

GBG Method Statement – Structural and Geotechnical Investigations

Submitted to Client: Sam Nasreddin on: 23rd March 2020 by email

GBG Proj. No.: 4689

Project Name: Nestle – Canteen, Hayes

Client: Barratt London

Location: Nestles Avenue, Hayes, UB3 4SB

Purpose: Structural Investigation

Survey Dates: Proposed to start 30th March, 2020 (2 weeks duration)

GBG Project Manager/Engineer: Lyes Boudene – 07853400277

GBG Site Lead Investigation Engineer: Yuri Wickins - 07525187586

1. Brief and Scope of Works

The Main Factory was originally built in the 1930's and has been used throughout its history as an industrial building.

The Canteen comprises a large open single storey central area, and a single/double storey wraparound, and a single storey locker room. The central area is formed of concrete/brick encased steel columns and a steel trussed roof, spanning around 25m. The wraparound is formed of concrete/brick encased steel columns and reinforced concrete slabs.



GBG has previously undertaken various survey works (March 2016) both visual/non-intrusive and intrusive, in order to better understand the construction techniques used and materials within.

An outline suite of investigation works have been provided by Gravity Consulting Engineers to provide information on the form and condition of the steel columns, roof trusses, concrete slabs and walls. The scope also includes for providing an outline set of "recommendations for future preventative measures to attain a 60-year design life".

2. Proposal

a. Roof Truss Condition

Steel roof trusses and bracing members within the main hall – Undertake a full visual and measurement survey of the exposed truss members recording corrosion levels, loss of section, tightness of connections and any components requiring strengthening or replacement.



Directors: G S Ballard MA FRICS • K F Ballard • NOC Fleming BSc • D M Clarke FCCA Dip IoD
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- Visual survey & inspection of 3No. exposed truss members. MEWP Access + Operator to be supplied by Client
- Laser survey of 2No. roof trusses to enable us to check the consistency in layout and dimensions, prior to compiling a generic roof truss dimensional drawing. MEWP Access + Operator to be supplied by Client

b. Embedded Truss End Connections

Roof truss end connections to column or beam, embedded within brickwork – Remove brickwork where necessary to expose 22 No. connections, recording corrosion levels, loss of section, tightness of connection and any components requiring strengthening or replacement.

- Roof truss end connections to column or beam, embedded within brickwork – Remove brickwork where necessary to expose 6No. x 2 truss ends, recording corrosion levels, loss of section, tightness of connection and any components requiring strengthening or replacement. MEWP Access + Operator to be supplied by Client.

c. Column Inspections

Columns encased within brickwork to the main hall, wraparound and colonnade. Remove localised areas of brickwork encasement to columns at upper (beam connection) and lower (base plate connection) levels or where wet conditions are observed to a large representative number of columns (at least 50% of all columns) recording corrosion levels, loss of section, tightness of any exposed connections and any components requiring strengthening or replacement.

- Carrying out localised breakouts to columns encased within brickwork to the main hall, wraparound & colonnade (18No. in total)

d. Precast Concrete Slab/Roof Planks

Precast concrete floor/roof planks, forming suspended slabs, to the wraparound (1st floor and roof) and colonnade roof – Undertake a full visual survey to the soffit and top surface of all slabs (roof slabs can only be inspected from the top with the waterproofing in place) noting any cracking, spalling, exposed corroding reinforcement, sagging of the slabs between supports and any other defects. Carry out insitu and laboratory testing of the concrete to determine durability, establishing cover to reinforcement, chloride content and depth of carbonation. Undertake localised breakouts to examine the condition of the embedded reinforcement/tendons and whether observed surface cracking extends through the structural plank member. The 1st floor of the wraparound would need to be cleared of any carpet or other finishes (by others) prior to the survey taking place.

- 9No. survey locations (Precast concrete Slab/Roof Planks)

e. Ground bearing slabs

Ground bearing slabs to the Main Hall, Colonnade and Wraparound – Undertake a full visual survey of the top surface of all slabs which should be cleared and swept clean of all debris (by others) in advance of the survey. Make spot checks for flatness and record any cracking or other surface defects.

Undertake intrusive breakouts/core investigations where cracking is observed to determine if cracks pass through the structural slab or screed only. Cut cores through the slab at 1 location in each of the three areas (Main Hall, Colonnade and Wraparound) to determine the slab thickness, test the cores for compressive strength and undertake window sampling to establish the thickness of any sub-base and the Modulus of Subgrade reaction (K value) of the underlying sub-grade. Determine the live load capacity of the slabs in kN/m². Reinstate core holes and lap repair any damp-proof membrane (DPM) encountered.

