Method Statement

Castlewood House

MS002 – Piling Activities

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Status of This Revision				
Overall Approval Status		**Yes**	**No**	**Date**
Cat A	Accepted for implementation. Work may proceed as planned.			
Cat B	Accepted for implementation with comments incorporated			
Cat c	Not accepted for implementation. Resubmission required.			
Date Returned to Deconstruct (UK) Ltd Project Manager				

Revision History		
Date	Revision No.	Details of Revision
04/09/19	00	Initial Issue of Document

	Print Name	**Signature**	**Date**
Sign off by Client representative			

Contents

Section 1 – Project Details			
Principal Contractor	Royal London Asset Management		
Contract/Site Name	Castlewood House		
Site Location	Central London		
Job No	**Revision**	**Date**	**Reference No.**
52790	00	04/09/2019	MS002
Work/Tasks to be Carried Out			
• Core Drilling Basement slab for Piling Activities • Piling works			
Dates/Times the Work Will be Carried Out			
Date From	30/10/2019	**Date To**	04/08/2020
Daily Start Time	0800	**Daily Finish Time**	1800

	Section 2 – Significant Hazards & Risks
	Significant Details of Risk Assessment or Reference to Risk Assessment
	Manual Handling, Rotating auger, Exposure to noise & vibration, Piling Plant Operations

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
Operatives competence	Site based personnel	High	All operatives will hold a current CSCS card and cards relevant to their work. Operatives will undergo the site induction. Operatives with correct level of training will be used for the task in hand. Operatives will be fit for work at the beginning of each shift. Operatives will attend daily safety briefings. Operatives' performance will be monitored by site supervisor.	Low
Slips and Trip	Site based personnel	Medium	Ensure exclusion zones are in place with adequate solid barriers and signage. Exclude all other works within area. All hydraulic hoses, cables and concrete lines will be routed out of walkways where possible. Good Housekeeping practice will be observed at all times with waste regularly cleared to a designated area until removed from site. Safety footwear to be worn.	Low
Delivery Wagons	Site based personnel & the general public	High	Wagon to have wooden floor or rubber matting to reduces slips. Edge protection must be provided on lorry bed, to be fitted prior to man access. Safe means of access and egress to be provided to lorry bed. Loading/unloading operations or crane operation to be controlled by an appropriately trained banksman.	Low
Collision with men or equipment	Site based personnel	High	Movement of rig to always be controlled by a trained banksman. Exclusion zone is to be set up and all non-essential persons are to be removed from the area.	Low

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
Failure of Drilling Rig	Site based personnel	High	Current inspection certificate, not more than 12 months old, to be provided with machine. Foreman to inspect the machine on delivery. Operator to inspect machine daily before use. Weekly inspection reports. Ensure hydraulic hoses are of the correct size and correctly fitted; daily / weekly rig inspections to identify if hydraulic hose replacement is required.	Low
Rotating auger (Restricted Access Piling)	Site based personnel	High	Only assessed and competent person to operate rig. No drilling is to be carried out without the appropriate interlock rig guarding in place, the interlock mechanism along with the emergency stop is to be checked daily to ensure correct operation before any drilling operations take place. The guarding is to cover the drill string from 0.5m from to 2m above ground level. Avoid loose clothing and maintain clean working area.	Low
Inadequate drilling platform	Site based personnel	High	Working Platform Certificate to be completed to confirm that platform is adequate before work commences. Machine is to be banked at all times whilst maneuvering on slopes. Piling Platform to be maintained throughout the piling operations.	Low
Manual Handling	Site based personnel	High	Use mechanical means where possible, such as winch and attendant excavator. Manual Handling training and toolbox talks. Good housekeeping to avoid trip hazards when lifting / carrying. Use correct tools for the job; don't improvise.	Low
Buried Services	Site based personnel	Medium	Permit to dig must be completed and issued by the Principal Contractor (PC) before any work commences. Services to be traced by a cable avoiding tool by a trained and competent person (PC). Any located utility apparatus must be uncovered by the PC. The permit to dig / excavate / break ground must be renewed at intervals no greater than seven days.	Low
Un-Exploded Ordnance Requirements	Site based personnel and the general public	Medium	Following the desk top study document ref: DA7499-00 of Castlewood House it has been categorised as 'Medium Risk'. In practice, this could involve pre-drilling the site at pile locations using a Magnetometer Survey to provide clearance.	Low

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
Noise	Operatives and the general public	Medium	Noise monitors are to be placed around the perimeter of the project (in accordance with Camden approved CMP) with readings recorded throughout the duration of the works. Should excessive noise levels occur, the working method shall be reviewed in order to reduce noise pollution to an acceptable level. This will be documented within Deconstructs site safety file for reference/review. Hearing protection will be employed by any operative working with/close to any sawing or breaking machinery. Visible signage is to be posted warning of the dangers involved in the task. A mandatory hearing protection zone and a 'hearing protection station' will be established by use of signage and chapter 8 barriers and all operatives directly involved in the works will be issued with suitable hearing protection. All excessive noisy works will only be undertaken during the prescribed noisy hours of work laid down by Camden Council.	Low
Nuisance Dust	Operatives, Site Personnel, The General Public, Environmental	Medium	As far as practicable construction techniques will be adopted that minimise dust emissions. Vehicles departing the project will be fully sheeted (where applicable) prior to leaving, this will prevent the likelihood of spoil leaving the back of tipper lorries during departure. Traffic Marshals will be under instruction to inspect vehicle wheels prior to departure and where required, jet wash significant amounts of dirt or dust. In the event of particularly wet weather, it is proposed that a visiting road sweeper will be utilised to provide additional support to keeping the highway clean. Typically, Traffic Marshals will maintain the cleanliness of the roadway as part of our maintenance regime around the site. The site will be monitored for dust (PM10), noise and vibration. It is anticipated this will require the following monitoring stations: Four (4) No. dust (PM10) MCerts monitors set with 150µg/m^3 and 250µg/m^3 Trigger and Action levels.	Low

