Student Residence at 139-149 North King Street, Dublin 7

Structural Methodology Report on the Retained Masonry Façade and Existing Structures

Issue No. 1

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2340

CORA Consulting Engineers
Behan House
10 Lower Mount St
Dublin D02 HT71
Tel: 01-661-1100
Fax: 01-661-1119
E: info@cora.ie

CORA
CONSULTING ENGINEERS

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1 Introduction

1.1 General

CORA Consulting Engineers have been appointed to act as Consulting Structural Engineers for the proposed Student Residence at 139-149 North King St.

The proposals the demolition of the buildings at Nos. 139-149 North King St., Dublin 7 and the construction of a new seven storey student residence with a ground level landscaped courtyard The existing façade facing North King St shall be retained and incorporated into the development as a key feature.

There is a small basement on the site which shall be retained and modified internally for uses as plantroom and other back of house uses.

Stormwater management to the building shall include nature based solutions with blue roofs and a landscaped courtyards with soft & permeable systems to the external courtyard areas with adequate water storage in the subbase.

1.2 Existing Site

The existing buildings on the site are light industrial units with a central yard with a concrete surface. For the most part the buildings are formed with steel framed systems.

There is a masonry façade along the boundary at North King Street which is to be retained as part of the overall development.

The steel framed structures fronting onto North King St. include a number of historic steel sections (tapered flanges).

All units have been altered throughout the years.

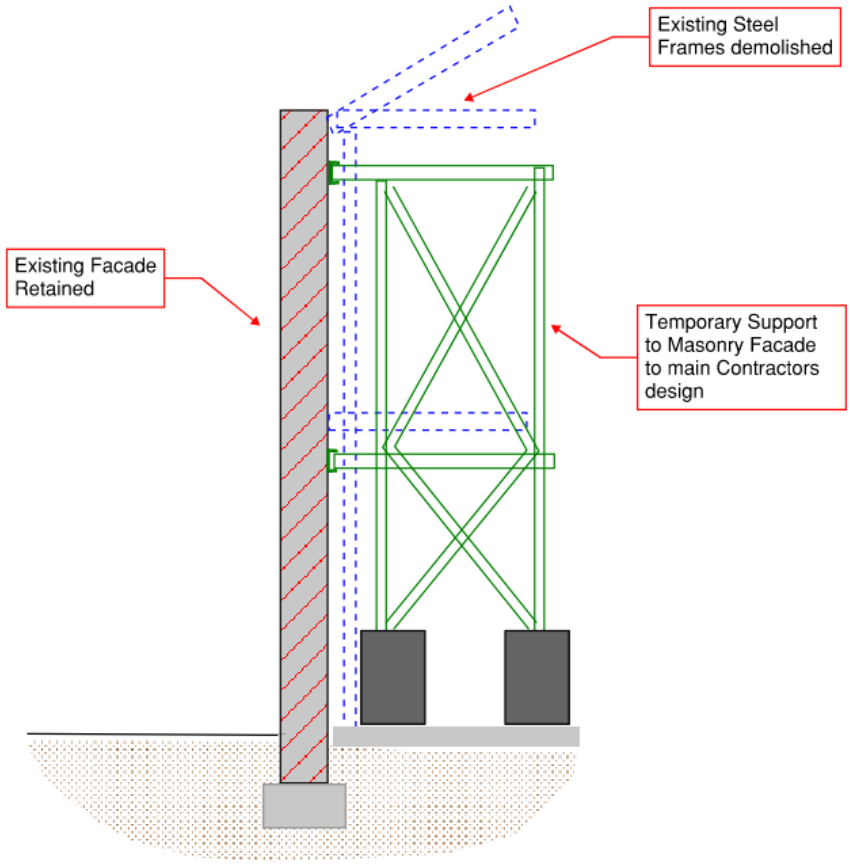
2 Proposed Structural Works & Façade Retention