- Ground bearing slabs to the Main Hall, Colonnade and Wraparound – Undertake a visual survey of accessible areas of the top surface of all slabs. Extract 3No. Cores for compressive strength testing and carry out DCP (Dynamic Cone Penetrometer) surveys at each core location.

f. Encased Steel Beams

Concrete encased steel beams to the Colonnade and Wraparound structures – Undertake a full visual survey of all downstand beams recording all cracking, spalling, exposed steel sections or evidence of corrosion. Remove localised areas of concrete encasement to all beams exhibiting distress in one form or another recording corrosion levels, loss of section, tightness of any exposed connections and any components requiring strengthening or replacement. Make further intrusive investigations to a representative number of visually undamaged beams to confirm good conditions at these locations.

- Beam surveys (18No. in total)

g. Reinforced Concrete Edge Beams, Stairs & Window Surrounds (Internal)

Inspect reinforced concrete elements (not suspended floor slabs covered under item d above) comprising wall sections, window surrounds, edge beams and any other components for cracking, spalling, exposed corroding reinforcement. Carry out insitu and laboratory testing of the concrete to determine durability, establishing cover to reinforcement, chloride content and depth of carbonation.

- RC surveys (2No edge beams + 2No window surrounds (internally) and 1No set of stairs)

h. Brick Walls

Brick wall sections with rendered finish exhibiting cracking, spalling or other defects. Visual and intrusive survey to determine and record locations and whether defects propagate through the brickwork or are confined to the render finish.

- 8 No. brick wall investigations – 5 No. in bad condition and 3 No. in good condition for comparison + 2No mortar analysis * slight increase due to concerns on quality of workmanship

i. Foundation Inspections

Depth of foundation investigation – Trial pitting at column and wall locations to the Main Hall, Colonnade (where previous investigations have revealed inadequate foundations) and Wraparound. On exposure of foundations measure the dimensions of the pad/strip footing and take a concrete sample for Sulphate content analysis. Undertake trial pits at up to 15 locations over a 5-day operation.

- 7 Foundation investigations – Trial pitting (Main Hall 3No. Colonnade 1No. and Wraparound 3No.) To deploy a mini digger, with a Trial Pitting Team, within the Main Hall to excavate trial pits at a single corner of the columns bases to expose the pad/strip foundations to 5No steel columns to enable the Engineer to record the detail. NB we will also seek to confirm the presence, condition and size of any steel column base plate that may be embedded within the concrete footing. We will also excavate a trench close to a masonry wall to inspect and detail the strip foundation.
- We have also included for extracting a total of 5No concrete core samples from a selection of the exposed foundations, which will provide samples to determine the compressive strength, cement content, and sulphate content of the concrete.
- Client to provide service/utilities plans and info prior to any ground being broken/excavation
- trial pits, the specified locations will be scanned with impulse radar to obtain information on the thicknesses of the wall and slab and to, where possible, identify any features such as foundation edges that can be used to help us better target the pit locations.
- We have assumed that the slabs at the trial pit locations are ground bearing and no more than 250mm thick of lightly reinforced concrete. The trial pits will be excavated using a combination of electrical breakers and hand tools.

3. Access, Health and Safety

- a) Site personnel should report to site security prior to commencement of the works. GBG operatives to undergo a site induction as required. Once GBG operatives have received an initial induction, there is no further requirement

for daily inductions. GBG will review the Asbestos register once issued, prior to the works commencing.

- b) Access permissions and any necessary working protection will be supplied by Barratt London free of charge to us, who will be responsible for ensuring and maintaining a safe working environment for our operatives. We, and any subcontractors we may employ on this task, undertake to observe all appropriate safety procedures as required by the Client or his Principal Contractor where appointed under CDM Regulations 2015, and to act only as directed and instructed in matters of safety and security, and according to any Risk Assessment and Method Statement submitted and approved.
- c) Task specific working protection to be provided by GBG.
- d) Client to complete all enabling works, including removal of the decommissioned tanks and pallets within the canteen in order to inspect high level connections.
- e) We understand that there is parking available on site for our site vehicles.
- f) All work will be carried out with equipment transported on a wheeled trolley or carried by hand by individual members of the survey team. There are no items exceeding 20Kg being carried on this project. All operatives to be trained in the correct lifting procedure, gloves will be provided. Any combined or awkward loads will be carried by two or more persons as necessary.
- g) All personnel will wear GBG Standard Approved PPE including as a minimum helmet, steel toecap boots and Hi-vis vest. Task specific PPE will be worn as required and as detailed in the risk assessment, as well as any other appropriate PPE as directed by Barratt London
- h) Access to the high-level elements (up to 3m high) internally will be via mobile scaffold towers or adjustable platform steps, erected and signed off by PASMA trained operatives.
- i) A mobile elevated work platform (MEWP) will be used for part of the works to enable access to the underside of the roof and up to 11m. MEWP and IPAF operator provided by Barratt London. Valid LOLER Inspection Tag to be checked by both the Client and GBG.
- j) A second surveyor/ground marshal will remain on the ground at all times during the MEWP works, and they will remain in verbal communication with the operative within the cradle at all times.
- k) All GBG survey staff working within the MEWP cradle will wear a harness secured to the cradle via a lanyard. The MEWP will be operated by an IPAF trained operator only. MEWP to be cordoned off as required.
- l) For non-destructive testing (NDT) survey instrumentation, power will be supplied by sealed batteries provided by GBG and any electrical drilling/exposure/cutting equipment will be battery or 110V powered by centre-tap transformer from local mains.
- m) All personnel will wear GBG Standard Approved PPE including as a minimum helmet, steel toecap boots and Hi-vis vest. Task specific PPE will

be worn as required and as detailed in the risk assessment, as well as any other appropriate PPE as directed by Barratt London.

