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CONTROL OF GROUND MOVEMENT AND
BUILDING MONITORING

ISSUED: MAY 2017

69 KENTISH TOWN ROAD, LONDON, NW1 8NY

CONTROL OF GROUND MOVEMENT AND BUILDING MONITORING

1.0 SCOPE OF WORKS

The formation of the proposed new rear extension involves the creation of a basement structure.

The depth of this new basement will undermine the foundations to the single storey rear extensions to both adjoining properties.

Traditional underpinning has been shown on the Structural Engineers construction drawings which shall be executed first to enable reduced level dig across the site followed by new constructions works.

Whilst temporary works is the responsibility of the chosen contractor the following should be adhered to. This also includes recommendations for formal monitoring of the two adjacent building's rear extensions.

Ground movement assessments indicate movements below category of 3 damage, i.e. less than 5mm. Tilt meters and formal vertical levelling shall be installed to constantly monitor the adjacent buildings both during the underpinning stage and ensuing construction works to ensure movements do not exceed the predicted values.

2.0 CONTROL OF GROUND MOVEMENT DURING UNDERPINNING

- Trained operatives experienced in underpinning works shall only undertake the works to ensure underpinning induced settlements are kept to a minimum.
- Underpins shall be provided with sufficient time to cure and thus gain sufficient strength before any temporary support/ props are removed.
- The pins shall be installed to the sequences shown on the structural engineer's drawings unless a pre-agreed revised sequence is submitted to the Engineer and approval is obtained in writing to change the sequence.
- Temporary props shall be designed to provide necessary restraint to the installation to limit the potential for lateral movements.
- As we stated above the final design of the temporary works shall remain with the main contractor. However it is envisaged that the concrete pins will be installed before the bulk excavations are undertaken. Individual pins can then be propped against the central bund of earth.
- Once all the pins are completed, the pins can be mutually propped across the width of the site, either on an individual basis or by the use of walling's and props set above the new basement slab level. RMD or Mabey soldiers and props represent an adaptable system that can be bolted together thus maintaining lateral support to the pins at all times.
- The construction of each pin shall be carried out in an expeditious manner so as to minimise the time the ground is left open. Ideally excavations and concrete of each pin shall be in the same day. If works are delayed overnight temporary supports shall be provided.
- Ensure dry pack is well rammed and complete all as specified on the structural engineer drawings.
- Avoid over excavation.
- If perched water is found during the execution of the works ensure pumps are on standby to remove water and control arising inflow into the works area. Take care not to remove fines and the like from the surrounding ground beneath the neighbouring properties.
- Prior to initiating the underpinning works set up formal monitoring devices as shown on the accompanying structural engineers drawing 16063/02. Continuous monitoring shall then be undertaken with trigger levels set as noted.

- Continuously monitor actual settlements to check that they sit within those predicted. If unforeseen matters should arise on site which result in displacements exceeding those stated, the works should be suspended until such time as a revised method of work has been established and agreed so that the integrity of the adjacent properties is not compromised.

3.0 BUILDING MONITORING

The rear extensions to both adjacent properties, No 67 Kentish Town Road and 71 Kentish Town Road shall be formally monitored during the construction works at the rear of 69 Kentish Town Road.

Theoretical predicted displacements indicate movement to the two adjacent properties fall within category of damage 2, as set down in Ciria publication C580, less than 5mm of movement.

Formal monitoring is required to ensure the construction process does not induce displacements greater than those predicted.

Given the specialist nature of the monitoring equipment it is recommended a specialist contractor should supply, install and monitor the adjacent buildings.

A company that undertakes such work are S.E.S (Site Engineering Services Ltd) 16 Tiller Court, Tiller Road, London, E14 8PX. However the contractor is at liberty to propose a different specialist company provided they can supply the appropriate equipment and undertake the monitoring.

The monitoring will comprise the following:-

- 1) Tilt meters
- 2) Precise level points

Tilt meters shall be bi-directional high precision wireless tilt sensors as noted on the accompanying drawing. These sensors shall be connected to a "gateway" internet connection so that S.E.S or the chosen specialist company can monitor the adjacent buildings remotely including alerts configured to the required criteria.

The recommended monitoring positions for the Tilt Meters are shown on drawing 16063/02

4.0 PRECISE LEVELS

The monitoring points shall be as shown on drawing 16063/02 and will monitor vertical movements to the flank wall to both adjoining properties. We recommend bar coded Perspex plates glued or mechanically fastened to each flank wall with the bench mark installed outside of the sites zone of influence on the rear boundary wall as shown.

Level readings should be taken weekly starting before any excavation works are undertaken until such time as the high level monitoring device is covered over on the flank wall, but level monitoring continued at the level stations at the end of the adjoining owner' s rear extension flank walls.

5.0 TRIGGER LEVELS

The following are recommended trigger levels for both vertical and horizontal movement.

Alarms - Amber trigger level $\pm 2.5\text{mm}$

- Red trigger level $\pm 4\text{mm}$

Any values which exceed the amber trigger level must be reported to Rose + Associates and the chosen main contractor.

Matters can then be appraised and appropriate action taken.

Any values which exceed the red trigger level must be reported immediately to Rose + Associates and the chosen main contractor and works halted until such time as the cause of the movements have been established, appropriate remedial works undertake as site circumstances dictate and an agreed method of continued construction agreed.

Signed



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Dated 22nd May 2017.