2.1 Façade to North King St.

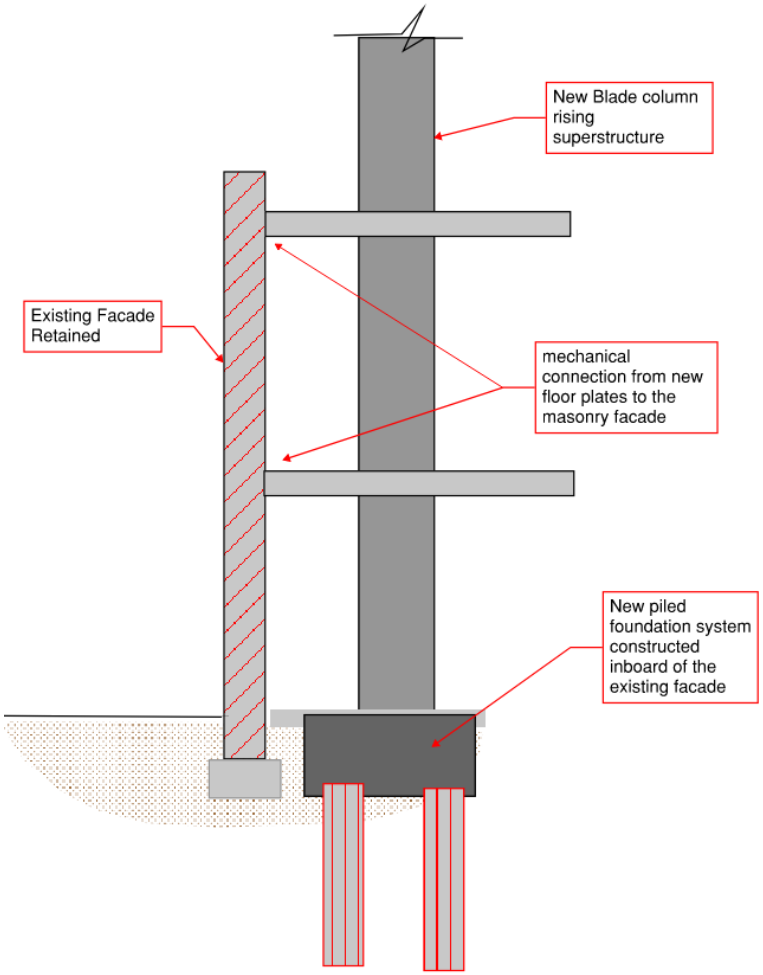
The Masonry façade on North King Street is in sound condition. The buildings behind shall be demolished, and a temporary steel frame shall be introduced to retain the faced system as part of the works. The level of the underside of the wall can be verified as part of the opening up works

or an enabling contract. It is not possible to carry out the works now as the industrial units are in operation.

A typical detail of the retained façade is below.



The faced system can then be connected to the new rising concrete superstructure. A concrete framed system is proposed and the restraint to the façade will include a mechanical connection to the horizontal floor plates of the new building.



2.2 Re-Use of existing Historical Steel Sections

There are a number of historical steel sections forming the industrial units. These sections carry a roof only in general and in some cases a mezzanine floor and roof.

From a review of the section sizes and the grid layout it was considered if these elements could be retained within the new development as part of the superstructure.

However as the new development is seven floors the load capacity of these elements is not adequate to be incorporated within the new development. Furthermore the grid layout does not fit within the proposed layout and column positions would be located within the middle of bedrooms and result in a very inefficient design and a viable layout would not be possible.

Therefore the option to reuse these elements was ruled out, but the elements can be salvaged for use in non-structural features within common spaces internally and externally.