GBG Standard Approved PPE

Hard Hat – EN397:2012, EN50365:2002 – Colour Blue with GBG Logo.

High-Visibility Clothing – EN ISO 20471:2013 Class 2 or 3 – These are generally Yellow Class 3 Weatherproof Jackets or Class 2 Waistcoats with the GBG logo on the back.

Safety Boots – EN ISO 20345:2004-P – Lace-up boot with ankle support, toe and midsole protection.

Eye Protection – BS EN166-1B349KN Safety Goggles – For protection against sparks, medium particulate impacts and large dust during metal cutting or grinding, concrete drilling, coring and breakout operations.

Task Specific

Hearing Protection – Disposable Earplugs to EN352-2 or Earmuffs to EN352-1 –for drilling, breaking and sampling.

Respiratory Protection - EN194 FFP3 (Face-fit Tested) - Disposable mask for protection against dust from drilling.

Hand Protection –
Mechanical Operations – BS EN388:2003 – General handling gloves.

Fall Protection – EN361:2002 Full Harness with EN354:2010 Lanyard – For working in a MEWP or cradle or any place at height without full barriers.

4. Key Safety Issues

The key issues relating to the site survey team operatives, the Client and others are:

- a) *Slips, Trips and Falls*
- b) *Working at height up to 11m*
- c) *Working in and around other trades*
- d) *Electrocution/fire*
- e) *Eye Damage - Lasers*
- f) *Falling into trial pits*
- g) *Striking of services*
- h) *Causing undue damage to the structure*
- i) *Back injury – Manual handling*
- j) *Dust & debris from drilling or cutting*
- k) *Working with sharp tools – cuts/abrasions*
- l) *Hand arm vibration (HAVS)*

- m) *Noise during drilling/breaking*
- n) *Asbestos*
- o) *Plant – MWEF*
- p) *Falling objects*
- q) *Dermatitis – working with cementitious materials*
- r) *Contracting and/or spreading Covid 19 (Coronavirus)*

These are dealt with in the accompanying Risk Assessment, appended at the end of this document.

GBG will carry out all works with care, including excavations, and continually be vigilant to the presence of voids or other unknown risks, which may only become apparent during the works. GBG to review this Method Statement and Risk Assessment as the works progress.

Emergency Procedure

A charged and working mobile telephone will be on site at all times. If an accident occurs, the emergency services will be contacted by dialling 999. An ambulance and rescue service will be requested as appropriate and full details given as requested by the emergency services operator. If the accident is not severe enough to warrant an ambulance, the person will be taken to the nearest hospital. Details of the nearest hospital are given below.

Each team will contain a member trained in Emergency First Aid at Work and will carry a First Aid Kit suitable for the circumstances.

The immediate priority in the event of an emergency is to ensure the safety of all personnel, deal appropriately with any casualties and to make the area safe.

All accidents, incidents and near misses must be reported subsequently to the GBG Head Office (details provided below), so that follow up actions can be taken and recorded in accordance with Company and current legislative procedures.

Asbestos

The works will generally involve drilling into concrete and masonry encasement. There will be no intrusive works with the areas of known asbestos containing materials. The survey team on-site will have completed an Asbestos awareness course and hold current asbestos awareness certificates.

Prior to works commencing our project team and Lead Investigation Engineer will review the site asbestos registers and all available information relating to the presence of asbestos in the building. A copy of any available Asbestos survey registers and reports will be kept on-site for continued reference.

In the event that a suspected ACM is encountered during the course of the site investigations, then the procedures outlined within the appended HSE EM1, Asbestos Essentials, 'What to do if you uncover or damage materials that may contain asbestos', must be followed. Any areas where a suspected ACM is encountered will be reported to The Client's Building Management immediately¹²

Coronavirus (COVID-19)

GBG are currently following the government guidance for employers and businesses on coronavirus (COVID-19), including working from home where possible and those on self-isolation where employees or employee's housemates display symptoms of COVID-19.

All survey team briefings, preparation and review of method statements, risk assessments, ISO procedure and quality control documents, as well as any other survey administration, is currently being carried out without face to face contact (remote working) where possible.