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
Vibration			Vibration will be measured using a minimum 2No Din 45669 compliant (or similar). No of vibration monitors to be agreed. Monitors will be configured to send email alerts in the event of exceedance events. The project team will maintain a diary record log of all site activities and on receipt of email alerts for any noise/vibration exceedances will inspect the works activities on the site at the time of the alert and review the methodology being used and investigate any further practicable B.P.M measures that may be available. A complete record log of all exceedances will be maintained detailing responses and actions taken.	
Groundwater	Environmental	Medium	Thames water discharge license required. Groundwater to be filtered through DR10 silt buster/sediment tank prior to be discharged into sewers (pending Thames Water approvals).	Low
Piling in Close Proximity to Thames Water Sewer	Damage/ movement to Thames Water Sewers	Medium	Thames water sewers are above the level of the existing basement structure, therefore the risk of damage/movement to the structure is low. Deconstruct/CBRE are to liaise with Thames Water to organise existing condition survey of the sewer prior to piling works commencing.	Low
Piling in Close Proximity to London Underground & Royal Mail Tunnels	Damage/ movement to London Underground Tunnels	High	It is known that the Central line tunnel locations are based on survey information received from London underground ltd, with potential inherent location uncertainty up to 400mm due to London grid conversion. Temporary and permanent piles/foundations have been designed with consideration of the location of the existing London Underground; structures and tunnels, ensuring that pile tolerances and tunnel location tolerances have been allowed for. Acoustic specialist (Sandy Brown) has advised that further mitigation measures are not considered necessary. Deconstruct/CBRE are to liaise with London Underground & Royal Mail to organise existing condition surveys and movement monitoring of tunnels before (baseline monitoring), during and after the works.	Low
Falling Materials	Operatives	High	Where work at height is being undertaken, an exclusion zone is to be established (by use of chapter 8 barriers) around the immediate work area to reduce risk of anyone being struck by falling materials/tools. Where this is not practicable, a banksman shall be put in place and all tools shall be tethered.	Low

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
H.A.V.S.	Operatives	High	Deconstruct endeavour to use modern, effective and optimal hand tools in order to reduce HAVS exposure. All operatives will work within the HAVS guidelines stated within each tools operating manual, their duration and the tools vibration level will be recorded to ensure that operatives do not become over-exposed. An operative rotation system will also be employed.	Low
Electrocution	Operatives	High	All electrical tools are to be 110V, and are to be PAT tested (within 3 months) with the results held in the sites HS file. Tools are to be inspected before each use, and a thorough inspection will take place once a week, with the results logged onto a PUWER register.	Low
Slips Trips & Falls	Operatives and the general public	Medium	Housekeeping is to be maintained to a good and safe standard. Workstations are to be cleared continuously as works progress. Leads/cables are to be tied up off of the floor using sky hooks (or alike) to prevent slips, trip and falls or accidental damage. Walkways/fire escapes are to be kept clear at all times.	Low
Manual Handling	Operatives	Medium	Operatives shall not be exposed to any manual handling or lifting they are not comfortable with, in any case no repetitive lifting over 25kg will be undertaken. All waste material shall be bagged, bundled, moved by wheel barrow or trolley. All lifting to be undertaken by mechanical means where practicable with team lifting as a secondary alternative. A manual handling assessment shall be undertaken for all team lifting scenarios detailing size, weight and shape of material to be lifted and distance/height it is to be transported.	Low

Hazard	Identified at Risk	Uncontrolled Risk	Control Measures to be applied	Residual Risk
Nuisance Dust	Operatives, Site Personnel, The General Public, Environmental	Medium	During the proposed works dust may be produced, particularly during the breaking out of the existing concrete/masonry structure. A dust suppression system shall be introduced consisting of a fine water spray if deemed necessary on site. This will be controlled and limited. FP3 dust mask are available to all operatives should they be required and shall be mandatory to any operative directly involved or in close vicinity of the works. Dust monitors are to be placed around the perimeter of the project with readings recorded throughout the duration of the works (by others).	Low
Vehicles striking persons in areas of restricted space during vehicle manoeuvres.	Site Personnel & General Public	High	All deliveries must be pre-arranged and manoeuvred into position under the supervision of a suitably competent person – Deconstruct will appoint a road traffic manager to oversee such operations. **See risk assessment (Plant Movements) for controls of working around moving plant.**	Low

In order to ensure that the greatest risks are addressed first it is necessary to be able to rank those risks.

To do this takes a subjective judgment of both the likelihood of damage occurring (the likelihood) and the potential damage that would occur if the worst were to happen (the severity). By assigning a value to each task's likelihood and hazard and multiplying those together a risk value for that task is established.

LIKELIHOOD - Probable Frequency (taking into account whatever precautions are currently being taken):

Improbable Occurrence	Low
Possible Occurrence	Low
Occasional Occurrence	Medium
Frequent Occurrence	Medium
Regular Occurrence	High
Common Occurrence	High

SEVERITY of the hazard:

Trivial injury	Low
Minor Injury	Low
Major injury to one person	Medium
Major injuries to several people	High
Death of one person	High
Multiple fatalities	High

RISK - The expression of the risk is then the sum of multiplying likelihood by severity as in the grid below:

Likelihood				
Severity		High	Medium	Low
	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

Section 3 – Methodology & Sequence of Works
Detailed sequence of work operations in a logical order, easily understood: - Attach relevant drawings/sketches and/or technical information if required.

Introduction

As part of the temporary and permanent works for the project, restricted access piling, CFA Piling, sheet piling and rotary bored piling works will be undertaken.

Setting Out & Core Drilling for Early Stage Piling

The piles will be set out from grid by Deconstruct's site engineer using an EDM (to hold in date calibration certificate). A trained and competent operative will then carry out a CAT scan to the areas to ensure that no services are located under the proposed core locations. Any possible services are to be clearly marked on the slab using line paint and also a drawing for record purposed (this will be attached to the permit to dig). The drilling works will be carried out using a 110V rig and track mounted motor equipped with a 700mm Ø core. The drill rig base will be initially fixed to the slab with an M12 mechanical fixing. The fixing requires a 20mm diameter hole to be drilled at approximately 75mm deep using a handheld 110V rotary drill.

The drill motor is water cooled. Water is introduced to the motor and the cutting head (core) to cool the motor and lubricate the diamond tips via a water swivel attachment on the motor. Water will be kept to a **minimum** when drilling but **must** be used to cool the diamond segments that are braised onto the end of the drill cores or the segments will overheat and tear off the cores.
The MDU motor will be offered to the rig column and holding clamps closed. Drilling will commence and once the required depth is achieved, the drill will be removed from the hole and the core will then be extracted from the inside of the core tube. The open hole will then be covered using 18mm plywood which will be drilled and fixed in position using an SDS drill and screw and plug fixings. This methodology would then be repeated for all pile locations.

Mobilisation of Restricted Access Piling Equipment

The site will be prepared for the piling with diamond drilling or concrete sawing. Generally, temporary piling will be undertaken using the existing basement slab as the piling platform. A services check will be undertaken, and a permit to dig issued. The piling rig will be mobilised to site on a low loader using the approved transport route, into Bucknall Street. The ramps will be lowered, and plywood sheeting placed on the existing road surface as protection. The rig will then be tracked off the wagon, operated by remote control, and into the site. Rig access to the basement level is via the existing ramp, down to the basement level. The associated augers & drill casings and other sundry items of equipment such as toolboxes, pump unit and small tools will be delivered and unloaded by excavator.