3 Conclusions

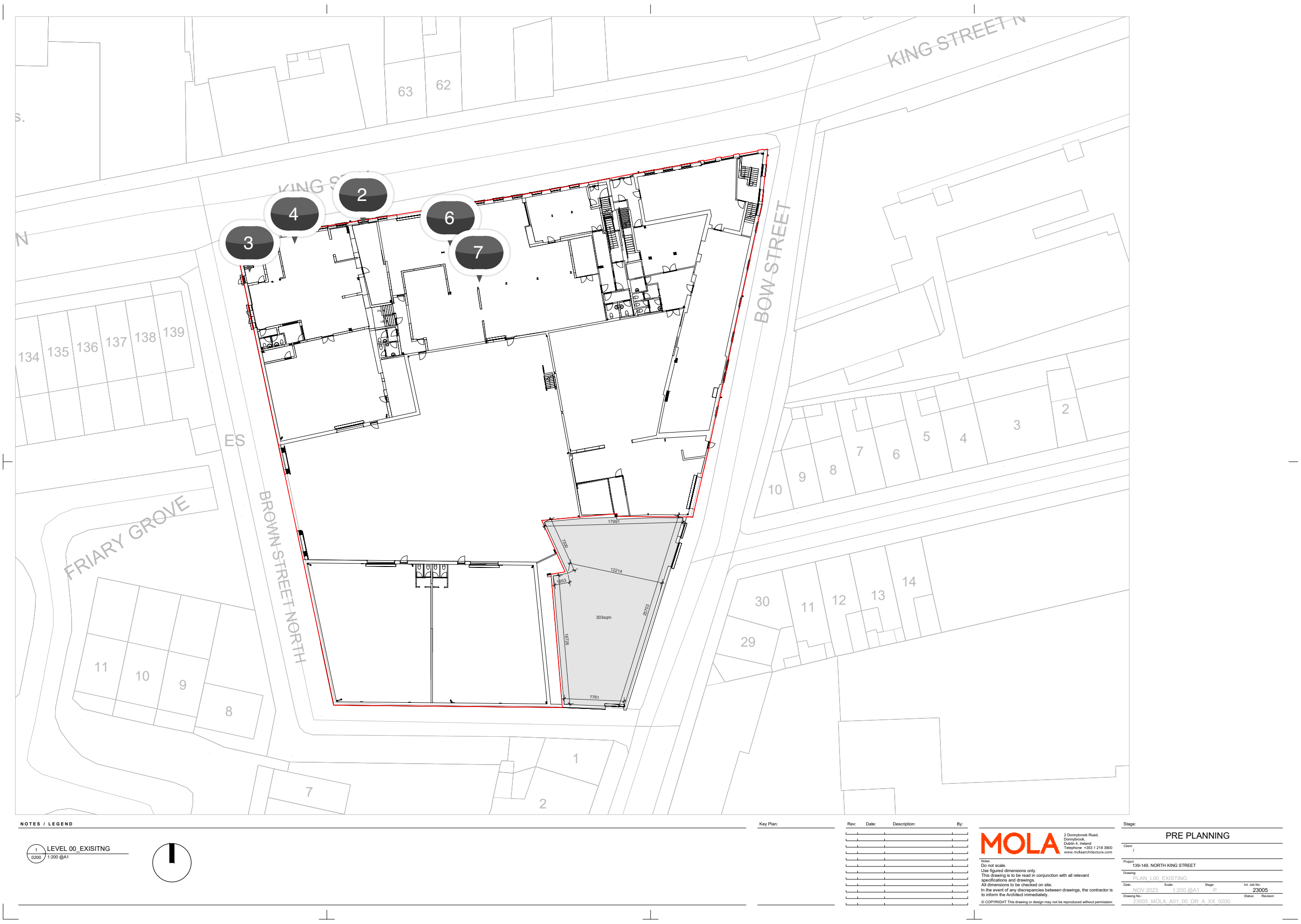
Retaining the faced system on North King Street is a relatively straightforward process that can be effectively delivered within this development.

The design process proved that it is not viable to re-use the historic steel elements within the proposed superstructure, however the material can be salvaged and customized for use as fit out elements within the development.

Appendix A – Existing Structural Observations

2340 - North King St

Address :	
Generated on	- 26/07/2024
Stages	- Site Inspection 26.07.2024
Building trades	- Existing Observations
Stakeholders	
Drawings	- 23005_MOLA_A00_00_DR_A_XX_0200 (Site Inspection 26.07.2024) - 23005_MOLA_A00_00_DR_A_XX_0201 (Site Inspection 26.07.2024) - 23005_MOLA_A00_00_DR_A_XX_0207 (Site Inspection 26.07.2024) - 23005_MOLA_A99_00_DR_A_XX_0199 (Site Inspection 26.07.2024)