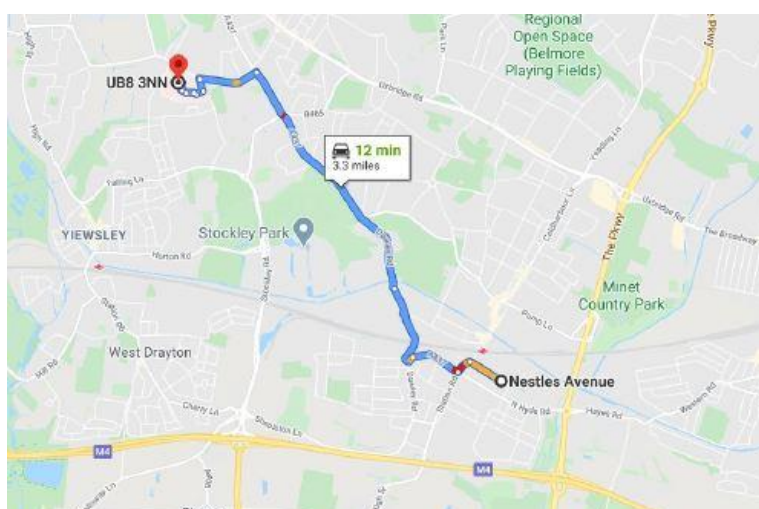
Survey team members will attend the GBG workshop to test and prepare the survey equipment and travel to site in teams of no more than two, using company vehicles and without use of public transport.

During travel and whilst on-site, all survey team members to continue to follow government advice on how to avoid catching and spreading coronavirus, including on social distancing and personal hygiene.

If someone becomes unwell on-site or on their journey, with symptoms of COVID-19 (a new, continuous cough or a high temperature), they must go home and follow government guidance, including on self-isolation and reporting of coronavirus symptoms. The illness must be reported to the GBG management. In the event that they are unable to drive themselves home, a GBG employee will drive them home, ensuring the vehicle is well ventilated, and maintaining government advice on how to avoid catching and spreading coronavirus.

Nearest Hospital

Hillingdon Hospital
Pield Heath Road
Uxbridge
Middlesex
UB8 3NN
Telephone: 01895 238282



Any safety issues arising on site should be recorded here in writing at the time:

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5. Working Procedures and Equipment

Equipment to be used

- *Impulse Radar/structure scan*
- *Ultrasonic Thickness Gauge*
- *Dynamic Cone Penetrometer*
- *Hilti TE60 or similar percussion drill*
- *Hilti TE1000 or similar breaker*
- *Angle Grinder – Cutting Discs*
- *Core rig- Concrete Core sampling*
- *Hand tools – trial pitting and measurement*
- *Covermeter*
- *RD400 – C.A.T*
- *Aluminium scaffold tower/podium*
- *Hand held distometer*
- *Leica BLK360 laser scanner with tripods*
- *DSLR Cameras*
- *Tape measures*

NDT Methods

Impulse Radar Surveys

- a) A Structure Scan radar system powered by sealed batteries shall be primarily used to non-destructively determine near surface reinforcement arrangement and material thicknesses within the concrete elements.
- b) Data will be collected using an in-built transducer with a centre frequency of 1500/1600MHz.
- c) In order to correlate the radar data with the position on site, each scan location shall be recorded. A grid will be marked on the area to be surveyed using either chalk or masking tape dependant on the surface finish and location. The grid spacing will be selected to suit the requirements of the survey.
- d) Data will be collected using impulse radar in continuous and unbroken survey lines along and across the survey areas.
- e) As far as is possible, data will be analysed in real time (on-site) to ensure the objectives of the survey are being achieved and to allow the intrusive inspection locations to be selected on-site.

- f) The data may also be post processed at the GBG offices to relate the travel times recorded to depths via velocities derived from the intrusive inspection data that is available, internal calibration values and reflection coefficients.
- g) Where the collected radar data is analysed in the office this will be done using Reflex software.
- h) Photographs will be taken of areas of interest.

Covermeter Measurements

- a) A covermeter will be used to locate reinforcement or steel sections in concrete.
- b) At each location to be tested the meter will be calibrated, in accordance with the manufacturer's instructions, by selecting calibrate function and self-zeroing in an area remote from steel.
- c) At survey locations the search head shall be moved horizontally and vertically over an area of approximately 500mm in each direction, centred about the location being surveyed.

Physical Measurement

- a) Measurement will be using a combination of tape measures, laser distance measurers and Vernier callipers.
- b) An ultrasonic thickness gauge will also be used to measure the thickness of metal element components where direct measurement is not possible.
- c) Photographs will be taken of areas of interest.

Roof Truss Laser Scanning

Laser survey of 2No. roof trusses to enable us to check the consistency in layout and dimensions, prior to compiling a generic roof truss dimensional drawing

- a) A tripod mounted Leica BLK360 laser scanner will be used to collect a large number of high-density measurements across the surface of the exposed roof areas within the specified trusses
- b) The scanner should be operated both at ground level and elevated to close to ceiling height in order to collect as full a dataset as possible. We can operate the scanner from either a 7m tripod, or standard tripod in a scissor lift to reach the required levels.
- c) The scanning laser is an invisible class 1 laser in accordance with IEC 60825-1 (2014-05) as per attached datasheet. Each scan produces a cloud of 3D measurement points (point cloud) within a 360-degree field of view, taking around 10 minutes per scan and generating several million datapoints. Multiple scans will be collected to minimise blind spots, which will be subsequently processed (registered) into a coherent point cloud of

the entire space, that can be queried for dimensions with an accuracy of approximately $\pm 6\text{mm}$ (at a range of 10m, so in this case the accuracy will be more like $\pm 3\text{mm}$). The scanner also generates a 360-degree spherical photographic image of its surroundings at each setup location.

