TECHNICAL NOTE: BASEMENT IMPACT ASSESSMENT COMPARISON FOR STEPHENSON WAY STUDENT ACCOMMODATION DEVELOPMENT

REF: 221074 – R03-01

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CONTENTS

APPENDICES

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TECHNICAL NOTE: BASEMENT IMPACT STUDY REVIEW FOR STEPHENSON WAY STUDENT ACCOMMODATION DEVELOPMENT

1.0 Description of Proposed Development

It is proposed to build a new student accommodation development, which contains residential 76 units and is 7 storeys, that includes a single storey basement and exposed roof terrace. The super-structure will consist of either a flat-slab reinforced concrete frame with a transfer structure at first floor level to allow for the passage of a ramp. This is an access ramp to an existing carpark that serves 222 Euston Road, that must be maintained during the construction and in the permanent configuration of the proposed development.

There is a single storey basement structure within the footprint of the proposed development, which is to the extent of the site boundary line. The proposed basement does deviate from that which is described in the Basement Impact Report, that was drafted by Card Geotechnics Ltd – April 2019.

2.0 Description of Basement Sub-Structure

Retaining Wall

The retaining wall consists of a cantilever secant pile wall, formed from 450mm diameter piles. It is placed immediately in front of the existing gravity based reinforced concrete retaining wall to the eastern portion of the site. To the western end, where the existing retaining wall projects into the site, it will be placed along the same latitude as the eastern retaining wall, with the projecting section of wall being removed. The wall will receive two categories of waterproofing, an applied barrier (Type B) and a drainage channel (Type C). In front of the retaining wall a masonry liner wall is to be constructed.

Foundation

The foundations to the proposed Stephenson Way development consist of a 600mm deep piled raft that occupies the entire site, outside of the footprint of the super-structure. The piles are 450mm in diameter, that are typically 15m to 18m in length. The level of top of these foundations is 21.100mAoD and the soffit is 20.500mAoD.

3.0 Comparison between Proposed Development and Basement Impact Assessment circa 2019

The basement impact assessment (Ref CG/28583 Rev 2), that formed part of the planning application, describes an assumed construction of the basement for the proposed Stephenson Way development. It was based on a scheme design that is described in Appendix B of the basement impact report. The foundations to that scheme assumed isolated pile caps that were 1m deep with ground beams spanning between them and a suspended slab. The founding depth of the pile caps was described as 20.500mAoD.

The retaining wall was assumed to be a secant piled wall to the east, north, western and south-western edges of the site (Section 2.5 of the Basement Impact Assessment Report).

The proposed development as described in the RIBA Stage 3 drawings as authored by MNP, shares the same founding level as the one described above. However, rather than a series of discrete pile caps, a piled raft has been chosen as the primary form of foundation.

With regards to the retaining wall, the construction mirrors that of the assumed scheme described in the Basement Impact Assessment Report, i.e., secant piled wall. However, it's extent is limited to the north and western edges of the site, with the eastern side relying on the existing secant pile wall to 210 Euston Road building. Additionally, the alignment of the northern retaining wall does not match that shown within the Basement Impact Assessment Report. There is a step introduced into the retaining wall to allow for the presence of an existing gravity retaining structure.

4.0 Observations and Conclusion of Review of Substructure Comparison

The sub-structure to the proposed Stephenson Way development does not significantly deviate from the assumed scheme design as described in the Basement Impact Assessment report. This is summarised in *Table 1*, with each key component of the structure compared between the scheme described in the Basement Impact Study and the RIBA Stage 3 design documentation.

Therefore, the projected soil movements identified in the Basement Impact Assessment remain valid, due to the similarity between the forms of sub-structure.

Comparison between Planning Foundation Scheme and RIBA Stage 3		
Component	Planning	RIBA Stage 3
Foundations	Isolated pile caps with ground beams supporting a suspended floor slab.	Piled raft with a grid of piles placed no less than 3xdiameter of the piles apart.
Retaining Wall	Secant pile wall	Secant pile wall
Geometry	Straight line northern elevation, no recognition of the presence of the existing retaining wall that supports Stephenson Way highway.	Step within northern elevation of wall to allow for presence of existing retaining wall.
Founding depth	Pile caps to be founded at 20.500mAoD, piles to be no less than 15m long.	Piled raft founded at 20.500mAoD, piles no less than 15m long.