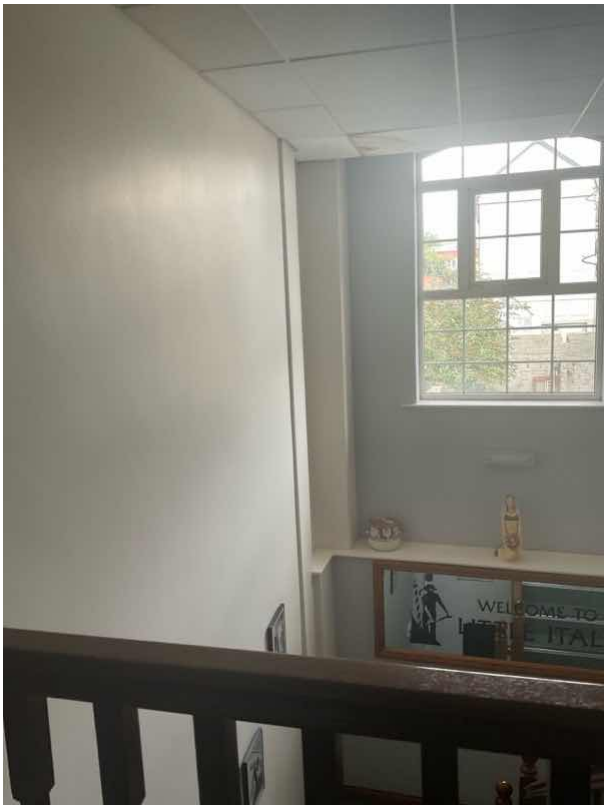

KING STREET N
BOW STREET
BROWN STREET NORTH
FRIARY GROVE
2
3
4
6
7
LEVEL 00_EXISITNG
MOLA
PRE PLANNING

2 26/07/2024

Inside view

3 26/07/2024

Return wall



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6 26/07/2024

Steel framed superstructure internally

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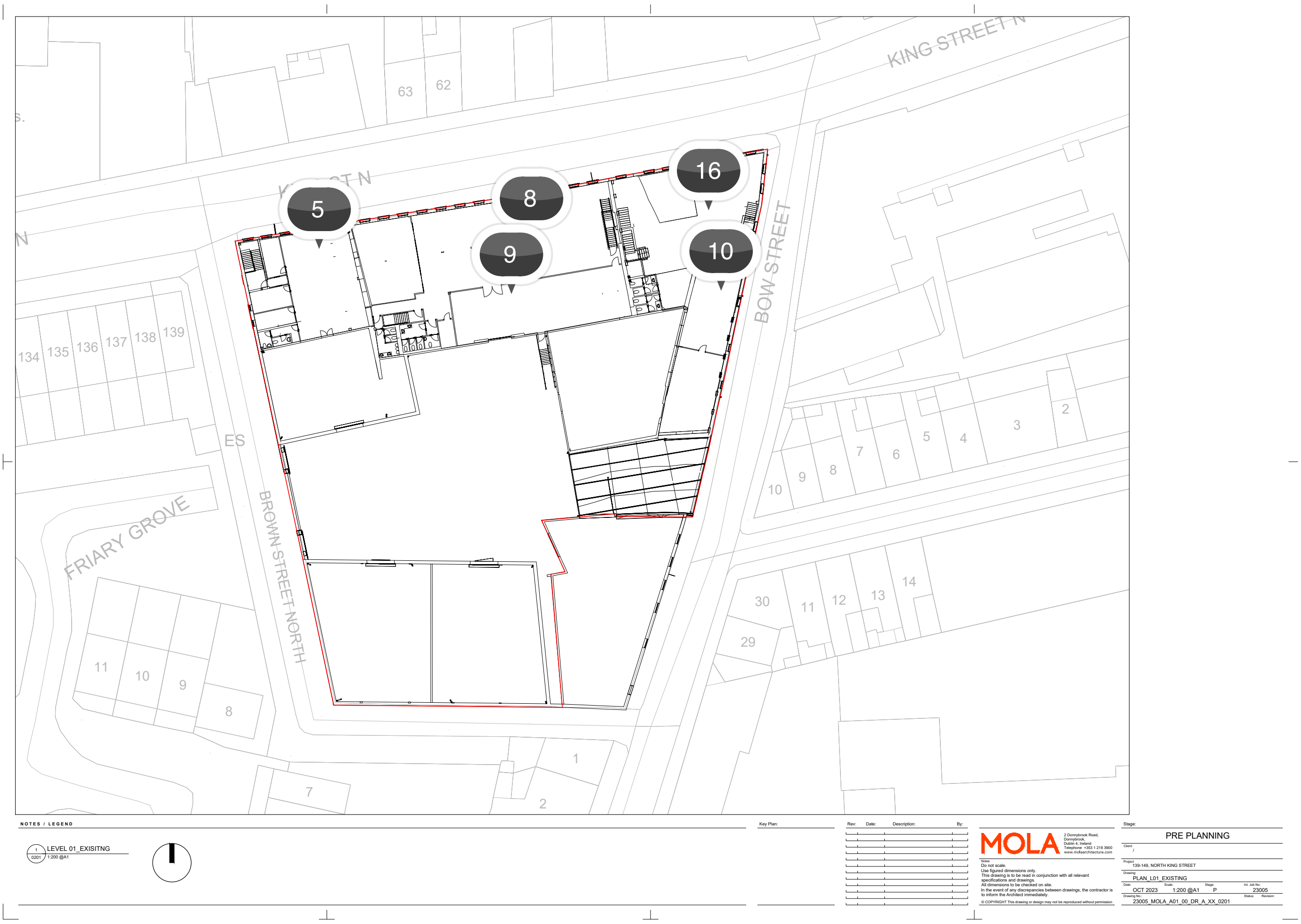
Rivet girders and connection in steel early 20th century