- d) A high resolution DSLR camera, with external flash will be used from the scissor lift to take images of the exposed areas. Around 50-100 images will be taken per area, which can be photogrammetrically processed into 3D point clouds/surface models.

Intrusive Methods

Localised Breakouts/coring

- a) In a number of locations, concrete cover to the reinforcement/steel on the framing elements will be locally broken out in order to record the size, type and condition of embedded reinforcement/steel. The drills will be battery powered, or 110V powered by mains electric via a step-down transformer. A vibration damped Hilti TE 60-ATC-AVR (03) or similar combi-breaker would be employed to remove the concrete/masonry encasement
- b) Cores will be cut using a diamond tipped bit with water flush on an electrically (110V) powered drilling rig. The core rig comprises a stand and a motor with an attached coring barrel. The total weight of the rig is approximately 25Kg but can be split into two for easier handling and transportation. Prior to coring/drilling, the test locations will be scanned using a covermeter or impulse radar, as described above, to locate near surface reinforcement so that this can be avoided during the coring and drilling process.
- c) Ear, eye and respiratory protection to be worn by the operatives. Well maintained and sharp tools used to minimise noise and vibration.
- d) Dust extractor attachment to drills will be used to minimise dust that maybe created during breaking out. A vacuum cleaner will be attached to the drill and any dust particles from the drilling exercise will be vacuumed as the work progresses. Staff carrying out the intrusive works have undergone face fit training/testing.
- e) The depth of carbonation will be estimated at concrete sample and breakout locations using a phenolphthalein indicator solution sprayed on a freshly fractured concrete surface.
- f) The survey will be carried out in accordance with BS1881 part 204.
- g) Photographs will be taken at each of the exposure and survey areas.

Concrete Dust Sampling

- a) A covermeter will be used to avoid reinforcement during sampling and to determine the localised minimum depth of cover.
- b) At each location to be tested the meter will be calibrated, in accordance with

the manufacturer's instructions, by selecting calibrate function and self-zeroing in an area remote from steel.

- c) At sample locations the search head shall be moved horizontally and vertically over an area of approximately 500mm in each direction, centred about the sample location. The bar locations shall be marked on site. The minimum cover shall be recorded.
- d) Concrete dust samples will be obtained by percussion drilling using a 20 or 25mm drill bit in a battery or 110V powered electro-pneumatic drill. The dust from the first five mm of drilling will be discarded to avoid surface contamination. The concrete dust from the next 25mm will be collected and placed in a labelled bag. The bag is to be labelled with sample number, job number and a short job name.
- e) The depth of carbonation will be determined using a phenolphthalein or rainbow indicator sprayed on a freshly fractured concrete surface
- f) The sample details will be recorded on a GBG sample sheet at the time of sampling.
- g) The equipment will be operated by a suitably experienced and trained operator.
- h) Photographs will be taken of areas of interest, including test and exposure locations.
- i) Laboratory testing will be undertaken in accordance with British Standards at a suitable quality controlled laboratory

Steel sampling and testing

- a) Samples of steel from steel elements or reinforcing bars (c.150mm long) will be extracted for laboratory examination at the locations agreed in advance with the Client's Engineers.
- b) The samples will be cut using a hand held electrical 110V angle grinder fitted with a steel cutting blade. The grinder will be powered from mains electric via a step-down transformer.
- c) As a precaution, a fire extinguisher will be kept close to the survey locations at all times during 'hot works', specifically steel sampling. A GBG and Barratt London 'hot works' permit will be raised prior to any steel sampling.
- d) Where necessary, water dampened hessian sheeting will be used to control the spread of sparks within/behind cladding.
- e) Any corrosion product would be removed from the steelwork to enable the residual section size to be measured
- f) On completion of the works a 60 minute watching brief will be observed.
- g) Photographs will be taken of areas of interest

Concrete Breakouts

- a) Concrete cover to the reinforcement at bar locations will be determined

using a covermeter or impulse radar as described above.

