Structural Methodology Statement

for

28 Charlotte Street

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for

28 Charlotte Street
London W1T 2NF

for

Mr Matteo Caraccia

Job No 1964

Rev	Date	Notes
-	Oct 2022	First Issue
A	June 2023	Updated Trigger Levels for Vertical & Horizontal Movement
B	Oct 2023	Notes added to drawings
C	Oct 2023	Vertical and lateral Trigger Levels Updated

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1. INTRODUCTION

This Structural Methodology Statement is produced for submission to London Borough of Camden as part of a planning application for works to 28 Charlotte Street, W1T 4NF and should not be used for any other purposes, e.g. construction or Party Wall Awards.

2. SCOPE OF WORKS

A new single storey basement is proposed under the rear of the existing property. The current study room will be connected to a new lower ground space dedicated to video editing and contained within reinforced concrete walls and slab.

3. DESCRIPTION OF 28 CHARLOTTE STREET AND ADJOINING PROPERTIES

The front part of the building is a six storey mid-terraced Victorian property of masonry construction with timber floors to ground floor and upper levels and timber rafters to form the roof.

The rear walls to adjoining properties are of brick construction and they appear to be much deeper than the existing ground floor level (refer to proposed section in Appendix A).

The property is in a sound condition structurally. The adjoining properties are of similar construction and look to be in sound condition from an external non – intrusive visual examination.

4. GEOLOGY AND HIDROLOGY CONDITIONS

The existing site geology from British Geological Survey information is of Lynch Hill gravel formation, which has been partly confirmed by site investigation dated 11/01/2016.

A borehole made in the study (refer to Appendix D) has revealed the following sequence and final depth of strata.

Made Ground: 0m to 5.3m
Silty gravelly Sand: 5.3m to 7.7m
Clay with partings of silt and sand: 7.7m to 10.00m

From the same borehole the groundwater was recorded at ~5.3m bgl circa with ground becoming moist from 1.8m bgl circa.

Trial pits has been also undertaken during the site investigation and they all show made ground down to 4m from ground level and within the area composing the rear study (refer to Appendix D).

As well as the existing party walls, the proposed basement slab will be formed within a stratum of made ground and therefore it is proposed to avoid additional loads into the existing party walls creating a new concrete box detached from them and sitting on piles. The piles will then reach a suitable bearing level.

The building's design shall also resist floatation with a safety factor of not less than 1.1 as specified in BS8007:1987 cl. 2.2.3.2 and, Despite the depth of the recorded water table, it is assumed that ground water can reach 1.4m above basement formation level.

5. STRUCTURAL CALCULATIONS

See calculation sheets 1964/C1 – C8 showing the assumed loadings, loads on elements and design of structure composing the basement box. These calculations can be found in the Appendix C.

6. STRUCTURAL DRAWINGS

See drawings in Appendix A showing the proposed ground and basement floor layout, and sections through party walls. No structures will be connected to the existing party walls in a way to change their dimension or loads.

7. CONSTRUCTION METHOD STATEMENT

The temporary works will be the design responsibility of the contractor and once appointed, he will produce a complete method statement and temporary works design. This is to be submitted to the Structural Engineer for approval prior to commencement.

We anticipate that there will be a pre-commencement condition requiring compliance with the Code of Construction Practice that requires the appointed contractor to prepare a Construction Management Plan/ method statement and submit to the Council's environmental services team (separate to planning) for approval. They would then sign off the final Appendix A form and that signed form would be used to discharge the pre-commencement planning condition.

The construction method statement has been developed to ensure that the proposed works are constructed safely and with no impact on the structural stability of the existing and adjacent properties.

The proposed permanent and temporary works will not apply any significant additional loads onto the surrounding structures or utilities. Measures will be taken to ensure that the changes in stress and resultant movement in the soil surrounding the basement are minimised during the works and on completion.

There will be no adverse effect on the surrounding soil. This is ensured by the design of the earth retaining structures.

The existing geology, as described in the ground investigation, is capable of supporting the permanent and temporary works.

There are no unusual geological, hydrological or structural concerns which need to be addressed.

The following outlines the assumed method of construction to ensure stability of the existing structures in the temporary and permanent case.

SITE SET UP

Set up site with all contractor welfare and accommodation within the existing building.

Protect the site with hoarding, security measures, etc.

Terminate and protect all existing services.

Set up movement monitoring points on property and on neighbouring properties and carry out baseline survey. Monitor regularly against this baseline survey and report results to engineer.