A concrete pump, wash-out skip and fuel storage will then be delivered to site and established at basement level. Deconstruct will ensure all deliveries are pre-slung, have fall protection or can be unloaded by hiab or telescopic

handler. Steel reinforcement cages and sand / cement will be delivered in handle-able loads and lengths and transported into site using the excavator to an area designated on site for pile cage storage.

Piling Methodology for Restricted Access Piling

The rig will be tracked over to the pile position and the mast raised to vertical using the built-in levelling system and checked with a spirit level. The centre point of the auger will be checked again by Deconstructs site engineer to ensure that the pile is in correct position. Should the rig need to be adjusted, the aforementioned methodology will be repeated until pile position is correct. Piles will be bored using the rotary bored, continuous flight, cased and augered technique. The casing will then be rotated through the slab and into any unstable fill and Gravels using rotation only until it begins to show signs of stalling. At this point, auger sections will be lowered into the casing in lengths of 1m and jointed using hexagon connectors. The auger will then be drilled down within the casing until it is in advance of the casing shoe by approximately one auger section length. The auger will remove the bored material followed by the casing being advanced over the top of the auger. This process will be repeated until strata that is able to maintain an 'open' bore is reached, assumed to be between 1m and 2m below the piling platform level. At this point the augers alone, will be advanced in sections until founding depth is attained. Manual handling of the auger and casing sections will be reduced using the rig winch and / or an attendant excavator, using a lifting bell or sling. Operatives will be protected from accidental entrapment in the auger by means of an interlocked wing guard, in compliance with current HSE guidelines. Drilling spoil will be cleared away from the rig by means of an excavator, removed from the basement by conveyor (or similar) and loaded into muck-away wagons on a regular basis. The excavator may also be used to assist with movement of augers, drill casings, concrete hoses and pile reinforcement. The bore will be drilled to tolerances specified in SPERW 3rd Edition, of positional tolerance 1 in 75mm and verticality 1 in 75.

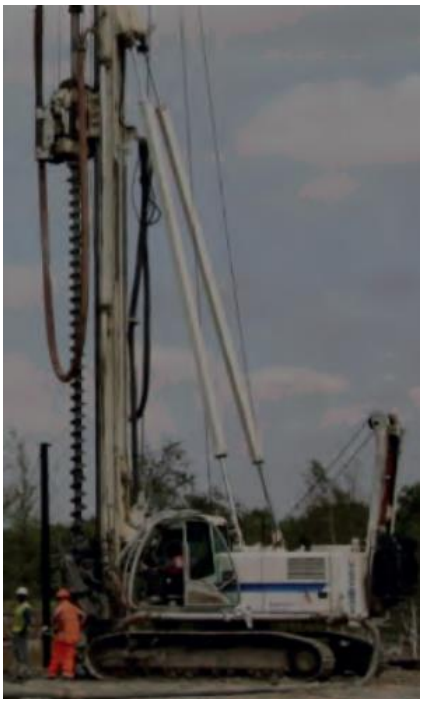
Once the founding depth has been reached, the augers will be completely removed from the pile in 1m sections, and the bore dipped with a weighted tape and the area cleared of excess spoil. Concrete is then pumped via a flexible 4" tremie-pipe to the base of the piles until full, and the temporary casings then removed in 1m sections, topping up the bore as necessary. The concrete pump and lines are to be cleaned in accordance with the procedure for cleaning concrete lines, with washout slurry being pumped into a washout box. The pile reinforcement will then be introduced into the open bore using the winch or an excavator in manageable lengths, lapped together as they are progressively installed. Skid spacer blocks will ensure concrete cover remains in accordance with the design.

The steel Kingposts will then be lowered into the pile using the winch of the piling rig. A steel rod will be fed through the kingpost (when at the desired level), which will be rested against the existing basement slab. The kingpost will be levelled using threaded bar, which will be anchored to the retaining wall (this can be removed once the pile has cured).

Piling Methodology for Bearing Pile construction using a Soilmec SR75 CFA Piling Rig and a Soilmec SR80 Rotary Bored Piling Rig

750mm diameter bearing piles have been specified to support the high building loads for Castlewood House, including some acting in tension. These high-tension loads require piles with full depth reinforcement, such that construction using the Rotary Bored Piling (RBP) methodology is required in order to ensure the correct cage installation. This method will also be employed for those piles in the B2 level with a low cut-off. The remaining

B1 compression piles will generally be constructed using the Continuous Flight Auger method with pile reinforcement and concrete cast to the piling platform.



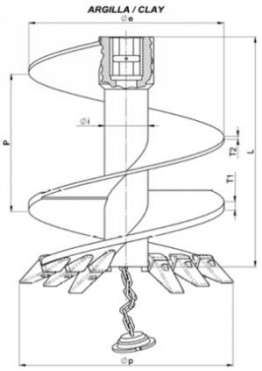
Following demolition works, the site will be prepared for the piling with a designed piling platform installed. The piling rig, Soilmec SR75 in CFA mode followed by a Soilmec SR80 in Rotary mode will be mobilised to site on a low-loader using the abnormal load procedure and the approved transport routes. A handling crane will also be employed, loaded in using the same transport. Due to Highways/Local Authority restrictions, the rig may be subject to "out of hours" delivery times.

The low-loader will drive onto the site where the tractor unit will detach itself from the trailer. The piling rig will be manoeuvred off the trailer and tracked to an area with a firm, level platform suitable for rigging up by the piling crew. The ramps will be lowered and plywood sheeting or track matting placed on the road and pavement as protection.

The rig will only be permitted to operate and travel on a designed and tested piling platform that will be established before the rig is delivered to site. The remaining CFA plant and equipment will be delivered using either 40ft articulated or 28ft flat-bed rigid Hiab wagons. Deconstruct will ensure all deliveries are pre-slung, have fall protection or can be unloaded with a 13t excavator or the handling crane.

Reinforcement will be delivered separately and transported into site in bundles and an area will be designated on site for pile cage fabrication.

B1 compression Pile Construction



All B1 compression piles will be constructed using Continuous Flight Auger (CFA) methods where a hollow stem auger is bored into the ground to below the base of the planned excavation. As the drilling tool or "auger" is bored and crowded (the vertical force exerted by the drilling rig to assist penetration) into the ground, rotation slightly greater than one rotation per flight pitch is required to loosen the soil and allow the tool to penetrate. Upon achieving the required depth, the auger string is withdrawn some 200mm to 300mm and a small amount of concrete pumped to allow the expendable cap to be blown clear of the digging head. The pile will be re-bored to full depth to clean the base prior to extraction.

Once at depth, a high strength concrete mix is pumped through the hollow stem to the tip of the auger tool as it is extracted from the ground at a controlled rate.