- b) In a number of locations the steel will be broken out using a hammer drill to confirm the bar sizes, types, depth of cover and condition.
- c) Drills used will be battery powered, or powered by mains electric via a step down transformer.
- d) The survey will be carried out in accordance with BS1881 part 204.
- a) Photographs will be taken of areas of interest, including test and exposure locations.
- e) On completion all holes will be filled with a proprietary mortar, normally SBD Mulsifix. Before filling, the holes will be brushed and blown clean with a hand held pump

Trial Pits

- a) Client to complete all enabling works, including removal of de-commissioned tanks and pallets to the proposed trial pit locations before commencement of works.
- b) We will request information on the location of buried services so that they can be avoided during the ground investigations. Please note that we will deploy a services detector, prior to any ground excavation works being undertaken. However, we cannot take responsibility for damage to services that are not shown on the drawings, or where the relevant drawings are not received prior to our attendance on site.
- c) We will excavate 7 No. trial pits in order to determine the form of the foundations at the specified locations.
- d) The trial pits will be excavated using a combination of (110V) breakers and a series of hand tools.
- e) The trial pits will initially be excavated to a maximum depth of 1.2m with a gas monitor used as required. We have assumed that the trial pits will not need to exceed approximately 1m x 1m on plan. We have assumed that the slabs at the trial pit locations are ground bearing and no more than 250mm thick of lightly reinforced concrete.
- f) We do not currently foresee the need for confined space working with harnesses and evacuation tripods etc., but proper care as per HSE guidance HSG150 for shallow excavations will be applied (see attached copy). Any deeper excavations would require temporary support and confined space safety arrangements which would necessitate a revised Method Statement and Risk Assessment.
- g) Photographs will be taken of areas of interest.

Reinstatement & Waste

We have allowed for reinstating all intrusive testing and sampling holes to concrete with a proprietary cementitious repair mortar, such as Weber Mulsifix HB40. Before filling, the holes will be brushed and blown clean with a hand-held pump.

All trial pits will be backfilled and compacted. The concrete slab will be reinstated with a 150mm thick concrete layer, using a pre-batched bagged concrete. We have not allowed for reinstatement of any decorative finishes, waterproofing or steel reinforcement at this stage.

We assume that the concrete rubble and soil can be tidily stored on site for disposal by others during the refurbishment works.

6. Personnel to Carry out Works

- a) On site: 4-5 GBG operatives will be required to run the investigation and equipment.
- b) The GBG Project Manager will brief the survey team in advance of the survey, during which the Method Statement and Risk Assessment will be discussed and safety requirements identified. The Survey Brief and Risk Assessment will be signed by the GBG survey team. On site the entire survey team will undergo an induction by The Clients representatives to further discuss safety on site and PPE requirements, which will include helmet, steel toecap boots and h-vis vest as well as anything specified in the Risk Assessment.
- c) On site the entire survey team will undergo an induction by Barratt London to further discuss safety on site and PPE requirements, which will include helmet, steel toecap boots and h-vis vest as well as anything specified in the Risk Assessment.
- d) The GBG team members attending site are Investigation Engineers and Technicians employed by G.B.G and have completed various in-house training courses in the operation of the equipment to be used on site. The GBG team leader has significant hours of experience in operating the equipment in the field.

7. Welfare

- a) The survey team will request the use of the washroom and toilet facilities on-site. In the event that these are unavailable the client must notify GBG in advance so that alternative arrangements can be made.
- b) A first aid kit and anti-bacterial hand wipes will be kept on-site.
- c) The survey team will contain one member with First Aid training.

8. Specific Competency Requirements

- a) CSCS (All staff)
- b) UKATA Asbestos Awareness (Staff carrying out intrusive works)
- c) IPAF (person responsible for operating the MEWP provided by the Client)
- d) PASMA (person responsible for erecting mobile tower platforms)

- e) First Aid training (One team member)
- f) Ladder training (personnel using ladders)

9. Interface with Other Works

- a) To be controlled by the Client.
- b) GBG to liaise directly with the Client and other Contractor Management teams on arrival and daily to agree the work areas.
- c) Survey team to wear high-vis vests and remain vigilant at all times during the survey.
- d) Temporary pedestrian barriers Chapter 8 or cones and barrier tape will be erected around the openings and the pits will be covered with boards during the works, prior to reinstatement. No public access will be allowed within the near vicinity of the trial pits.
- a) Temporary pedestrian barriers Chapter 8 or cones and barrier tape will be erected around the MEWP during the works. No public access will be allowed within the near vicinity of the MEWP. A ground marshal will remain on the ground at all times during the MEWP works

10. End of Working Shift

- a) Team leader to supervise removal of all materials and equipment from the work locations.
- b) Surplus rubble or soil will be bagged and tidily stored on the Canteen site for disposal by others during the refurbishment.
- c) All team members to ensure that all work locations are left clean and tidy.
- d) All survey team members to sign out as required.

11. Quality Control

- a) All work to GBG ISO9001:2015. QA Procedures: QAP 9 refers. Standing Instructions for onsite operations and data collection to be followed.
- b) All data processed on site must be relayed back to the GBG Project Manager for quality reference by fax, email or telephone as required.
- c) Equipment to be calibrated on site and generally to QAP 11.

12. References

- a) GBG proposal dw0120GCE NC108 PO2

GBG Project Team Signatures (Ink on Hard Copy)

All Project Team members have read and understood the Risk Assessment and Method Statement for this project, and have been fully briefed on the required measurements and procedures.