KING STREET N
BOW STREET
BROWN STREET NORTH
FRIARY GROVE
5
8
9
10
16
NOTES / LEGEND
LEVEL 01_EXISITNG
1:200 @A1
Key Plan:
Rev: Date: Description: By:
MOLA
2 Donnybrook Road,
Donnybrook,
Dublin 4, Ireland
Telephone +353 1 218 3900
www.molaarchitecture.com
Notes
Do not scale.
Use figured dimensions only.
This drawing is to be read in conjunction with all relevant specifications and drawings.
All dimensions to be checked on site.
In the event of any discrepancies between drawings, the contractor is to inform the Architect immediately.
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PRE PLANNING
Client:
/
Project:
139-149, NORTH KING STREET
Drawing:
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Date: OCT 2023
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Int. Job No: 23005
Drawing No.: 23005_MOLA_A01_00_DR_A_XX_0201
Status:
Revision:

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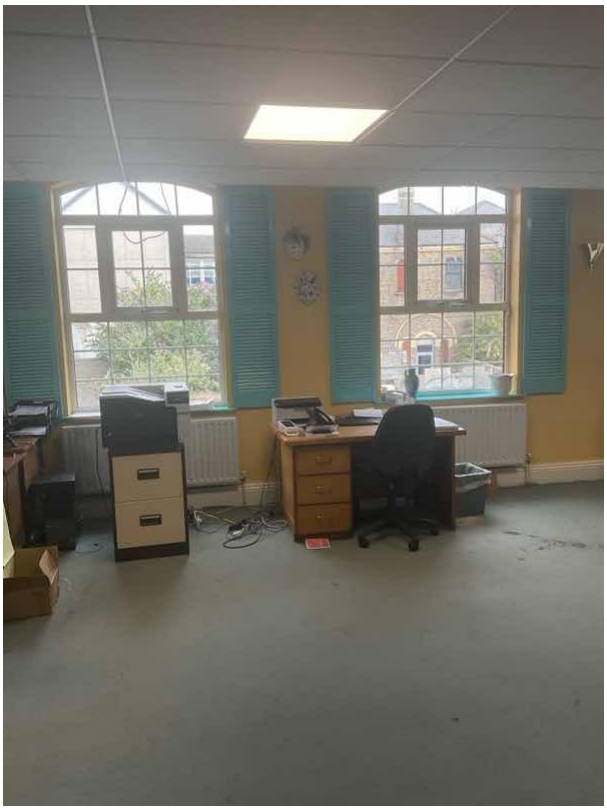
View inside



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Section sizes reduced rising from FF