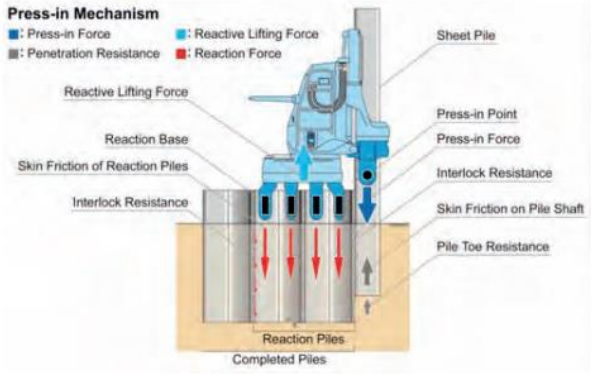
The rig instrumentation will be used to monitor the input volumes of concrete and pressure of the concrete as it is placed and control the rate of auger extraction accordingly. As is necessary, the auger string will be cleaned with the mechanical auger cleaner. Once extracted, the rig is backed away and spoil carefully cleared off the top of the pile to expose the clean, wet pile shaft using the attendant excavator.

Following spoil clearance, the reinforcement cage will be installed by lifting and plunging it into the wet bore with the aid of the attendant excavator.

The operatives will be protected from accidental entrapment in the auger by means of the CFA gate, in compliance with current HSE guidelines. Spoil will be cleared away from the rig by means of an excavator and removed from site via muck away wagons. The excavator will also be used to assist with movement of concrete hoses, general piling equipment and pile reinforcement. The rig will be positioned facing the site boundaries such that the weight and construction forces from the rig will not load or damage the boundary wall. Adjacent piles cannot be constructed on the same shift as this increases the risk of damaging the fresh concrete in the constructed pile from boring too close.

Sheet Piling for B2 Works

The site at Castlewood House is surrounded by office buildings, residential properties and has both London Underground and Thames Water tunnels in close proximity, therefore noise and vibration generated by conventional vibration and percussive sheet piling equipment would not acceptable. The sheet pile installation will be undertaken using Silent Piling and Vibration Free Sheet Piling equipment.



The equipment will be delivered to site following completion of the prep works, which involves breaking out a slip trench in the structural slab, excavating and back filling a lead trench along sheet pile line, which is close behind the existing basement RC wall. The pile press (also known as a Giken Rig or Still Worker) is a hydraulic rig that uses a reaction stand (ballast stack) to push sheet piles into the ground with a force of up to 150t.

Once the first three piles are installed from the stand, the rig then uses the driven piles as anchors in order to install piles along the row and literally walks from one pile to the next. The rig is attended by a small tracked crane. Sheet piling will begin from Bucknall Street elevation at B1 level. In order to commence the sheet piling works the reaction stand is positioned and our kentledge positioned onto the reaction stand. The kentledge gives the reaction force required to install the first three piles. The first three piles may be shorter than the actual pile length required. If shorter piles are to be used they will eventually be extracted and replaced with the required longer piles.

Once the first three piles are installed the Tosa “walks” onto the three piles. The clutches of the three piles are welded together (approximately 100 to 150mm of weld) to ensure the three pile act together to give the reaction to install the fourth pile. Once the Tosa is positioned on the three piles the kentledge and the reaction stand are cleared away from the working area.

The Tosa then operates from the top of the installed sheet piles. As piles are installed the Tosa is “walked” on and the three piles the pile press is positioned on are welded together. This general principal is adopted as the installation progresses.

Pre-augering and water jetting can be used to aid the installation in difficult ground conditions. A small diameter lance pipe is fixed using welded clips to the pan of the pile to be installed. There is a nozzle at the end of the lance pipe, positioned above the toe of the pile.

B2 and Tension Pile Construction

These piles will be constructed using rotary bored pile techniques with a temporary drill casing installed to support the unstable strata above the free-standing London Clay.

A telescopic Kelly bar driving a 750mm auger flight with reaming cutters, will be positioned over the setting out pin, with off-set pegs used to maintain the pile position during augering. This will then be rotated into the ground, pre-augering the soil to facilitate casing installation. The centre point of the 850mm OD temporary casing will be positioned into this hole and rotated through the unstable fill and Gravels using rotation only until a seal has been achieved in the London Clay. At this point, the 750mm auger will be lowered into the casing on the telescopic Kelly bar, and advanced in bites until founding depth is attained in accordance with the pile design schedule.

Drilling spoil will be spun off to one side, cleared away by means of an attendant excavator, and loaded into muck wagons on a regular basis. The bore will finally be cleaned using a digging bucket to ensure a clean base. The excavator or handling Crane will also be used to assist with movement of augers, casings, tremie pipe and pile reinforcement.

Once the founding depth has been reached, pile reinforcement will then be introduced into the open bore using the crane or excavator in suitable lengths, lapped together as necessary. Skid or wheel spacers will ensure 75mm cover. All piles will be reinforced over their upper section, whilst those selected piles with tension loads will have reinforcing bar over the full depth of the pile.

Concreting of Rotary Bearing Piles

Ready-mix concrete is directly discharged or pumped via a 4" pipe to the bore to a level of 1m above pile cut-off level, and any temporary casings removed. The concrete pump and lines are to be cleaned in accordance with the procedure for cleaning concrete lines, with washout slurry being pumped in to a visquene lined skip.
Any excessive concrete take, or failure to top up the bore will be reported to the Principal Contractor's site representative and recorded on the daily pile report.