Project Manager: Date:.....

Site Team Leader: Date:.....

Other: Date:.....

Other: Date:.....

On Site Checks by GBG PM or Site Team Leader***Safety Training & Certification***

Asbestos Awareness Trained: Expiry:..... Date:.....

First Aid Trained:..... Expiry:..... Date:.....

CSCS:..... Expiry:..... Date:.....

SSSTS:..... Expiry:..... Date:.....

PAMA Trained: Expiry:..... Date:.....

Ladder Trained: Expiry:..... Date:.....

IPAF Trained: Expiry:..... Date:.....

Equipment & Materials & Licences

Specified PPE :..... Date:.....

Electrical Equipment PAT Tested :..... Date:.....

HAVS Assessment:..... Date:.....

COSHH Assessment:..... Date:.....

Valid LOLER Inspection Tag :..... Date:.....

In the event of any issues arising from this Method Statement or Risk Assessment please contact GBG head office (Cambridge) on 01223 812464:

George Ballard – Chairman
Nick Fleming – Director



Project Name: Nestle – Canteen, Hayes	Client: Barratt London	Date: 30/03/2020	Project No. 4689
Activity: Structural Investigations	Persons Exposed:	GBG: 5	Other workers: ?
	Public/visitors: ?	Total persons at risk: 5+	

<table border="1"> <tr><td>6</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td></tr> <tr><td>5</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td></tr> <tr><td>4</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td></tr> <tr><td>3</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td></tr> <tr><td>2</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td></tr> <tr><td>1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>X</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> </table>								6	6	12	18	24	30	36	5	5	10	15	20	25	30	4	4	8	12	16	20	24	3	3	6	9	12	15	18	2	2	4	6	8	10	12	1	1	2	3	4	5	6	X	1	2	3	4	5	6	Risk Rating = Likelihood x Severity 1 – 3 Maintain Controls 4 – 6 Fine-tune Controls 8 – 10 Improve Controls 12 – 36 Apply New Controls or Stop Work Immediately.		Likelihood Rating 1 = Very Unlikely Rating 2 = Unlikely Rating 3 = Possible Rating 4 = Likely Rating 5 = Very likely Rating 6 = Almost Certain	Severity Rating 1 =Trivial injury Rating 2 = Minor/non-permanent injury or illness Rating 3 = Major/permanent injury to one person. Rating 4 = Major injury to more than one person. Rating 5 =Death to one person Rating 6 =Death to more than one person
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HAZARD	Risk Factors		Risk A x B	D	E	F	G	H																																																				
	Likelihood	Severity		CONTROL MEASURES TO REDUCE LIKELIHOOD OR SEVERITY	Remaining Likelihood	Remaining Severity	Residual Risk E x F	Implemented by (name)																																																				
Tripping (Trailing Cables), Slips & falls	4	3	12	All equipment will be operated from mobile trolleys or handheld. All leads will be kept as short as possible and tidy. Good housekeeping will be observed at all times. Appropriate footwear will be worn all the time. Care to be taken by operators.	2	2	4	LB																																																				
Electrocution/fire	2	3	6	All power tools will be battery operated where possible, or will be low voltage (110V) powered from mains electric via a step-down transformer. Tools and leads will be checked for safety prior to work and more frequently if required. A fire extinguisher will be kept close to the survey areas during 'hot works'. As a precaution, a fire extinguisher will be kept close to the survey locations at all times during 'hot works', specifically steel sampling. A 60 minute watching brief will be observed after completion of hot works.	1	2	2	LB																																																				
Back Injury – Manual Handling	3	3	9	Equipment will be broken down as much as reasonably possible. There are no items exceeding 25Kg being used on this project. All operatives to be trained in the correct lifting procedure. Any awkward loads will be carried by two or more persons as necessary	2	1	2	LB																																																				
Eye Damage - Lasers	2	3	6	Lasers on Mini Structurescans, Leica equipment and Disto's are Class 2 and will not cause eye damage unless stared into. Nearby Operatives/Public should be warned.	1	3	3	LB																																																				
Working at Height (up to 11m)	5	5	25	MEWP to be used for high level access. Operatives wearing harnesses attached to MEWP whilst working. MEWP driver to be IPAF certified. A second surveyor/ground marshal will remain on the ground at all times during the MEWP works, and they will remain in verbal communication with the operative within the cradle at all times. LOLER certificate to be examined before MEWP usage. Both MEWP and IPAF operator supplied by Client	1	5	5	LB																																																				
Dust & debris from drilling or cutting	4	3	12	GBG standard approved PPE including eye protection, dust masks and gloves will be worn Spread of dust to be controlled by use of dust sheets as required. Internal ventilation increased by opening windows and doors.	2	2	4	LB																																																				
Hand arm vibration (HAV)	2	3	6	Drilling equipment's well maintained. Operative to follow HSE guidelines on exposure levels. See attached HAVS assessment.	1	3	3	LB																																																				

