern part of the site being primarily 2 storeys. An area of the shopping centre, indicated in Figure 3-1, was demolished in 2012 and a 3-storey Reinforced Concrete (RC) frame was constructed here to accommodate the clothing retailer, H&M.

### 4.2. Existing Structure

Historical structural and drainage drawings indicate the original structure comprises precast concrete floors supported on beams and columns that may be concrete encased. The superstructure is thought to be supported on a network of pad foundations and ground beams. At intersections of ground beams, circular symbols roughly centred beneath columns or walls may indicate locations of piles. The archaeological report from surveying carried out during the construction of Clarendon House suggests the original foundations are typically 15ft (4.6m).

The 2012 refurbishment work for H&M involved the demolition of the original structure to make way for a new 3 storey RC frame. The H&M structure comprises a reinforced concrete frame supported on deep foundations with piles typically 400mm diameter. Along the Northern, Easter and Southern elevations of the RC frame, the new building was tied into the original structure by the introduction of supporting steelwork. Any proposed demolition and structural works in these areas will need to carefully consider the history of structural work carried out at these junctions.



Figure 1 Existing buildings and storey heights

## 5. Proposed Masterplan

Consideration is being made by Lothbury for the regeneration of the Clarendon Shopping Centre site into a mixed-use development. The masterplan proposes to deliver a combination of;

- Retail at ground and level 01.
- Offices, East of Queen Street Mall.
- Laboratories within the H&M structure.
- Offices and Student accommodation within the TK Maxx Structure (former Clarendon House).

The existing ground floor malls (Queen Street Mall, Shoe Lane Mall & Cornmarket Mall) are proposed to be retained; however new thoroughfare is proposed from the Frewin Court to the North of the site. The centre of the site is proposed to be demolished to make way for a New Square, with access from each of the 4 malls. Demolition of the existing frame will be aligned with the structural grid of the existing building to ensure the support of the retained frame is not impacted.

### 5.1. Refurbishment vs. Newbuild

A combination of refurbishment and newbuild is proposed to implement the masterplan, as outlined in Figure 2 below.



Figure 2 Refurb vs Newbuild Plan

### 5.1.1. Refurbishment

The existing H&M RC frame is proposed to be retained and converted from retail to laboratory usage, with an additional storey introduced to approximately 75% of the RC frame footprint. The additional storey is to be constructed of a steel frame, as a lightweight option allowing the existing building foundations to be retained. A new lift and associated pit is to be constructed within the existing atrium, which will require a localised area of new support structure and associated foundations. In addition, further structural alterations to the retained RC frame include demolition of RC nibs to existing lift core walls and the existing stair and half landings, and part-demolition of the existing level 03 roof slab to allow increased roof load for plant.

The TK Maxx structure (former Clarendon House) to the North of the site currently accommodates retail units and offices and is proposed to be largely retained, with some demolition proposed on the Frewin Court elevation and to the West area of the site adjacent to the service yard. The retail units are proposed to be converted to student accommodation. The major structural challenges within this area of the site will be forming new openings within the existing structure, and justifying the demolition and slab infill where lift/stair cores are no longer required. Where new large openings are proposed, steel framing support will be required. In addition, a steel support frame is required to the North of Cornmarket Mall, to support the new student accommodation structure independently from the retained structure. New columns will be positioned either side of the Mall to bridge over the mall.

### 5.1.2. Newbuild

The newbuild elements of the site are proposed to be demolished and rebuilt, as the building height in these areas will be increased in height by 2 to 3 stories.

The newbuild element of Phase 1 is for laboratory usage and to be an RC frame supported on piled foundations bearing onto the Oxford Clay. A series of transfer beams are proposed at Level 01, to accommodate column free dining areas for the McDonald's restaurant at Ground Floor. Piles along the party walls are to be offset to allow clearance for a piling rig and to avoid clashing with the party wall foundations. The pitched roof to the South end of the building will be a steel frame construction, with a deeper RC slab at Level 4 to transfer the roof column loads.

A small area of Phase 2 is intended to be demolished and rebuilt, as the proposed building here 2-3 stories higher than the existing building. The new frame is proposed to be a steel frame with composite deck slabs, which will tie into the existing frame. It should be noted that the structural zone for steel beams will need to be coordinated with the services, for this framing option. However, as this newbuild area ties into an existing steel frame, this structural zone should be achievable.

The newbuild element of Phase 3 (offices) is proposed to be a steel frame with profiled metal deck floor slabs. The single storey Grade 2/3 basement construction is proposed to be a sheet piled wall with internal concrete liner wall to provide Type B structurally integral basement waterproofing. There may be the requirement for a drained cavity system to provide additional waterproofing protection, as a second line of defense. As with the Phase 1 and 2 newbuild areas, the foundation system is to be piled, with offset piles adjacent to party walls.

---

Walsh

Structural and Civil Engineers

32 Lafone Street

London

SE1 2LX

+44 (0)20 7089 6800

[london@walsh.co.uk](mailto:london@walsh.co.uk)

---

[walsh.co.uk](http://walsh.co.uk)



WALSH