In order to minimize the environmental impact of construction the following are to be observed:

a. The contractor must be a member of the Considerate Contractor's Scheme.

b. Groundwork subcontractors must be registered with ASUC.

c. The provisions of the Control of Pollution Act (1974) and the Environmental Protection Act (1990) are to be observed.

d. Neighbours are to be notified of the work via individual letters, outlining the anticipated programme and contact details for the site.

e. The contractor must ensure the health and safety of all its operatives and members of the public in accordance with best practice and the Health and Safety at Work Act 1974.

f. Wastewater from construction activities must be dealt with as per BS6031:1981 Code of practice for earthworks.

g. Dust generating activities are to be enclosed to prevent dust escaping and dust is to be suppressed by means of spraying. Waste leaving site is to be enclosed with fly sheeting or sealed skips. Waste is to be handed down rather than dropped down to reduced dust generation.

h. All applicable plant is to be fitted with dust collection vacuum boxes.

i. All surface runoff to be contained on site.

j. Working hours are to be limited as per the planning conditions.

k. The contractor must control noise and vibration as per British Standard 5228-1 2:2009: ‘Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise) and Part 2 (Vibration).’

l. Modern, well maintained and silenced plant is to be used.

m. Delivery vehicles must switch off engines when parked up.

n. Site radios are not to be audible from the street.

o. Reduce use of percussive and vibrating machinery to a minimum.

CONSTRUCTION SEQUENCE AND TEMPORARY SUPPORT

See Appendix B for the proposed construction sequence drawings and description.

8. POTENTIAL IMPACT ON 28 CHARLOTTE STREET AND ADJOINING PROPERTIES

The proposed basement under the existing property will not be formed below existing walls but within them keeping the walls propped at all time to reduce the amount of potential movement to the adjacent structures.

Expected settlement is zero provided an experienced contractor is appointed who undertakes the works using good practice in accordance with the structural design and follows all agreed method statements, installing all necessary temporary vertical and lateral supports required. In practice some settlement is possible, but this should be no worse than 'aesthetic', according to the BRE's definition. If these conditions are met, any settlement that occurs is likely to be minimal and is likely to be accommodated in the elasticity of the superstructure. This has been borne out in the vast majority of past projects on similar properties.

The design and construction methodology, as described above, deals with the potential risks and ensures that the excavation and construction of the proposed basement will not affect the structural integrity of the property and adjoining properties.

9. SLOPE STABILITY

The site is located on ground that is relatively flat and so slope instability can only be initiated in the temporary condition as the proposed basement is being built, however this is highly unlikely due to the construction sequence and implementation of temporary works and is covered by the statement above on the impact on adjoining properties.

10. POTENTIAL IMPACT ON EXISTING AND SURROUNDING UTILITIES, INFRASTRUCTURE AND MAN – MADE CAVITIES

Any local services on the property's land will be maintained during construction and re – routed if necessary. The exact location of these services will not be known until the works commence. However, the impact will be negligible as these services will be maintained. If it is necessary to relocate or divert any utilities, the Contractor and Design Team will be under a statutory obligation to notify the utility owner prior to any works. This will be so that they can assess the impact of the works and grant or refuse their approval. There are no known man – made cavities (e.g. tunnels) in the vicinity of the proposed basement.

11. POTENTIAL IMPACT ON DRAINAGE, SEWAGE, SURFACE AND GROUND WATER LEVELS AND FLOWS INCLUDING SUDS

All existing drainage and sewage connections will be maintained throughout the construction works so there will be no impact on these existing systems.

The proposed refurbishment will not alter the current state of the property, which will remain as a mixed-use retail and residential building. Therefore, there will be no significant change in discharge to the existing drainage and sewage systems.

Surface water will not be altered as the proposed works are underground and there will be no change to the external 'hard surfaces'.

The site–specific borehole confirms that the new formation is above the ground water level, thus there will be no impact on ground water flows and levels.

12. POTENTIAL IMPACT ON EXISTING AND PROPOSED TREES

The property does not have a garden, therefore no existing trees will be felled during the construction of the proposed basement. In addition, there are no trees protected by Tree Preservation Orders in the vicinity of the proposed basement that will be damaged by the construction works.

13. NOISE, VIBRATION AND DUST CONTROL

Any basement works should be completed in such a way as to ensure that suitable measures to control the emission of dust and dirt during construction and ensure works will not generate noise audible at the site boundaries outside of permitted working hours are in place.

The current proposal is to create a new basement floor below the existing ground floor at the rear of the property, but outside the footprint area of the main building.

The proposal also includes the general refurbishment of the property with very minor.

The construction works involve the demolition of the existing concrete floor slab in the ground floor study room, as well as the excavation and creation of a new reinforced concrete box in the rear of the property at basement level. A detailed sequence of the works has been given in Appendix B. Those most likely to be affected by noise, dust and vibration will be the immediate neighbours at No 26 and No30 Charlotte Street, as well as No's 7-15 Whitfield Street.

The properties opposite side of the street are slightly more remote from the proposed development and are therefore less likely to be affected, however need to be considered. There might be some impact on other residents within Charlotte Street Road due to the related construction traffic.

Below we have described the mitigation measures that are proposed to keep noise, dust and vibration to acceptable levels.

Mitigation Measures for Demolition of Existing Slab

The breaking out of existing structures shall be carried out by diamond saw cutting and hydraulic bursting where possible to minimize noise and vibration to the adjacent properties. All demolition and excavation works will be undertaken in a carefully controlled sequence, taking into account the requirement to minimize vibration and noise. The contractor will need to utilize non-percussive breaking techniques where practicable.