Pile Cropping

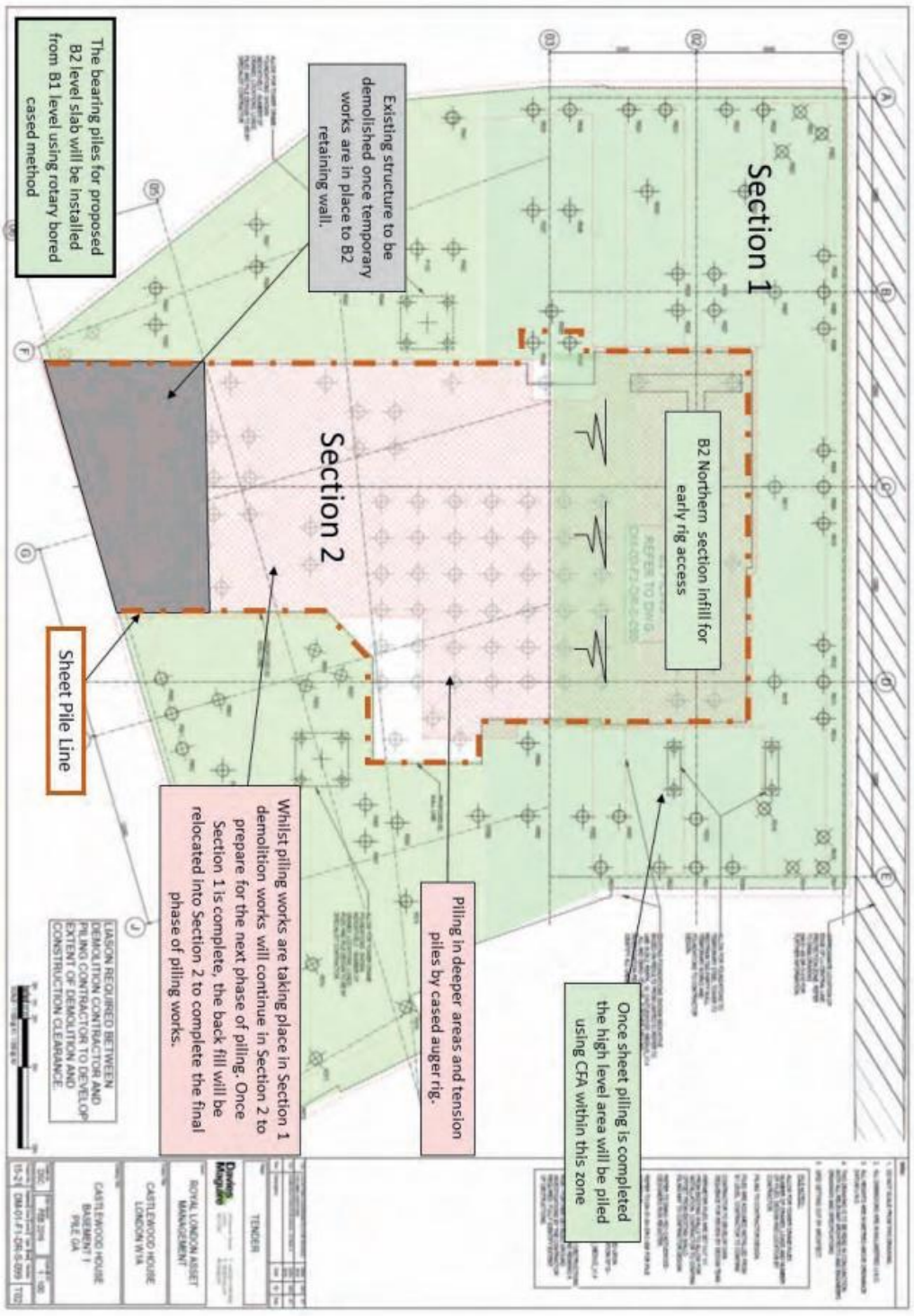
The area around the piles will be locally excavated using the 13tonne machine and forming battered slopes to prepare for the pile cropping and concrete pour of pile caps. The piles will be marked at cut-off level by Deconstruct's site engineer. Operatives will firstly saw cut the piles using a disc cutter equipped with a diamond cutting blade. Water will be applied throughout this operation to supress dust.

The piles will then be reduced using an excavator equipped with either a hydraulic pile cropper. It may be necessary to trim or even in some cases fully breakdown the pile using 110V hand held breakers, where a cropping attachment is not practicable. This is to be done as a last resort and only once suitable segregation (chapter 8 barriers with visible signage) has been established between plant and site operatives. Site supervisors are to ensure that works are rotated between operatives and that the Exposure Action Value (EAV) & Exposure Limit Value (ELV) stated within the manufacturers guidelines are not exceeded (if you are unsure what these are, ASK).

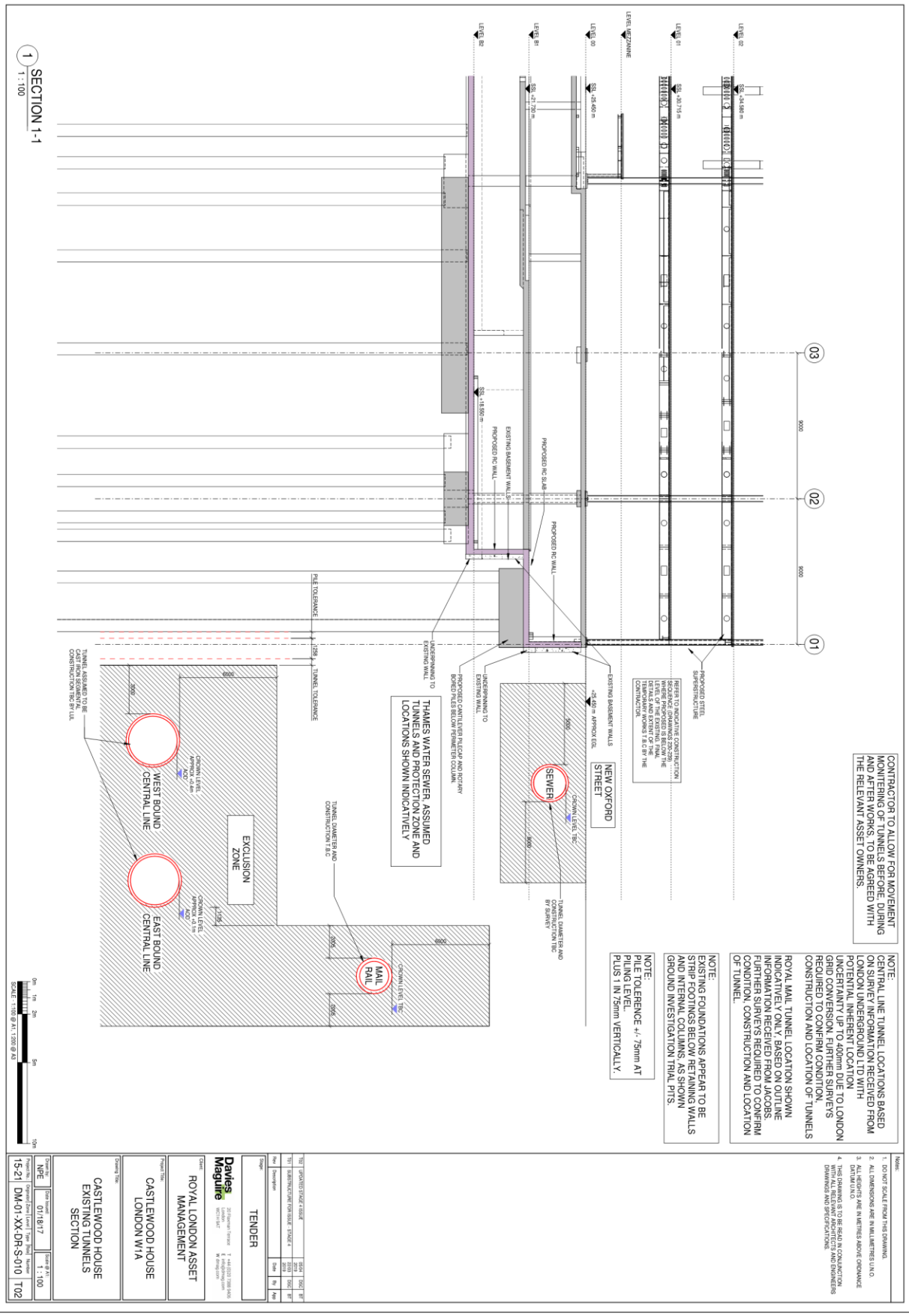
Concrete Testing

Cubes of 150mm³ will be prepared and tested at 7, 28 and 56 days. A slump test will also be performed on each concrete delivery to check the consistency of the concrete is compliant with specification. All piles can be subjected to a non-destructive pile integrity test by an independent testing house, after a period of 7 days has elapsed and following preparation of the pile head to cut-off level. However, for piles that are permanently bonded to the existing slab, integrity testing may not produce representative results.