Table 1 – Comparison between Basement Impact Assessment sub-structure scheme and RIBA Stage 3 design

Appendix A – Extract from Basement Impact Assessment

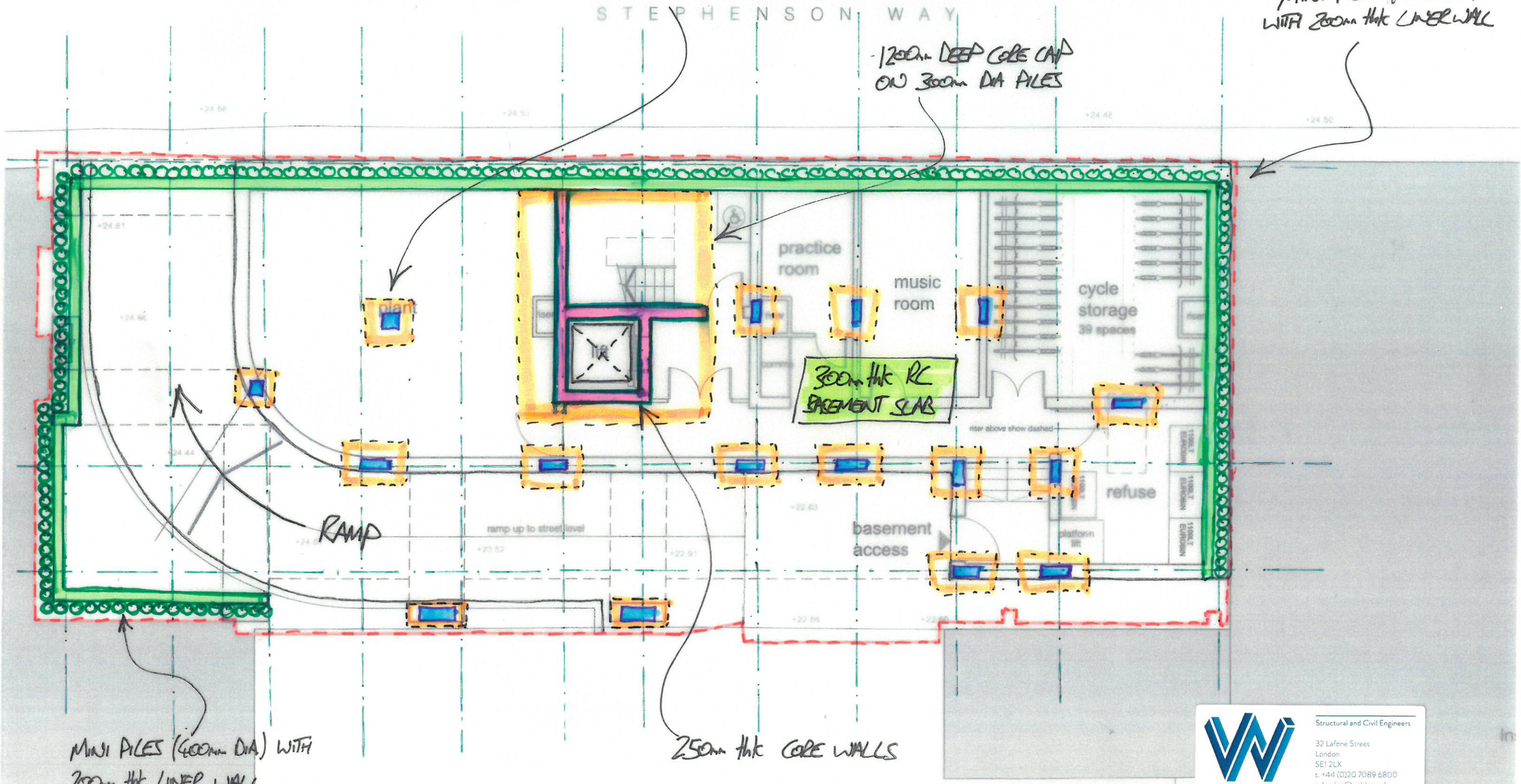
INITIAL PRECAST SCHEME

BASEMENT

COLUMNS SUPPORTED ON 1000mm DEEP PILE CAPS AND PILES (3No. & 4No. PILE CAPS)