As the property is terraced, careful consideration needs to be given to minimize noise and vibration transfer to the adjoining properties. The contractor should ensure that where any slab is adjacent to the boundary the concrete slab should be diamond saw cut first along the boundary to isolate the slab from any adjoining structures.

Dust suppression equipment should be used during the demolition process to ensure that any airborne dust is kept to a minimum. Where practical, concrete should also be wetted down prior to and during breakout to further inhibit airborne dust.

Mitigation Measures to Bulk Excavation

Due to size of the basement and restriction to access the rear of the property, it is likely that excavations will be undertaken with hand tools. However, if mechanical plant will be required to complete the bulk excavation, the contractor should ensure that any mechanical plant is switched off when not in use and is subject to regular maintenance checks and servicing. An electrically powered conveyor will be used as detailed above.

Mitigation Measures for the Construction of the Concrete Basement Shell

The contractor should ensure that any concrete pours are completed within the permitted hours for noise generating works. The contractor should allow for a contingency period to ensure that concrete pours can be completed within these hours regardless of unforeseen circumstances such as batching plant delays and traffic congestion.

The fabrication and cutting of steelwork for the reinforced concrete underpins and slabs shall take place off site. If any rebar needs to be trimmed on site this should be completed using hydraulic or pneumatic tools of angle grinders.

Dust Control

In order to reduce the amount of dust generated from the site, the contractor should ensure that any cutting, grinding and sawing should be completed off site where practicable. If cutting, grinding and sawing is being carried out on site, surfaces are to be wetted down prior to and during these types of work whenever possible. Any equipment used on site should be fitted with dust suppression or dust collection facilities.

The contractor will be responsible for ensuring good practice with regards to dust and should adopt regular sweeping, cleaning and washing down of the hoardings and scaffolding to ensure that the site is kept within good order. The Contractor selected will be member of the Considerate Contractors Scheme. Contact details of the contractor who will be responsible for containing dust and emissions within the site will be displayed on the site boundary so that the local residents can contact the contractor to raise any concerns regarding noise and dust.

The construction site will be enclosed within suitable scaffold sheeting and any stockpiles of sand or dust-generating materials will be covered. Cement, fine aggregates, sand and other fine powders should be sealed after use.

14. MONITORING AND LIMITS ON GROUND MOVEMENTS DURING EXCAVATION AND CONSTRUCTION

The contractor shall provide monitoring to the rear lightwell wall, rear and party walls of No28 Charlotte Street throughout their height during the basement construction.

Monitoring shall be completed as follows:

1. Two separate sets of readings one month prior to any works being started to provide a base reading.
2. Fortnight readings during the structurally critically phases, such as excavation and basement construction.
3. On a month basis thereafter for a 6-month period following completion of the notifiable works.
   Note: contingency should be set aside to allow for additional visits at increased frequencies, should trigger values be exceeded.

Cumulative movement of survey points must not exceed:

a. Vertical settlement
   Code amber trigger values: +/-3.2mm
   Code red trigger values: +/-5.0mm

b. Lateral displacement
   Code amber trigger values: +/-3.0mm
   Code red trigger values: +/-4.4mm

Movement approaching critical values:

Code amber trigger value:

All interested parties, including the Adjoining Owner's Surveyor and his Engineer should be informed and further actions immediately agreed between two of the three Surveyors and implements by the Building Owner. Notwithstanding the Party Wall requirements, the Contractor is to appoint, and to have permanently on site, a suitably qualified Structural Engineer who will be responsible for the reviewing of the movement monitoring results at the start and end of each day and provide immediate advice, remedial works and design as necessary in the event of movement being noted.

The Contractor is to ensure that he has 24 hour/7 days a week access to emergency support provision including but not limited to additional temporary props, needles, waling beams and concrete supply at the start of the excavation and prior to any likelihood of this trigger value being reached. If this value is reached the Contractor, and his Engineers, must without delay provide all interested parties with his plan to implement any emergency remedial and supporting works deemed necessary.

The Contractor must be ready to carry out these works without delay if the movement continues and approaches the trigger value above.

Code red trigger value:

All interested parties including Adjoining Owner's Surveyor and Engineer will be informed immediately. Works will stop and be made safe using methods and equipment agreed at the above stage. The Contractor is to ensure that the movement has stopped as a result of the implemented remedial works designed and installed at this stage. The requirements of the Party Wall Act will also ensure that wo of the three Surveyors and their advising Engineers shall them enter into an addendum Award, setting out whether or not the Building Owner's works can re-commence and when, and if so agree conditions.

APPENDIX A PROPOSED STRUCTURAL SCHEME

APPENDIX B PROPOSED CONSTRUCTION SEQUENCE

APPENDIX C PRELIMINARY STRUCTURAL CALCULATIONS

APPENDIX D SITE INVESTIGATION