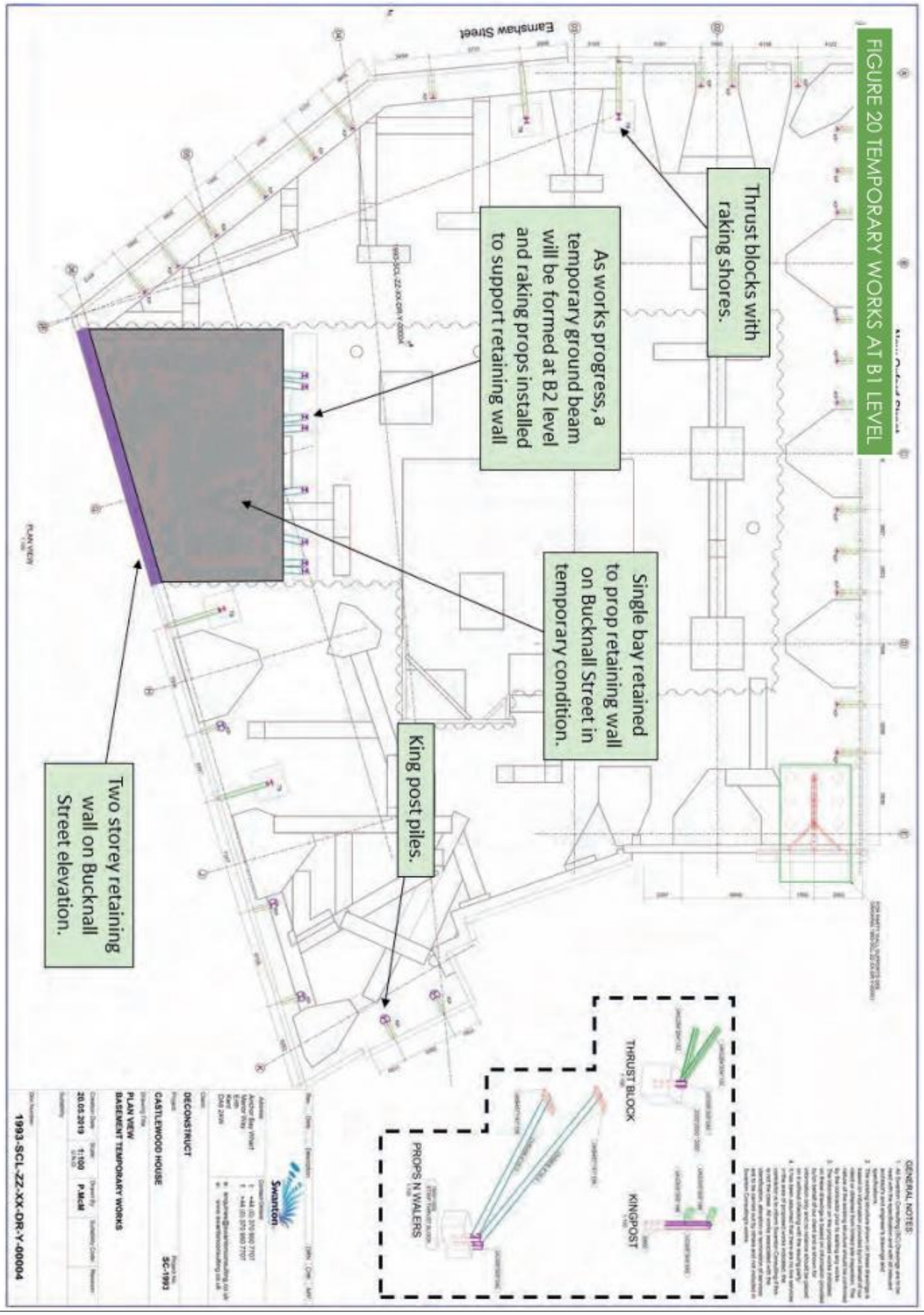
Piling Layout & Sequence Plan



London Underground Tunnel Locations & Thames Water Sewer Location Plan



Temporary works at B1 Level



Preliminary Pile Design

Design

Quantity	Type	Characteristic Load (kN)			Length	Reinforcement
		Compression	Tension	Horizontal		
76	CFA	3200	0	0.5% Compression	23	8B25
76	RBP	2950	0	0.5% Compression	23	8B25
10	RBP	2850	2850	0.5% Compression	25	8B40

The piles are based on 750mm Nominal Diameter using 'Slip Casing' at 810mm OD casing with a 750mm Auger.

Our rates for rotary bored piling are based upon maximum temporary casing lengths of 5.0 being required, with piles being bored thereafter in dry and stable conditions.