MINI PILES (600mm DIA) WITH 200mm thk LINER WALL

1200mm DEEP CORE CAP ON 300mm DIA PILES



MINI PILES (600mm DIA) WITH 200mm thk LINER WALL

250mm thk CORE WALLS

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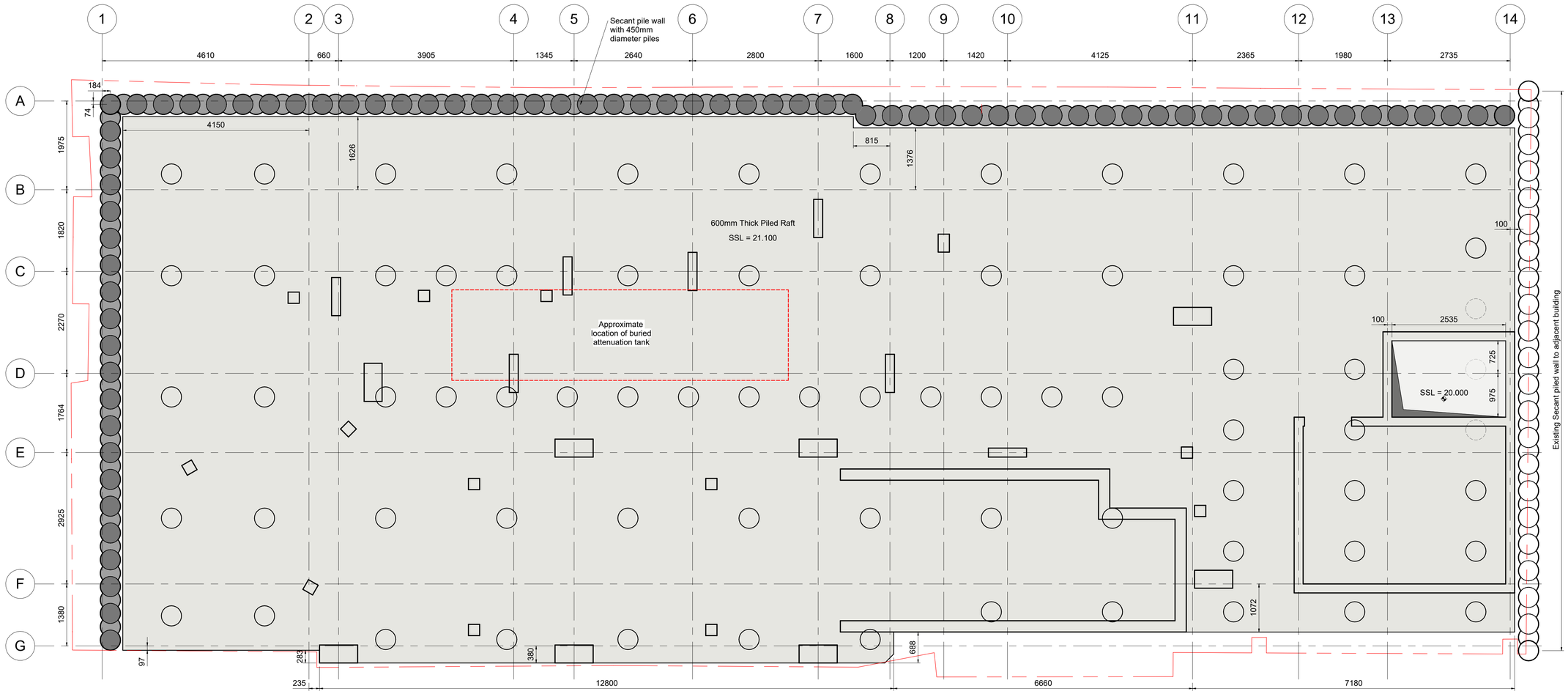
4836 - STEPHENSON WAY

Appendix B – RIBA Stage 3 Basement Sub-Structure General Arrangement Drawing



Foundation GA

1 : 50

Notes:

1. MNP drawings are to be read in conjunction with:
   - General notes drawing: 221074-MNP-A-XX-DR-S-1000
   - Relevant documents, Specifications, Architectural and Services drawings, including approved building work drawings.
   - Building Information Model (BIM)
2. All dimensions are in mm except levels which are in metres and relate to [ordnance datum].
3. Do not scale from this drawing. Work to figured dimensions only.
4. The contractor should notify CA of any discrepancies between the structural drawings and specifications or other drawings before work commences.

REV	COMMENTS	DATE	CHKD
P03	Stage 3 Reissue	13.10.2023	MLL
P02	Issued For Planning Condition	02.08.2023	CJOR
P01	Stage 3 Issue	10.02.2023	MLL

STATUS

Stage 3

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CLIENT

Oakwood International Investment Corp

PROJECT

Stephenson Way

DRAWING TITLE

Foundation GA

SCALE @ A1	DRAWN BY	DATE
1 : 50	MLL	04.01.2023

MNP No.	STATUS CODE	REV
221074	S4	**P03**

REF No.

221074- MNP - A - FN - DR - S - 1010

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