	Signature	Name (Printed)	Position	Date
Assessment Completed by:		Lyes Boudene	Project Manager	23/03/2020
Assessment Authorised by:		Jon Dear	Operations Manager	23/03/2020



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Severity 6 5 4 3 2 1 X	6	6	12	18	24	30	36	Risk Rating = Likelihood x Severity 1 – 3 Maintain Controls 4 – 6 Fine-tune Controls 8 – 10 Improve Controls 12 – 36 Apply New Controls or Stop Work Immediately.	Likelihood Rating 1 = Very Unlikely Rating 2 = Unlikely Rating 3 = Possible Rating 4 = Likely Rating 5 = Very likely Rating 6 = Almost Certain	Severity Rating 1 =Trivial injury Rating 2 = Minor/non-permanent injury or illness Rating 3 = Major/permanent injury to one person. Rating 4 = Major injury to more than one person. Rating 5 =Death to one person Rating 6 =Death to more than one person		
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	1	1	2	3	4	5	6					
	X	1	2	3	4	5	6					
HAZARD								CONTROL MEASURES TO REDUCE LIKELIHOOD OR SEVERITY				
Risk Factors Likelihood Severity		Risk A x B					Remaining Likelihood	Remaining Severity	Residual Risk E x F	Implemented by (name)		
Asbestos		3	4	12	In the event that a suspected ACM is encountered during the course of the site investigations, then the procedures outlined within the attached HSE EM1 Asbestos Essentials, 'What to do if you uncover or damage materials that may contain asbestos', must be followed. Any areas where a suspected ACM is encountered will be reported to the Client immediately.				1	4	4	LB
Lighting		2	3	6	During the shifts GBG will provide task specific lighting for the duration of the surveys. Client to ensure there is sufficient lighting to communal areas and fire escapes.				1	3	3	LB
Noise during drilling/breaking		4	3	12	Ear protection to be worn by the operatives. Well maintained and sharp tools used to minimise noise for the building users as far as reasonably possible.				2	3	6	LB
Causing undue damage to the structure		3	6	18	Only trained staff will carry out the survey under the supervision/brief of an Engineer.				1	6	6	LB
Handlings Cementitious materials		4	2	8	Appropriate PPE including gloves to be worn. Staff trained on working with cementitious materials. See attached COSHH assessment.				1	2	2	LB
Falling objects		3	5	15	Tools being used in MEWP will be secured to the MEWP cradle. Work areas cordoned off. A second operative to be in attendance on the ground at all times during the MEWP works.				1	5	5	LB
Working with Sharp Tools – cuts and abrasions		3	3	9	Drills are necessarily sharp and rotate. Operators are trained and care will be exercised when drilling, Standard PPE will be worn				2	3	6	LB
Falling into inspection pits		3	3	9	GBG will digging the trial pits. All trial pits will be covered when not in use, all pits will have an exclusion zone of Chapter 8 barriers and appropriate signage. Personnel to remain vigilant. Gas monitors to be used during excavation.				1	4	4	LB
		Signature		Name (Printed)		Position		Date				
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HAZARD	A	B	C	D	E	F	G	H
	Risk Factors		Risk A × B	CONTROL MEASURES TO REDUCE LIKELIHOOD OR SEVERITY	Remaining Likelihood	Remaining Severity	Residual Risk E × F	Implemented by (name)
	Likelihood	Severity						
Striking of services	3	4	12	Service location plans provided by Client will be checked prior to any ground being broken. A CAT scanner will be deployed to attempt to locate any buried services prior to excavation.	1	4	4	LB
Working in and around other trades	2	3	6	Building to be surveyed currently unoccupied and no other trades to be within close vicinity, however, if this changes GBG to liaise directly with the Client and other Contractor Management teams on arrival and daily to agree the work areas. Survey team to wear high-vis vests and remain vigilant at all times during the survey.	1	3	3	LB
Plant – MWEF	3	5	15	No public access will be allowed within the near vicinity of the MEWP. A second surveyor/ground marshal will remain on the ground at all times during the MEWP works, and they will remain in verbal communication with the operative within the cradle at all times and make sure no public/other trades access will be allowed within the near vicinity	1	5	5	LB
Contracting and/or spreading COVID-19 (Coronavirus)	4	6	24	Survey team members will attend the GBG workshop to test and prepare the survey equipment and travel to site in teams of no more than two, using company vehicles and without use of public transport. During travel and whilst on-site, all survey team members to continue to follow government advice on how to avoid catching and spreading coronavirus, including on social distancing and personal hygiene. If someone becomes unwell on-site or on their journey, with symptoms of COVID-19 (a new, continuous cough or a high temperature), they must go home and follow government guidance, including on self-isolation and reporting of coronavirus symptoms. The illness must be reported to the GBG management. In the event that they are unable to drive themselves home, a GBG employee will drive them home, ensuring the vehicle is well ventilated, and maintaining government advice on how to avoid catching and spreading coronavirus.	1	6	6	JD

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