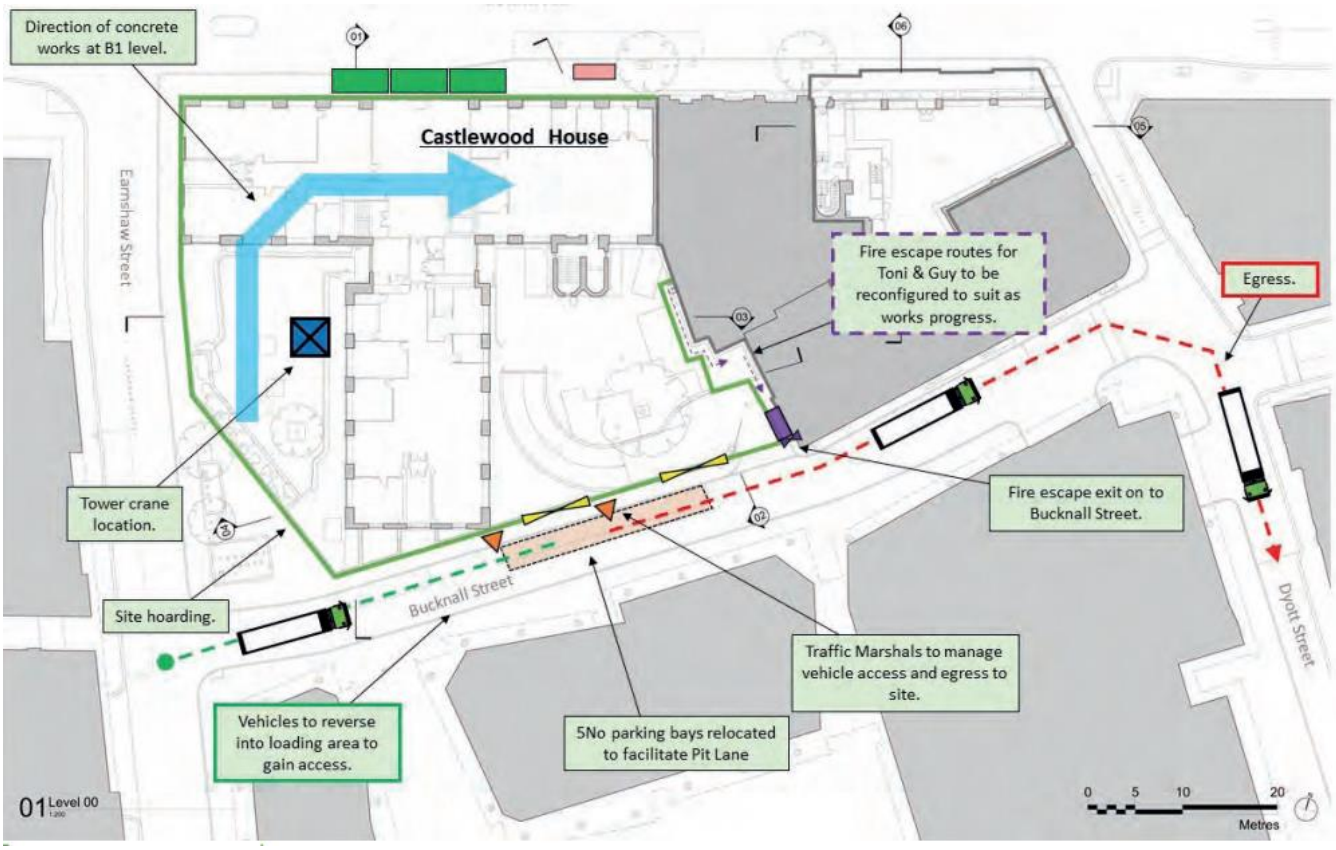
We have assumed the underside of B2 slab is at a level of 18.00 AOD and will be locally broken out and backfilled with a suitably compacted boreable material to a platform level of 22.400m AOD

We have allowed for the loads as specified including an allowances for piles with a cut off level below +16.775 to be subject to uplift in the temporary condition of 180kN Dead and 300kN Hydrostatic. No other loads such as heave have been allowed for, should the Engineer require heave loads to be accommodated they should be specified to us on the pile load schedule.

B1 Piling Works

B2 Piling Works

Construction Logistics Plan



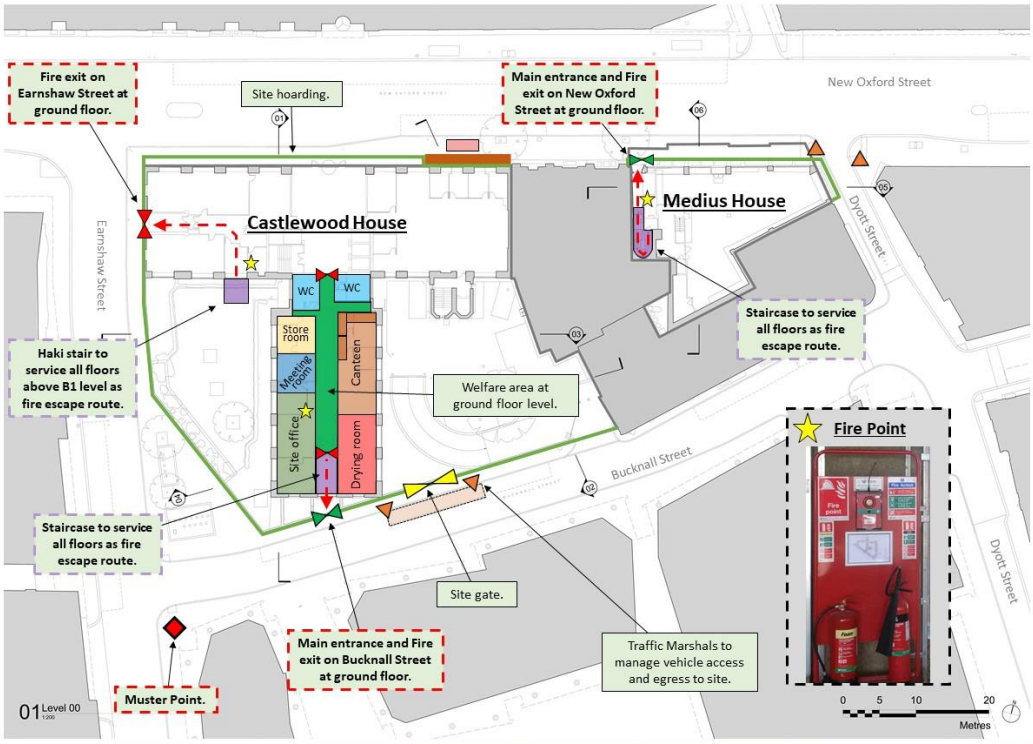
Section 4 – Resources	
Number of operatives anticipated to be on site and minimum to carry out the works safely:	
Driller / Supervisor (SMSTS, CPCS, Lift Supervisor, Slinger/signaller, Occupational Work Supervisor NVQ level 3, 1st Aider) Driller's Assistant (CPCS Piling Rig Attendant, Slinger / Signaller) Concrete Pump Operator/ grout plant operator (CPCS Trailer mounted concrete pump) Labourer (CSCS Construction site operative)	
Plant, equipment and materials to be used **To include details of inspection/certification requirements.**	
Hutte 204 MP	Yearly thorough examination certificate
Soilmec SR75 Continuous Flight Auger Rig	Yearly thorough examination certificate
Soilmec SR80 Rotary Bored Piling Rig	Yearly thorough examination certificate
Giken Rig/Still Worker Pile Press	Yearly thorough examination certificate
Concrete Pump	Yearly thorough examination certificate
Attendant excavator	Yearly Thorough examination certificate
Crawler Crane	Yearly Thorough examination certificate

Section 5 – Access / Egress / Work at Height					
Details of access and egress to work areas:					
Access to the works areas is via the designated site routes, ramps and/or staircases. All routes are to be kept clear of tools, materials waste and leads at all times					
Specific detailed description of safe working at heights/prevention of falls:					
Hierarchy for managing and selecting equipment for work at height.					
	Equipment	**Selected Equipment**			**Details of use, also give reasons why equipment is not used.**
		To be used	**N/A**	**Not suitable**	
1	MEWPS Scissor lifts, cherry pickers etc.			✓	
2	Scaffolding/Fixed Guardrails	✓			To be fixed to all leading edges/open excavations
3	Mobile Towers			✓	
4	Safe Stands			✓	
5	Podium/access platform with guardrails.			✓	
6	Stepladders			✓	
7	Ladders			✓	
8	System Safety Decking			✓	
9	Nets/Airbags other soft landing systems			✓	
10	Safety Harness/Safety Lines			✓	