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False roof over bar area

Modern roof over

10 26/07/2024

Concrete first floor on modern steel system

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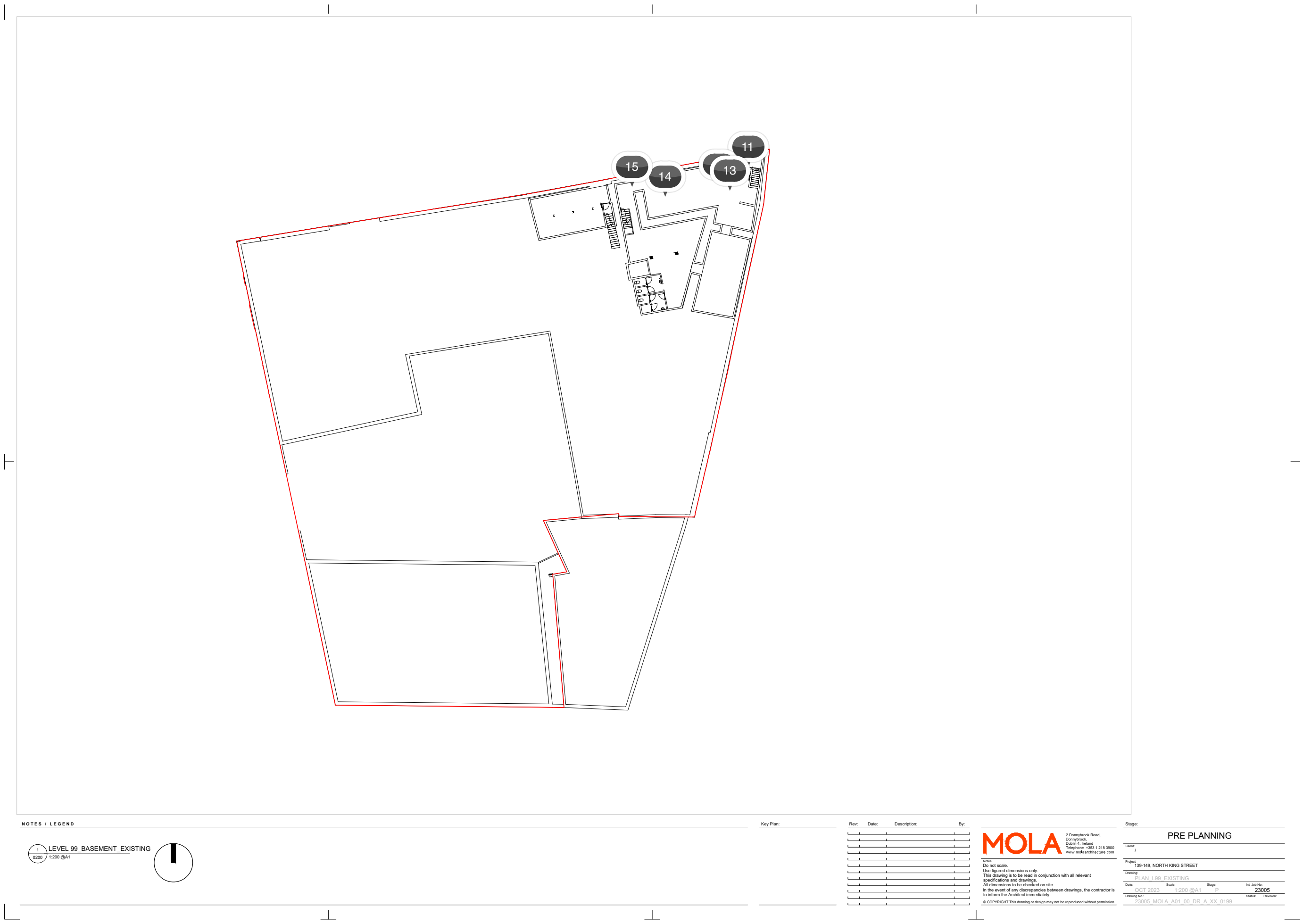
Views of FF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13
14
15
NOTES / LEGEND
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0200
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Key Plan:
Rev: Date: Description: By:
MOLA
2 Donnybrook Road,
Donnybrook,
Dublin 4, Ireland
Telephone +353 1 218 3900
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Client:
/
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Drawing No.: 23005_MOLA_A01_00_DR_A_XX_0199
Status:
Revision:

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Basement view

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Concrete floor

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View of GF

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GF metal deck

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Remnant of vault