Section 6 – Protective Measures								
Protection needed for any other persons								
Other employees (✓ if required yes/no)	**Yes**	**No**	Employees of others (✓ if required yes/no)	**Yes**	**No**	Members of the Public (✓ if required yes/no)	**Yes**	**No**
	✓			✓			✓	
Detail procedures								
Exclusion zones as described in section 3. External scaffold to all open elevations fully protected to prevent items of debris falling to the lifts below.								
Signage			Is site specific signage required? (✓ if required yes/no)			Yes	No	
Detailed below						✓		
Full details below								

Section 7 – Emergency Procedures

Ground Floor Fire Plan



Castlewood House and Medius House Ground Floor Fire Plan

For out of hours emergency contact		
First Name	**Surname**	**Contact Number**
Steve	Gillam	07930 545969
Who will be the First Aider on site		
First Name	**Surname**	**Training Course/Date**
Steve	Gillam	FAW Expires 30/09/2022

Section 8 – Materials Handling & Storage

Site specific arrangements for delivery, stacking, storing and movement on site of plant/materials

Waste generated during these works will be removed via the existing ramp, where it will be loaded away using an excavator equipped with a bucket attachment.

Is a manual assessment required (✓ if required yes/no)	Yes	No
	✓	

Manual Handling Details

Moving rubble/soil using shovel and wheel barrow.
Moving materials for core drilling activities.
Stacking of reinforcement.

Section 9 – Environmental Considerations
Environmental controls
Breaking to be carried out during the Camden City Council designated noisy working hours- 0800-1000, 1200-1400 & 1600-1800. Dust to be damped down using water.
Description/frequency of clearance of debris.
Waste will be cleared during quiet times to a designated area.

Section 10 – Noise / Vibration / COSHH
PPE, Noise assessment, Vibration assessment (HAVS), COSHH assessments and permit to work procedures

Is a noise assessment required? (✓ if required yes/no)	**Yes**	✓	**No**	

Full details below: Hand tools detailed below. Heavy plant TBC in CMP & Section 61 Noise predictions.

Type of machine	Name of machine	dB (A) max. at source	Area of use	Ear protection requirements and type
Combi Drill	Makita 8391DWKPETK	85dB +	All Areas	BS EN 353 part 3 – SRN30
Angle Grinder	Makita GA9020	85dB +	All Areas	BS EN 353 part 3 – SRN30
Demolition Breaker	Hilti TE1000	85dB +	All Areas	BS EN 353 part 3 – SRN30
Disc Cutter	Evolution Disc Cutter	85dB +	All Areas	BS EN 353 part 3 – SRN30

Is a vibration assessment required? (✓ if required yes/no)	**Yes**		**No**	

Full details below

Type of Machine	Name of Machine	Vibration Level m/s^2	Exposure limit and control measure
Combi Drill	Makita 8391DWKPETK	2.5	EAV 8 hours
Demolition Breaker	Hilti TE1000	6.5	EAV 1 hour 11 minutes ELV 4 hour 44 minutes Operatives to rotate works.
Disc Cutter	Evolution Disc Cutter	6.5	EAV 1 hour 11 minutes ELV 4 hour 44 minutes Operatives to rotate works.

Is a COSHH noise assessment required? (✓ if required yes/no)	Yes	✓	No	

Full details below			
Type of Materials	**Manufacturer**	**Hazard/effect**	**Exposure limit and control measure**
Silica Dust	N/A	Silicosis, irritant	Damp down with water, wear FFP3 half mask and suitable eye protection.
Concrete			

Section 11 – Permit to Work				
Permit to work required (✓ if required yes/no)				
Permit to/type	**Yes**	**No**	**Location on Site**	**Details when used**
Hot works		✓		
Confined Space		✓		
Access		✓		
Excavate	✓		Basement	Prior to penetrating ground and then in accordance with permit system.
Work on or near electrical equipment		✓		
Other				

Section 12 – PPE				
Detail any personal protective equipment required (PPE)				
PPE Item	**Yes**	**No**	**Type**	**Details when used**
Safety Footwear	✓		Steel toecap with mid sole protection safety boots	At all times
Head Protection	✓		Only helmets to BS 5240 or EN 397 less than 3 years old will be worn	At all times
Hi-Vis clothing	✓		Hi-visibility vest	At all times
Gloves, include type	✓		General site use (EN420 minimum)	At all times
Eye Protection	✓		Light eye protection (EN166)	At all times
Ear Protection	✓		BS EN 353 part 3 – SRN30	During breaking

Respiratory Protection	✓		FFP1		FFP2		FFP3	✓	During breaking and clearing rubble

Section 13 – Specific Training / Competence Requirements		
Competent person/supervision/training		
First Name	**Surname**	**Training/level of competence**
Steve	Gillam	NVQ L6 CCDO & CSCS Manager
Training/site induction procedures		
Inductions are held daily at 08:30AM. Operatives must be briefed on their RAMS and take signed acceptance sheet along with copies of relevant cards.		

Section 14 – Changes to Authorised Methodology

Procedures for changing or departing from method statements

Changes to the method statement may be carried out by the site supervisor only after prior authorisation from a member of Deconstruct (UK) Ltd management, preferably the person who prepared the original Plan of Work, or the following nominated Directors;

- Mick Durie
- Sam Peck

All changes will be recorded on the site generated method statement; this will be given a reference number, date and name of person who authorised changes.

In the event of significant change, the project will cease and plan of work shall be withdrawn. The project shall be re-evaluated by the relevant Contracts Manager and the revised method statement submitted to the Client

Section 15 – Responsible persons

Name of competent person/s who prepared this method statement

Name	**Job Title**	**Signature**	**Date**
Steve Gillam	Project Manager		04/09/2019

Name and contact details of Health and Safety Officer/Manager or Consultant (Must include qualifications/membership of professional H&S body)

Name	**Contact Details**	**Qualifications/membership of professional H&S body**
Marc Smith	07889 726344	CMIOSH MIIRSM

Section 16 – Method Statement Briefing / Acceptance Record				
Names of all operatives involved in this operation – MS002 Rev 00 **N.B. To be completed by all operatives involved in the works after Site Supervisor has explained the contents.**				
First Name	**Surname**	**Job Title**	**Signature**	**Date**

Section 16 – Method Statement Briefing / Acceptance Record				
Names of all operatives involved in this operation – MS002 Rev 00 **N.B. To be completed by all operatives involved in the works after Site Supervisor has explained the contents.**				
First Name	**Surname**	**Job Title**	**Signature**	**Date**